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SG388/D
Rev. 10, Jan-2009

Selection. Service. Support.
Power Solutions from ON Semiconductor

Master Components Selector Guide

Including Former ADI and AMIS Products

ON Semiconductor Master Components Selector Guide

Power Management, Amplifiers and Comparators, Drivers, Analog Switches,
Thermal Managers, DSP Systems, Memory, EMI/RFI Filters, Bipolar
Transistors, FETs, Diodes, Rectifiers, Thyristors, Clock Managers,
Differential Logic (ECL), Standard Logic, and Interfaces

SG388/D
Rev. 10, January–2009



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NOTE: The **Tape & Reel Specification** information has been moved to its own publication. Please see ON Semiconductor brochure, BRD8011/D, for information on Tape & Reel.

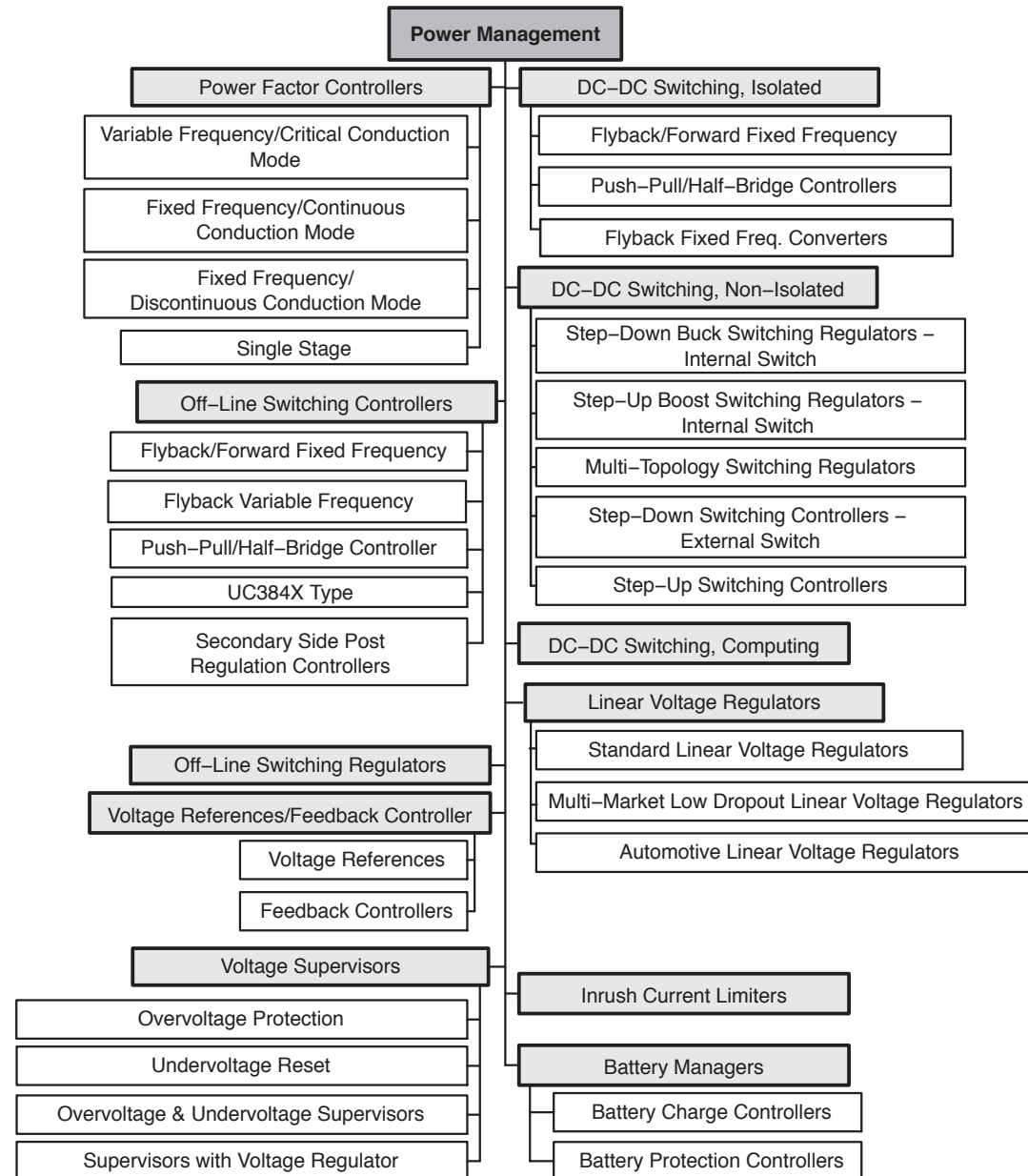
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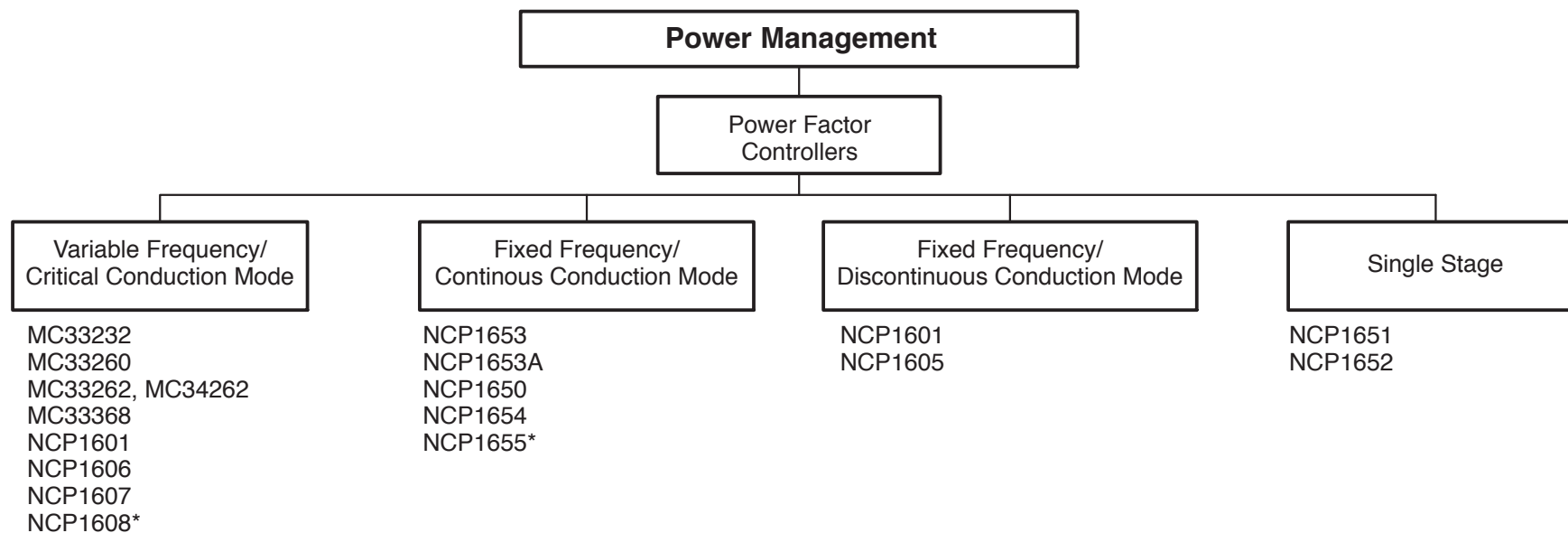
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ON Semiconductor's Analog Integrated Circuits





*Coming Soon.

VARIABLE FREQUENCY / CRITICAL CONDUCTION MODE

Device	Control Mode	Topology	Freq Clamp Freq Max (kHz)	Min HV Startup Limit (V)	Under Voltage Lock-Out (V)	Max Startup Consumption (μA)	Current Limit Detection	Latch	Under Voltage Protection	In-Rush Detection	Enable Capability	Synchronization Capability	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Pack-ages
MC33232	Voltage Mode	Boost	NO	N/A	10 to 16 Typ.	50	Current Sensing	NO	Fixed	NO	NO	NO	16	300 / 300	-20 to +85	SO-8, PDIP-8
MC33260	Voltage Mode	Boost and Follower Boost	NO	N/A	8.5 to 11 Typ.	250	Current Sensing	Fixed	Fixed	YES	YES	NO	16	500 / 500	-40 to +105	SO-8, PDIP-8
MC33262	Current Mode	Boost	NO	N/A	8 to 13 Typ.	400	Current Sensing	Fixed	NO	NO	YES	NO	30	500 / 500	-40 to +105	SO-8, PDIP-8
MC34262	Current Mode	Boost	NO	N/A	8 to 13 Typ.	400	Current Sensing	Fixed	NO	NO	YES	NO	30	500 / 500	0 to +85	SO-8, PDIP-8
MC33368	Current Mode	Boost	YES	YES	8.5 to 13 Typ.	N/A	Current Sensing	Fixed	NO	NO	YES	NO	16	1000 / 1000	-25 to +125	SO-16, PDIP-16
NCP1601	Voltage Mode	Boost	405	N/A	9 to 13.75 Typ. 9 to 10.5 Typ.	40	Negative Current Sensing	Fixed	Fixed	YES	N/A	YES	18	500 / 800	-40 to +125	SO-8, PDIP-8
NCP1606	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program-mable	Fixed	NO	YES	NO	20	500 / 800	-40 to +125	SO-8, PDIP-8
NCP1607	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program-mable	Fixed	NO	YES	NO	20	500 / 800	-40 to +125	SO-8
NCP1608*	Voltage Mode	Boost	600	N/A	9.5 to 12 Typ.	50	Current Sensing	Program-mable	Fixed	NO	YES	NO	20	500 / 800	-40 to +125	SO-8

FIXED FREQUENCY / CONTINUOUS CONDUCTION MODE

Device	Control Mode	Topology	Switching Freq (kHz)	Under Voltage Lock-Out (V)	Max Start-up Consumption (μA)	Over Power Limitation	Current Limit Detection	Brown Out Protection	Latch	Under (Output) Voltage Protection	In-Rush Detection	Enable Capability	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Pack-ages
NCP1650	Average Current Mode	Boost	Adjustable 25 to 250	10 to 10.5 Typ.	80	NO	Negative Current Sensing	YES	Fixed	NO	NO	YES	20	1500 / 1500	-40 to +125	SO-16
NCP1653	Average Current Mode or Peak Current Mode	Boost and Follower Boost	67	8.7 to 13.25 Typ.	50	YES	Program mable Negative Current Sensing	NO	Fixed	Fixed	YES	YES	18	1000 / 1000	-40 to +125	SO-8, PDIP-8
NCP1653A	Average Current Mode or Peak Current Mode	Boost and Follower Boost	100	8.7 to 13.25 Typ.	50	YES	Program mable Negative Current Sensing	NO	Fixed	Fixed	YES	YES	18	1000 / 1000	-40 to +125	SO-8, PDIP-8
NCP1654	Average Current Mode	Boost	Adjustable 65 to 266	9 to 13.75 9 to 10.5	150	YES	Current Sensing	YES	YES	YES	YES	YES	25	1500 / 1500	-40 to +125	SO-8
NCP1655*	Average Current Mode	Boost	Adjustable 65 to 266	9 to 13.75 9 to 10.5	150	YES	Current Sensing	YES	YES	YES	YES	YES	25	1500 / 1500	-40 to +125	SO-8

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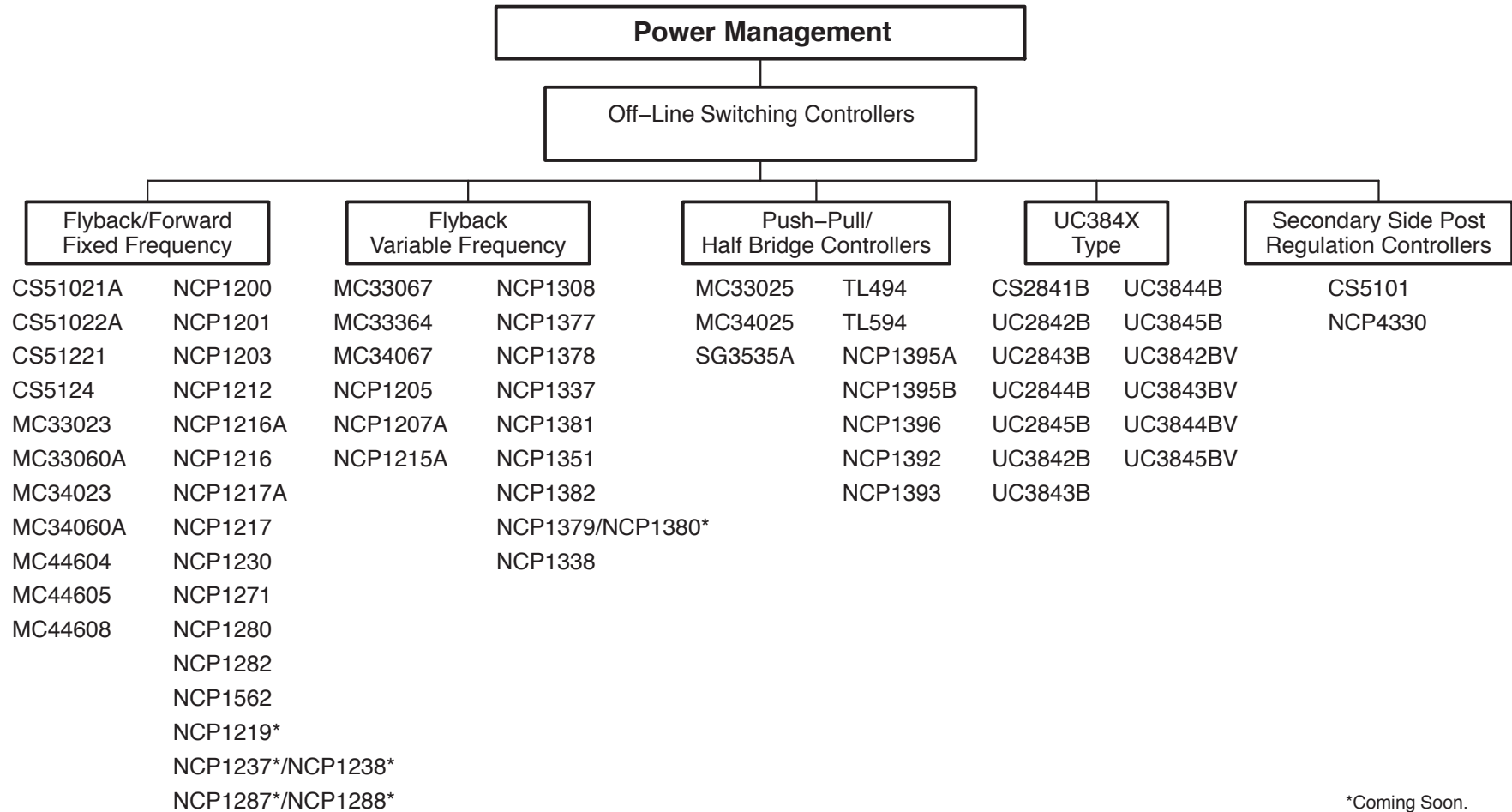
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FIXED FREQUENCY / DISCONTINUOUS CONDUCTION MODE

Device	Control Mode	Topology	Switching Freq (kHz)	Min HV Startup Limit (V)	Under Voltage Lock-Out (V)	Startup Con-sumption (μA)	Current Limit Detection	Latch	Under (Output) Voltage Protection	In-Rush Detection	Main PWM Turn On Signal	Enable Capability	Max V _{CC} (V)	Drive Capability Source/ Sink (mA)	Temp (°C)	Pack-ages
NCP1601	Voltage Mode	Boost	58	N/A	9 to 13.75 Typ. 9 to 10.5 Typ.	40	Negative Current Sensing	Fixed	Fixed	YES	N/A	YES	18	500 / 800	-40 to +125	SO-8, PDIP-8

SINGLE STAGE

Device	Control Mode	Topology	Switching Freq (kHz)	Standby Mode Technique	Min HV Startup Limit (V)	Under Voltage Lock-Out (V)	Max Start-up Con-sumption (mA)	Current Limit Detection	Under (Output) Voltage Protection	Enable Capability	Max V _{CC} (V)	Drive Capability Source/ Sink (mA)	In-Rush Detection	Temp (°C)	Pack-ages
NCP1651	Average Current Mode	Boost	Adjustable 25 to 250	N/A	N/A	9.8 to 10.8 Typ.	5.5	Current Sensing	YES	YES	18	1500 / 1500	N/A	-40 to +125	SO-16
NCP1652	Average Current Mode	Boost	100	Adj Skip Mode	40	11 to 14 Typ.	100	Current Sensing	YES	YES	20	300 / 700	N/A	-40 to +125	SO-16



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FLYBACK / FORWARD FIXED FREQUENCY

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Technique	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock-Out (V)	Short Circuit Protection	Over Power Compensation	Brown-Out Protection	Latch	Soft-Start (ms)	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages	Additional Features
CS51021A	Current Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	20	1,000	–40 to +85	SO–16	Bidirectional Synchronization
CS51022A	Current Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	20	1,000	–40 to +85	TSSOP–16, SO–16	100 μ A Max Sleep Current
CS51221	Voltage Mode	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	Via the Latch / Demag	Adj	15	1,000	–40 to +85	SO–16	
CS5124	Current Mode	400	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	20	200	–40 to +105	SO–8	
MC33023	Voltage or Current	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	30	200	–40 to +105	SO–16 WB	
MC34023	Voltage or Current	Adjustable	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	30	200	0 to +70	PDIP–16	
MC33060A	Voltage Mode	200	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	42	200	–40 to +85	SO–14, PDIP–14	
MC34060A	Voltage Mode	200	N/A	NO	NO	NO	YES	YES	NO	NO	NO	Adj	42	200	0 to +70	SO–14, PDIP–14	
MC44604	Current Mode	250	N/A	YES	14.5	NO	YES	NO	NO	NO	Via the Latch / Demag	Adj	18	750	–25 to +85	PDIP–16	
MC44605	Current Mode	250	N/A	NO	14.5	NO	YES	NO	NO	NO	Via the Latch / Demag	Adj	18	750	–25 to +85	PDIP–16	
MC44608	Voltage Mode	100, 40, 75	N/A	Secondary Reconfig.	50	NO	10 to 13.1 Typ.	NO	YES	NO	Via the Latch / Demag	NO	16	800 / 800	–25 to +85	PDIP–8	
NCP1200	Current Mode	100, 40, 60	± 0.7	Adj Skip Mode	30	4	N/A	When DSS is used	NO	NO	NO	NO	16	250 / 250	–25 to +125	SO–8, PDIP–8	
NCP1201	Current Mode	100, 60	0.82	Adj Skip Mode	30	5.3	10.5 to 12.5 Typ.	When DSS is used	NO	YES	NO	NO	16	250 / 250	–25 to +125	SO–8, PDIP–8	
NCP1203	Current Mode	100, 40, 60	N/A	Adj Skip Mode	30	NO	7.8 to 12.8 Typ.	NO	NO	NO	NO	NO	16	250	–40 to +125	SO–8, PDIP–8	
NCP1212	Current Mode	Adj	N/A	Adj Skip Mode	NO	NO	10 to 25 Typ.	YES	NO	YES	Via the Latch / Demag	NO	28	100 / 300	–25 to +125	SO–8, PDIP–8	
NCP1216A	Current Mode	133, 100, 65	± 4	Adj Skip Mode	30	8	NO	When DSS is used	NO	NO	NO	1.00	16	500	0 to +125	SO–8, PDIP–7	Limited Duty Cycle to 50%
NCP1216	Current Mode	133, 100, 65	± 4	Adj Skip Mode	30	8	NO	When DSS is used	NO	NO	NO	NO	16	500	0 to +125	SO–8, PDIP–7	

FLYBACK / FORWARD FIXED FREQUENCY (CONTINUED)

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Technique	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock-Out (V)	Short Circuit Protection	Over Power Compensation	Brown-Out Protection	Latch	Soft-Start (ms)	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages	Additional Features
NCP1217A	Current Mode	133, 100, 65	N/A	Adj Skip Mode	30	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	1.00	16	500	0 to +125	SO-8, PDIP-7	Limited Duty-Cycle to 50%
NCP1217	Current Mode	133, 100, 65	N/A	Adj Skip Mode	30	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	NO	16	500	0 to +125	SO-8, PDIP-7	
NCP1219*	Current Mode	65, 100	± 7.5	Adj. Skip Mode	20	13	9.5 to 12.6 Typ	YES	NO	NO	Via the Latch Demag	4	20	500 / 800	-40 to +125	SO-7	HV Startup up to 500V
NCP1230	Current Mode	133, 100, 65	± 6.4	Adj Skip Mode	20	NO	7.7 to 12.6 Typ.	YES	NO	NO	Via the Latch / Demag	2.50	18	500 / 800	-40 to +125	SO-8, PDIP-7	
NCP1237*/NCP1238*	Current Mode	65, 100, 133	± 6	Freq. Foldback and Soft-Skip	30	8	9.5 to 12 Typ	NO	YES	YES	YES	4	30	400 / 650	-40 to +125	SO-7	HV Startup up to 500V
NCP1271	Current Mode	65, 100	± 7.5	Adj Skip Mode with Transient Load Detection	20	NO	12.6 to 20 Typ.	YES	NO	NO	Via the Latch / Demag	4	20	500 / 800	-40 to +125	SO-7	
NCP1280	Voltage Mode	Adjustable	NO	NO	25	13.8	YES	NO	NO	NO	Via the Latch / Demag	Adj	16	95 / 200	-40 to +125	SO-16	
NCP1282	Voltage Mode	230	N/A	NO	NO	NO	8.5 to 11 Typ.	NO	NO	NO	Line UV OV detectors	Adj	20	1000 / 2000	-40 to +125	SO-16	HV Startup up to 500V
NCP1287/NCP1288	Current Mode	65, 100, 133	± 6	Freq. Foldback and Soft-Skip	30	NO	10.5 to 16 Typ	NO	YES	YES	YES	4	30	400 / 650	-40 to +125	SO-7	HV Startup up to 500V
NCP1562	Voltage Mode	230	N/A	NO	NO	NO	7 to 10.3 Typ.	NO	NO	NO	Line UV OV detectors	Adj	20	1000 / 2000	-40 to +125	SO-16	HV Startup up to 100V

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FLYBACK VARIABLE FREQUENCY

Device	Control Mode	Freq Clamp Max On Time (μs)	Freq Clamp Min Off Time (μs)	Standby Mode Technique	Min HV Start-Up Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock-Out (V)	Short Circuit Protection	Over Power Compensation	Brown-Out Protection	Latch	Soft-Start (ms)	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages
MC33067	Voltage Mode	Adj	Adj	NO	NO	NO	9 to 16 Typ.	YES	NO	NO	NO	Adj	20	200 / 200	–40 to +85	SO–16, PDIP–16
MC34067	Voltage Mode	Adj	Adj	NO	NO	NO	9 to 16 Typ.	YES	NO	NO	NO	Adj	20	200 / 200	0 to +70	SO–16, PDIP–16
MC33364	Current Mode	NO	6.9	Freq Clamp	40	NO	7.6 to 15 Typ.	NO	NO	NO	NO	NO	16	220 / 600	–25 to +125	SO–8, SO–16
NCP1205	Current Mode	NO	NO	Frequency Foldback	40	NO	7.2 to 15 Typ.	YES	NO	NO	Adj	NO	30	300 / 300	–25 to +125	SO–16, PDIP–14, PDIP–8
NCP1207A	Current Mode	NO	8	Adj Skip Mode	40	7	9.8 to 10.4 Typ.	YES	NO	NO	Via the Latch / Demag	1	16	500 / 500	–40 to +125	SO–8, PDIP–8
NCP1215A	Quasi Fixed Ton	Fixed Ton	Variable Toff	Frequency Foldback	NO	NO	9 to 15 Typ.	NO	NO	NO	NO	NO	18	30 / 30	0 to +105	SO–8, TSOP–6
NCP1308	Current Mode	NO	10	Adj Skip Mode	40	7	9.8 to 12 Typ.	YES	NO	NO	Fixed on the V _{CC}	1	16	500 / 500	0 to +125	SO–8
NCP1337	Current Mode	67	35	Soft-Ripple Mode	55	9.5	10 to 12 Typ.	YES	YES	YES	Via the Latch / Demag	4	20	500 / 500	0 to +125	SO–7, PDIP–7
NCP1338	Current Mode	67	35	Soft-Ripple Mode	55	9.5	10 to 12 Typ.	YES	YES	YES	Via the Latch / Demag	4	20	500 / 500	0 to +125	SO–7 PDIP–7
NCP1351	Current Mode	Fixed Ton	Variable Toff	Adj Skip Mode	NO	NO	8.5 to 15 Typ.	YES	NO	NO	NO	NO	20	300 / 150	0 to +125	SO–8, PDIP–8
NCP1377	Current Mode	NO	3, 8	Adj Skip Mode	40	NO	7.6 to 12.8 Typ.	NO	NO	NO	Via the Latch / Demag	1	16	500 / 500	0 to +125	SO–7, PDIP–7
NCP1378	Current Mode	NO	8	Adj Skip Mode	40	NO	7.6 to 8.5 Typ.	NO	NO	NO	Via the Latch / Demag	1	16	500 / 500	0 to +125	SO–8, PDIP–7
NCP1379*/NCP1380*	Current Mode	NO	NO	Freq. Feedback	NO	NO	9 to 15 Typ.	YES	YES	YES	A&C Versions	4	28	500 / 800	–40 to +125	SO–8
NCP1381	Current Mode	45	8	Adj Skip Mode	NO	NO	10 to 15 Typ.	YES	YES	YES	Via the Latch / Demag	5	20	500 / 800	0 to +125	SO–14
NCP1382	Current Mode	45	8	Adj Skip Mode	NO	NO	10 to 15 Typ.	YES	YES	YES	Via the Latch / Demag	5	20	500 / 800	0 to +125	SO–14

*Coming Soon.

PUSH-PULL / HALF-BRIDGE CONTROLLERS

Device	Control Mode	Switching Freq (kHz)	Standby Mode Technique	Max Duty Cycle (%)	Under-voltage Lock-Out (V)	Short Circuit Protection	Latch	Internal Ref Voltage (V)	Enable Capability	Soft-Start (ms)	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages	Additional Features
MC33025	Voltage & Current mode	1000	NO	45	9.2 & 4.2	YES	NO	5.1	NO	Adj	30	200 / 200	–40 to +105	SO–16, PDIP–16	
MC34025	Voltage & Current mode	1000	NO	45	9.2 & 4.2	YES	NO	5.1	NO	Adj	30	200 / 200	0 to +70	SO–16, PDIP–16	
NCP1392	Current	250	NO	50	9	NO	NO	3.5	YES	Adj	16 Clamped	500 / 1000	–40 to +125	SO–8	Brown-Out Protection
NCP1393	Current	250	NO	50	9	NO	YES	3.5	NO	Adj	16 Clamped	500 / 1000	–40 to +125	SO–8	Brown-Out Protection
NCP1395A	Voltage	1000	Adj Skip Mode	52	9.3	NO	YES	2	YES	Adj	20	180/180	0 to +125	SO–16, PDIP–16	
NCP1395B	Voltage	1000	Adj Skip Mode	52	9.3	NO	YES	2	YES	Adj	20	180/180	0 to +125	SO–16, PDIP–16	
NCP1396	Voltage	500	Skip Cycle Possible (A)	50	9.5	NO	YES	2	YES	Adj	20	500 / 1000	–40 to +125	SO–15, PDIP–15	
SG3525A	Voltage	400	NO	49	7	NO	NO	5.1	YES	Adj	40	400 / 400	0 to +70	SO–16, PDIP–16	
TL494	Voltage	200	NO	48	6.43	NO	NO	5	NO	Adj	40	500 / 500	40 to +125 0 to +70 –40 to +85	SO–16, PDIP–16	
TL594	Voltage	300	NO	50	5.2	NO	NO	5	NO	Adj	42	500 / 500	–40 to +85	SO–16, PDIP–16, TSSOP–16	

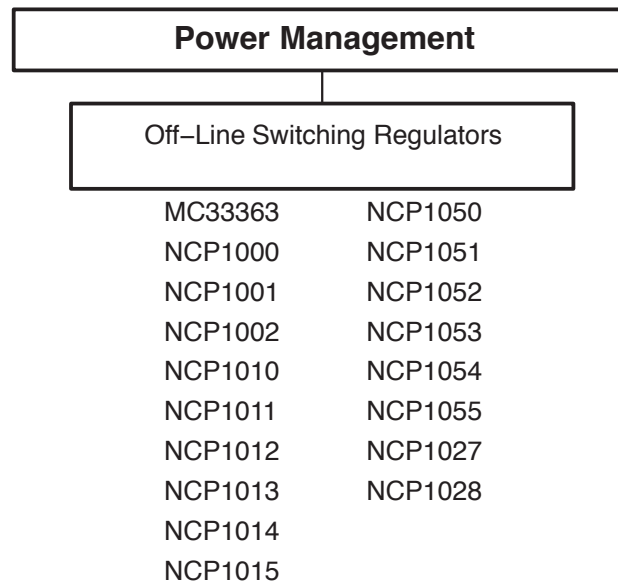
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UC384X TYPE

Device	Control Mode	Switching Freq (kHz)	Standby Mode Technique	Max Duty Cycle (%)	Undervoltage Lock-out (V)	Short Circuit Protection	Latch	Internal Ref Voltage (V)	Soft-Start (ms)	Max V _{CC} (V)	Drive Capability Source/Sink (mA)	Temp (°C)	Packages
CS2841B	Current Mode	52	NO	50	7.4 to 8 Typ.	YES	N/A	5	NO	40	200 / 200	–40 to +85	SO–14, PDIP–8
UC2842B	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC2843B	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC2844B	Current Mode	52	NO	48	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC2845B	Current Mode	52	NO	48	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	–25 to +85	SO–14, SO–8, PDIP–8
UC3842B	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	NO	30	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3843B	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	NO	30	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3844B	Current Mode	52	NO	50	10 to 16 Typ.	YES	N/A	5	NO	25	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3845B	Current Mode	52	NO	50	7.6 to 8.5 Typ.	YES	N/A	5	NO	25	200 / 200	0 to +70	SO–14, SO–8, PDIP–8
UC3842BV	Current Mode	52	NO	96	10 to 16 Typ.	YES	N/A	5	YES	30	200 / 200	–40 to +105	SO–14, SO–8
UC3843BV	Current Mode	52	NO	96	7.6 to 8.5 Typ.	YES	N/A	5	YES	30	200 / 200	–40 to +105	SO–14, SO–8
UC3844BV	Current Mode	52	NO	50	10 to 16 Typ.	YES	N/A	5	YES	25	200 / 200	–40 to +105	SO–14, SO–8
UC3845BV	Current Mode	52	NO	50	7.6 to 8.5 Typ.	YES	N/A	5	YES	25	200 / 200	–40 to +105	SO–14, SO–8

SECONDARY SIDE POST REGULATION CONTROLLERS

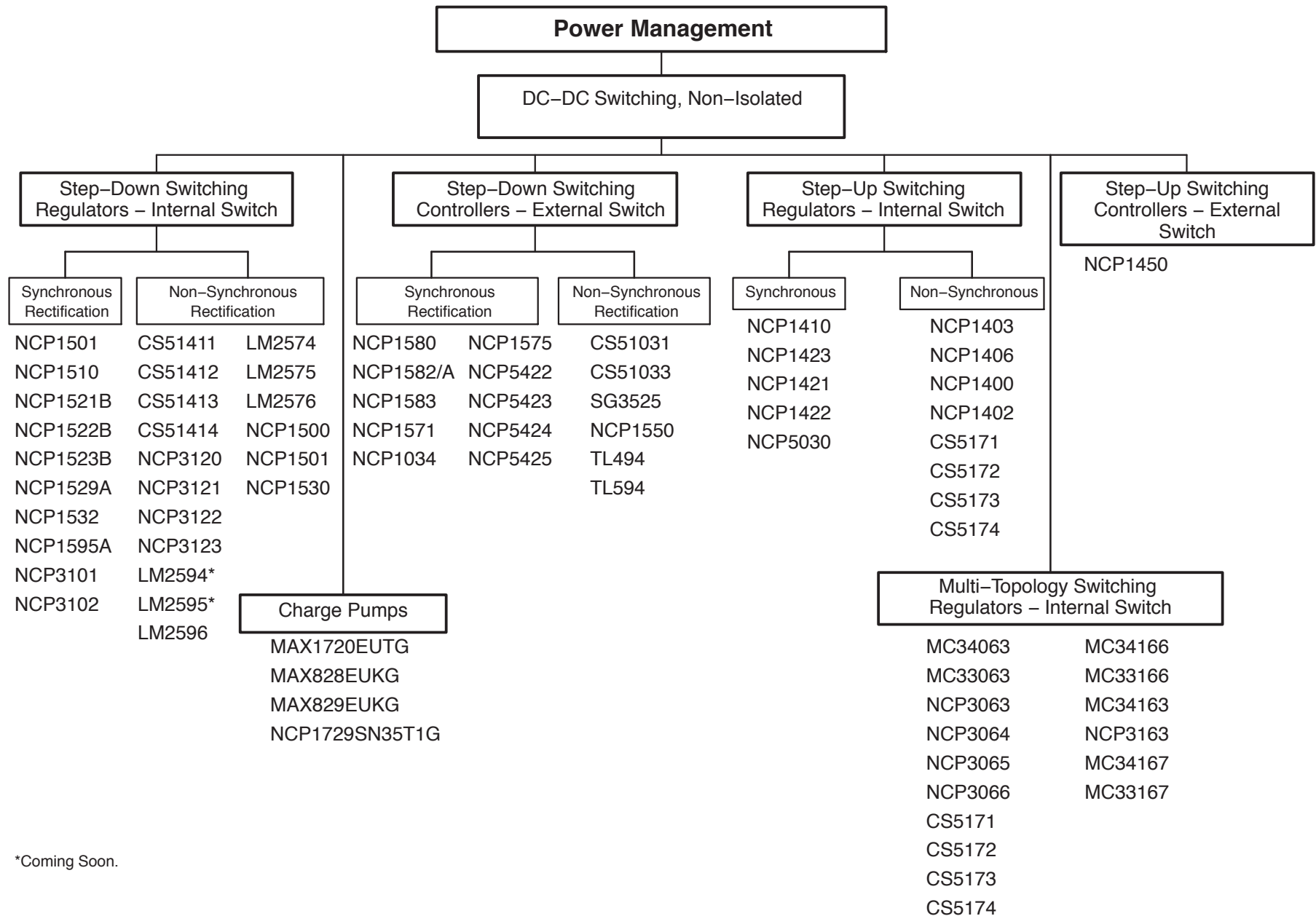
Device	IC Operating Voltage	Converter Input Voltage	Output Voltage	Output Driver	Freq.	Temp. (T _A)	Features	Package
CS5101	ULVO: 7.0/8.0 V Max: 45 V	(V _{gate} max: 75 V)	(V _{REF} = 2.0 V)	1.5 A	SYNC	–40 to +85°C	- Voltage mode - Configured as either buck or boost with external NFET - Externally programmable overcurrent protection 5.0 V 2% reference pin	DIP–14
NCP4330	Max: 45 V	–	–	–	–	–40 to +125°C	Bootstrap for N–MOSFET High Side Drive	SO–8



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OFF-LINE SWITCHING REGULATORS

Device	Control Mode	Switching Freq (kHz)	Freq Jittering (%)	Standby Mode Tech-nique	R _{DS(on)} Typ (Ω)	Max Break-down Voltage (V)	Max Internal Current Set Point (mA)	Min HV Startup Limit (V)	Dynamic Self Supply (mA)	Under-voltage Lock-out (V)	Short Circuit Protec-tion	Over Power Com-pensa-tion	Brown -Out Protec-tion	Latch	Temp (°C)	Pack-ages	Com-ments
MC33363	Voltage Mode	285	N/A	NO	14	700	400	9	NO	9.5 to 15.2 Typ.	NO	NO	NO	NO	-25 to +150	SO-16, PDIP-16	
NCP1000	Voltage Mode	100	N/A	Skip Mode	18	700	500	20	NO	7.5 to 8.5 Typ.	NO	NO	NO	NO	-40 to +125	PDIP-8	
NCP1001	Voltage Mode	100	N/A	Skip Mode	9	700	1000	20	NO	7.5 to 8.5 Typ.	NO	NO	NO	NO	-40 to +125	PDIP-8	
NCP1002	Voltage Mode	100	N/A	Skip Mode	6	700	1500	20	NO	7.5 to 8.5 Typ.	NO	NO	NO	NO	-40 to +125	PDIP-8	
NCP1010	Current Mode	65, 100, 130	± 3.3	Skip Mode	22	700	100	30	8.5	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP-7, SOT-223	
NCP1011	Current Mode	65, 100, 130	± 3.3	Skip Mode	22	700	250, 450	30	8.5	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP-7, PDIP-7 SMT, SOT-223	
NCP1012	Current Mode	65, 100, 130	± 3.3	Skip Mode	11	700	250	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP-7, PDIP-7 SMT, SOT-223	
NCP1013	Current Mode	65, 100, 130	± 3.3	Skip Mode	11	700	350	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP-7, SOT-223	
NCP1014	Current Mode	65, 100, 130	± 3.3	Skip Mode	11	700	450	30	8	7.5 to 8.5 Typ.	When DSS is used	NO	NO	YES	0 to +125	PDIP-7, PDIP-7 SMT, SOT-223	
NCP1015	Current Mode	65, 100	± 3.3	Skip Mode	11	700	450	30	8	7.5 to 8.5 Typ.	When DSS is Used	No	No	Yes	0 to +125	PDIP-7, SOT-223	
NCP1027	Current Mode	65,100	± 6.0	Skip Mode	5.6	700	800	30	N/A	7.2 to 8.5 Typ.	YES	YES	YES	YES	0 to +125	PDIP-7	
NCP1028	Current Mode	65,100	± 6.0	Skip Mode	5.6	700	800	30	N/A	7.2 to 8.5 Typ.	YES	YES	YES	YES	0 to +125	PDIP-7	No OVP on V _{CC} Pin
NCP1050	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	30	700	100	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	
NCP1051	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	30	700	200	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	
NCP1052	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	30	700	300	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	
NCP1053	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	15	700	400	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	
NCP1054	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	15	700	530	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	
NCP1055	Gated Oscillator	45.5, 103, 140	± 5.0	Skip Mode	15	700	680	20	6.3	7.5 to 8.5 Typ.	YES	NO	NO	YES	-40 to +150	PDIP-7, SOT-223	



*Coming Soon.

ON Semiconductor Selector Guide – Power Management

STEP-DOWN SWITCHING REGULATORS – INTERNAL SWITCH

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	I _{OUT} (A)	F _{sw} (kHz)	Mode	Enable	Soft-Start	Comments	Temp Range (°C)	Package
	Min	Max									
NCP3102	4.5	13.2	Down to 0.8 V	10 A	275	Voltage	✓	✓	Highly integrated 10 A output	–40 to +85	QFN–40
NCP3101	4.5	13.2	Down to 0.8 V	6.0 A	275	Voltage	✓	✓	Highly integrated 6 A output	–40 to +85	QFN–40
MC33167	7.0	40	Down to 5.0 V	5.0 A	72	Voltage			Large 5.0 A output capability	–40 to +85	D2PAK / TO–220
MC34167	7.0	40	Down to 5.0 V	5.0 A	72	Voltage			Standby Mode < 36 μ A	0 to +70	D2PAK / TO–220
MC33166	7.5	40	Down to 5.0 V	3.0 A	72	Voltage			Internal thermal shutdown	–40 to +85	D2PAK / TO–220
MC34166	7.5	40	Down to 5.0 V	3.0 A	72	Voltage			Cycle-by-Cycle current limit	0 to +70	D2PAK / TO–220
LM2576	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	3.0 A	52	Voltage	✓		No external compensation required	–40 to +125	D2PAK / TO–220
NCP3121/ NCP3123	4.5	13.2	Down to 0.8 V	3.0/3.0 A	200–750 200–2200	Voltage	✓	✓	Auto tracking and sequencing; 180° Out-of-phase operation	–40 to +85	QFN–32
NCP3120/ NCP3122	4.5	13.2	Down to 0.8 V	2.0/2.0 A	200 – 750 200–2200	Voltage	✓	✓	Auto tracking and sequencing; 180° Out-of-phase operation	–40 to +85	QFN–32
NCP1532	2.7	5.5	0.9 – 3.3 V	1.6	2250	Current	✓	✓	Dual buck auto PFM/PWM. Synchronous rectification.		Thin DFN–10
CS5171	2.7	30	1.276 to 40 V	1.5 A	280	Current		✓	LT1372/1373 Compatible	–40 to +85	SO–8
CS5172	2.7	30	–2.5 to 40 V	1.5 A	280	Current		✓	Flyback & SEPIC	–40 to +85	SO–8
CS5173	2.7	30	1.276 to 40 V	1.5 A	560	Current		✓	Easy External Synchronization	–40 to +85	SO–8
CS5174	2.7	30	–2.5 to 40 V	1.5 A	560	Current		✓	Negative feedback polarity	–40 to +85	SO–8
CS51411	4.5	40	Down to 1.276 V	1.5 A	260	Voltage	✓	✓	Sync capability; Pin-Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51412	4.5	40	Down to 1.276 V	1.5 A	260	Voltage	✓	✓	External Bias; Pin-Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51413	4.5	40	Down to 1.276 V	1.5 A	520	Voltage	✓	✓	Sync capability; Pin-Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
CS51414	4.5	40	Down to 1.276 V	1.5 A	520	Voltage	✓	✓	External Bias; Pin-Compatible with LT1375 and LT1376	–40 to +85	SO–8 / DFN–8
NCP1595A	4.0	5.5	Down to 0.8 V	1.5 A	1200	Current	✓	✓	Internal compensation; Synchronous Rectification	0 to +85	DFN–6
NCP5030	2.7	5.5	2.2–5.5 V	1.2 A	1000	Current	✓	✓	Buck/ Boost Converter – can supply either regulated current or regulated output voltage	–40 to +85	DFN–12
LM2575	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	1.0 A	52	Voltage	✓		No external compensation required	–40 to +125	D2PAK / TO–220
NCP1529A	2.7	5.5	Adj(0.9–3.3 V)	1.0 A	1700	Current	✓	✓	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6
LM2574	4.75	40	3.3,5,12,15, Adj(1.23 to 37 V)	0.5 A	52	Voltage	✓		No external compensation required	–40 to +125	D2PAK / TO–220
NCP1422	1.0	5.0	1.5–5.0 V	800 mA	1200	Current	✓	✓	PFM mode. Synchronous Rectification, True-cutoff, Low-battery detect	–40 to +85	DFN–10
NCP1421	1.0	5.0	1.5–5.0 V	600 mA	1200	Current	✓	✓	PFM Sync-rect, True-cutoff, Low-battery detect	–40 to +85	Micro8™
NCP1521B	2.7	5.5	0.9 – 3.3 V	600 mA	1500	Current	✓	✓	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6
NCP1522B	2.7	5.5	0.9 – 3.3 V	600 mA	3000	Voltage	✓	✓	Auto PWM/ PFM mode. Synchronous Rectification	–40 to +85	Thin SOT–23–5, Thin DFN–6
NCP1523B	2.7	5.5	0.9 – 3.3 V	600 mA	3000	Voltage	✓	✓	PWM mode. Synchronous Rectification	–40 to +85	Micro-Bump–8

STEP-DOWN SWITCHING REGULATORS – INTERNAL SWITCH (CONTINUED)

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	I _{OUT} (A)	F _{sw} (kHz)	Mode	Enable	Soft-Start	Comments	Temp Range (°C)	Package
	Min	Max									
NCP1530	2.7	5	2.5, 2.7, 3.0, 3.3 V	600 mA	600 – 1200	Current	✓	✓	Automatic PWM mode. External Synchronization up to 1.2 MHz	–40 to +85	Micro8™
NCP1423	0.8	V _{out}	1.8 – 5.5 V	400 mA	600	Current	✓	✓	PFM mode. Synchronous Rectification, True-cutoff, Low-battery detect	–40 to +85	Micro–10
NCP1500	2.7	5.4	1.0, 1.3, 1.5, 1.8 V	300 mA	270 – 630	Current			PWM or Linear mode. Can be programmed to work in Linear LDO Regulator mode. External Sync.	–40 to +85	Micro8™
NCP1501	2.7	5.2	1.05, 1.35, 1.57, 1.8 V	300 mA	500–1000	Current			Synchronous Rectification. Can be programmed to work in Linear LDO Regulator mode. External Sync.	–40 to +85	Micro8™
NCP1510	2.5	5.2	1.05, 1.35, 1.57, 1.8 V	300 mA	450–1000	Current	✓	✓	Synchronous Rectification. Can be programmed to work in Low I _q (14 µA) Pulsed mode at light loads. External Sync.	–40 to +85	Micro–Bump–9
NCP1410	1.0	5.5	V _{in} to 5.5 V	250 mA	600	Current	✓		PFM mode. Synchronous Rectification, Low-battery detect	–40 to +85	Micro8™
NCP1402	0.8	5.5	1.8 – 5.0 V	200 mA	180	Voltage	✓	✓	PFM mode	–40 to +85	Thin SOT–23–5
NCP1400	0.8	5.5	1.9 – 5.0 V	100 mA	180	Voltage	✓	✓	PWM mode	–40 to +85	Thin SOT–23–5
NCP1403	1.2	5.5	up to 15 V	50 mA	300	Current	✓	✓	PFM mode	–40 to +85	Thin SOT–23–5
NCP1406	1.4	5.5	up to 25 V	50 mA	1000	Current	✓	✓	PFM mode	–40 to +85	Thin SOT–23–5
LM2594*	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	0.5 A	52	Voltage	✓		No external compensation required	–40 to +125	D ² PAK, TO–220
LM2595*	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	1.0 A	52	Voltage	✓		No external compensation required	–40 to +125	D ² PAK, TO–220
LM2596	4.75	40	3.3, 5, 12, 15 Adj (1.23 to 37 V)	3.0 A	52	Voltage	✓		No external compensation required	–40 to +125	D ² PAK, TO–220

*Coming Soon.

ON Semiconductor Selector Guide – Power Management

MULTI-TOPOLOGY (STEP-UP, STEP-DOWN, INVERTING) SWITCHING REGULATORS – INTERNAL SWITCH

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	I _{OUT} (A)	F _{SW} (kHz)	Enable	Mode	Step- Up	Step- Down	Step-Up/ Step- Down	Inv	Comments	Temp Range (°C)	Package
	Min	Max												
MC34063	3.0	40	Down to 1.25 V	1.5	up to 100	✓	Hysteresis	✓	✓	✓	✓	Simple and flexible regulator	0 to +70	SO-8 / PDIP-8
MC33063	3.0	40	Down to 1.25 V	1.5	up to 100	✓	Hysteresis	✓	✓	✓	✓	Minimal number of external components	-40 to +85	SO-8 / PDIP-8
NCP3063/N CP3063B/ NCP3064	3.0	40	Down to 1.25 V	1.5	up to 250	✓	Hysteresis	✓	✓	✓	✓	Higher F _{SW} for optimized size and efficiency. NCP3064 includes ENABLE.	0 to +70/ -40 to +85	PDIP/SO-8/ DFN-8/PDIP-8
NCP3065/N CP3066	3.0	40	Down to 0.2 V	1.5	up to 250	✓	Hysteresis	✓	✓	✓	✓	Driver for HB-LED/constant current source. NCP3066 includes ENABLE.	-40 to +85	DFN-8 / SO-8 / PDIP-8
CS5171	2.7	30	1.276 to 40 V	1.5	280		Current	✓			✓	LT1372/1373 Compatible	-40 to +85	SO-8
CS5172	2.7	30	-2.5 to 40 V	1.5	280		Current	✓			✓	Flyback and SEPIC	-40 to +85	SO-8
CS5173	2.7	30	1.276 to 40 V	1.5	560		Current	✓			✓	Easy External Synchronization	-40 to +85	SO-8
CS5174	2.7	30	-2.5 to 40 V	1.5	560		Current	✓			✓	Negative feedback polarity	-40 to +85	SO-8
MC34166	7.5	40	Down to 5.0 V	3.0	72		Voltage		✓	✓	✓	Cycle-by-Cycle current limit	0 to +70	D2PAK / TO-220
MC33166	7.5	40	Down to 5.0 V	3.0	72		Voltage		✓	✓	✓	Internal thermal shutdown	-40 to +85	D2PAK / TO-220
MC34163	2.5	40	Down to 1.25 V	3.4	up to 100	✓	Hysteresis	✓	✓	✓	✓	Simple & Flexible regulator	0 to +70	SO-16W / PDIP
MC33163	2.5	40	Down to 1.25 V	3.4	up to 100	✓	Hysteresis	✓	✓	✓	✓	Minimal number of external components	-40 to +85	SO-16W / PDIP
NCP3163	2.5	40	Down to 1.25 V	3.4	up to 300	✓	Hysteresis	✓	✓	✓	✓	Higher F _{SW} for optimized size and efficiency	0 to +70	SO-16WEP
NCP3163B	2.5	40	Down to 1.25 V	3.4	up to 300	✓	Hysteresis	✓	✓	✓	✓		-40 to +85	SO-16WEP
MC34167	7.0	40	Down to 5.0 V	5.0	72		Voltage		✓	✓	✓	Large 5.0A output capability	0 to +70	D2PAK/TO-220
MC33167	7.0	40	Down to 5.0 V	5.0	72		Voltage		✓	✓	✓	Standby Mode < 36 μ A	-40 to +85	D2PAK/TO-220

STEP-DOWN SWITCHING CONTROLLERS – EXTERNAL SWITCH

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	V _{OUT} Accuracy	F _{sw} (kHz)	Mode	Enable	Soft-Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
CS51031	4.5	16	Down to 1.25 V	2%	200 – 700	Hysteresis		✓		No compensation required ; PFET	–40 to +85	SO–8
CS51033	3.3	5.0	Down to 1.25 V	2%	200 – 700	Hysteresis		✓		No compensation required ; PFET	–40 to +85	SO–8
SG3525	8.0	35	Down to 5.1 V	1%	100 – 400	Voltage	✓	✓		Flexible configurations; ST Compatible	0 to +70	SO–16W
NCP1034	8.0	100	Down to 1.25 V	1.5%	25 – 500	Voltage			✓	1 A Gate Drive, Sync	–40 to +125	SOIC–16
NCP1580	4.5	15	Down to 0.8 V	1.5%	350	Voltage		✓	✓	1.5 A gate drive; 90% duty cycle	–40 to +85	SO–8
NCP1582/A	4.5	15	Down to 0.8 V	1.5%	350	Voltage	✓	✓	✓	0.7 A gate drive; Short Circuit Protection	–40 to +85	SO–8
NCP1583	4.5	15	Down to 0.8 V	1.5%	300	Voltage	✓	✓	✓	0.7 A gate drive; Short Circuit Protection	–40 to +85	SO–8
NCP1571	2.0	12	Down to 0.980 V	1.0%	200	Voltage	✓	✓	✓	12 V bias supply	0 to +125	SO–8
NCP1575	2.0	12	Down to 0.980 V	1.0%	200 – 500	Voltage		✓	✓	12 V bias supply	0 to +125	SO–8
NCP1550	2.5	5.5	1.8–3.3 V (factory prefixed)	2.0%	600	Voltage	✓	✓		Auto PWM/ PFM mode.	–40 to +85	Thin SOT–23–5

DUAL STEP-DOWN SWITCHING CONTROLLERS – EXTERNAL SWITCH

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	V _{OUT} Accuracy	F _{sw} (kHz)	Mode	Enable	Soft-Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
NCP5422	10.8	13.2	Down to 1.0 V	2.0%	150 – 600	Voltage	✓	✓	✓	Hiccup mode overcurrent protection	0 to +70	SO–16
NCP5423	10.8	13.2	Down to 1.0 V	1.0%	150 – 600	Voltage	✓	✓	✓	1% Voltage reference	0 to +70	SO–16
NCP5424	10.8	13.2	Down to 1.0 V	2.0%	150 – 600	Voltage	✓	✓	✓	Hiccup & cycle-by-cycle overcurrent	0 to +70	SO–16
NCP5425	4.6	13.2	Down to 0.8 V	1.0%	150 – 750	Voltage	✓	✓	✓	1.5 A peak drive capability	0 to +125	TSSOP–20
TL494	7.0	40	0.3 V Ext Adj	5.0%	Up to 200	Voltage				Buck, boost, forward, flyback	–40 to +125	SOIC–16, PDIP–16
TL594	7.0	40	0.3 V Ext Adj	1.5%	Up to 300	Voltage				Buck, boost, forward, flyback	–40 to +85	SOIC–16, PDIP–16, TSSOP–16

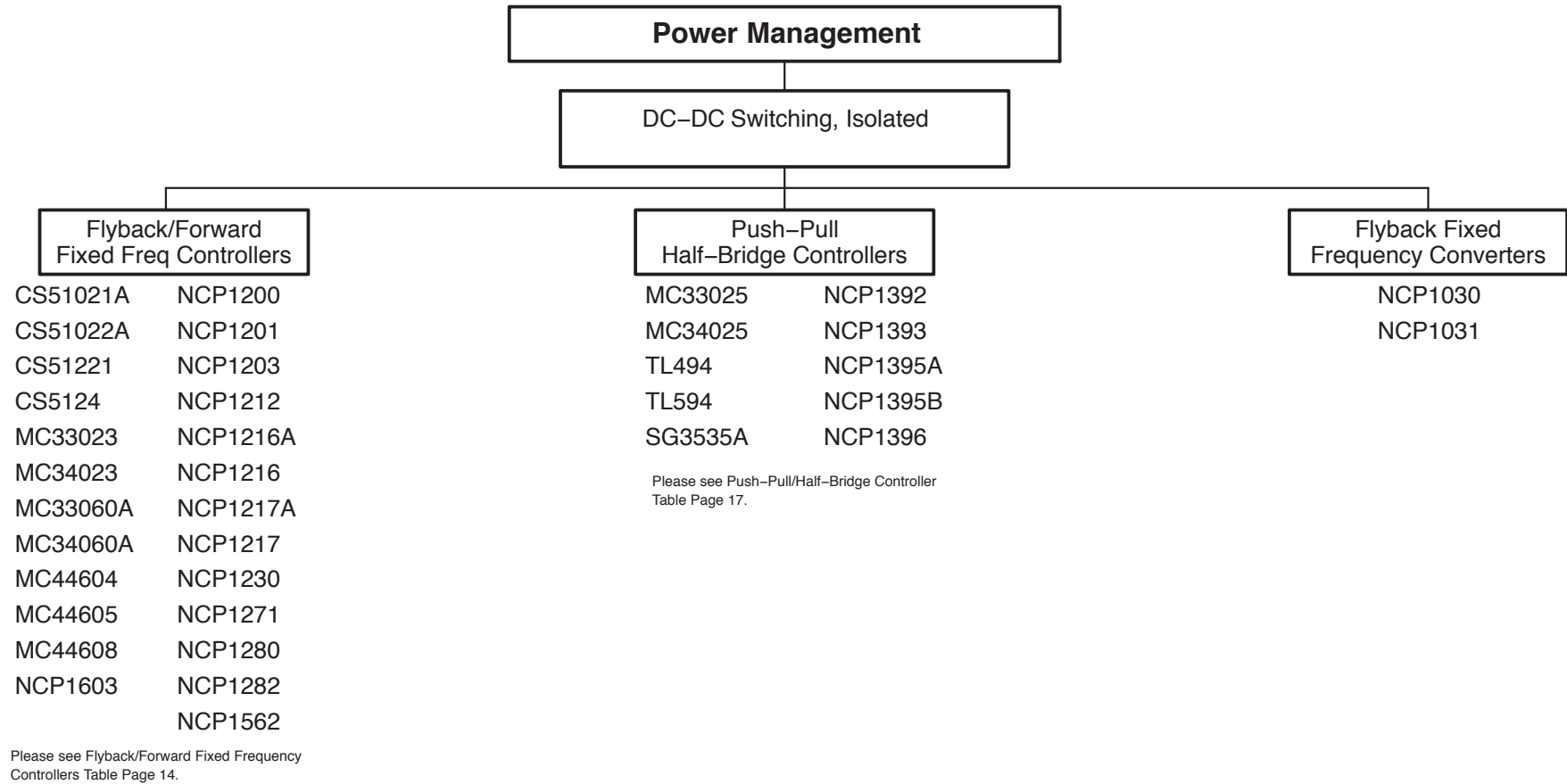
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STEP-UP SWITCHING CONTROLLERS – EXTERNAL SWITCH

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	V _{OUT} Accuracy	F _{SW} (kHz)	Mode	Enable	Soft-Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
NCP1450	0.9	5.5	1.8–5.0 V (Factory Prefixed)	2.5%	180	Voltage	✓	✓		PFM mode	–40 to +85	Thin SOT–23–5

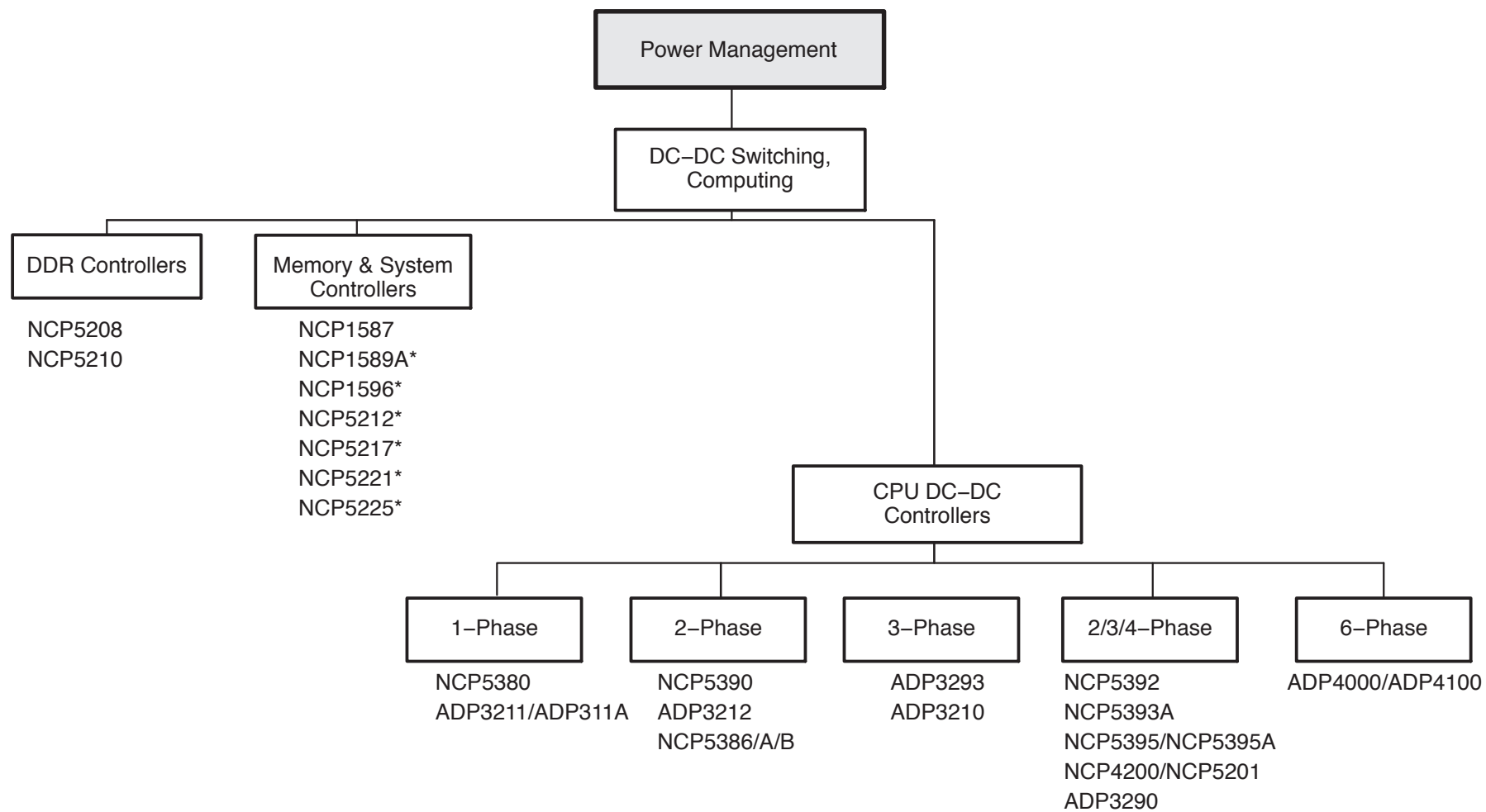
CHARGE PUMPS

Device	V _{in} Typ (V)	V _{out} Typ (V)	I _O Typ (mA)	I _{CC} Max (uA)	f _{osc} Typ (kHz)	Shutdown Pin	Package
MAX1720EUTG	1.15 to 5.5	–V _{in} or 2 V _{in}	90	90	12	Yes	TSOP–6
MAX828EUKG	1.15 to 5.5	–V _{in} or 2 V _{in}	50	90	12	No	TSOP–5 / SOT23–5
MAX829EUKG	1.15 to 5.5	–V _{in} or 2 V _{in}	50	20	35	No	TSOP–5 / SOT23–5
NCP1729SN35T1G	1.15 to 5.5	–V _{in} or 2 V _{in}	50	20	35	Yes	TSOP–6

**FLYBACK FIXED FREQUENCY CONVERTERS**

Device	V _{IN} (V)		V _{OUT} Options (Adj Range)	V _{OUT} Accuracy	F _{SW} (kHz)	Mode	Enable	Soft–Start	Synchronous	Comments	Temp Range (°C)	Package
	Min	Max										
NCP1030	10	200	2.5 up to V _{IN}	2%	up to 1000	Voltage Mode	✓	✓		PoE applications; Integrated Switch	–40 to +125	Micro8™
NCP1031	10	200	2.5 up to V _{IN}	2%	up to 1000	Voltage Mode	✓	✓		PoE applications; Integrated Switch	–40 to +125	SO–8

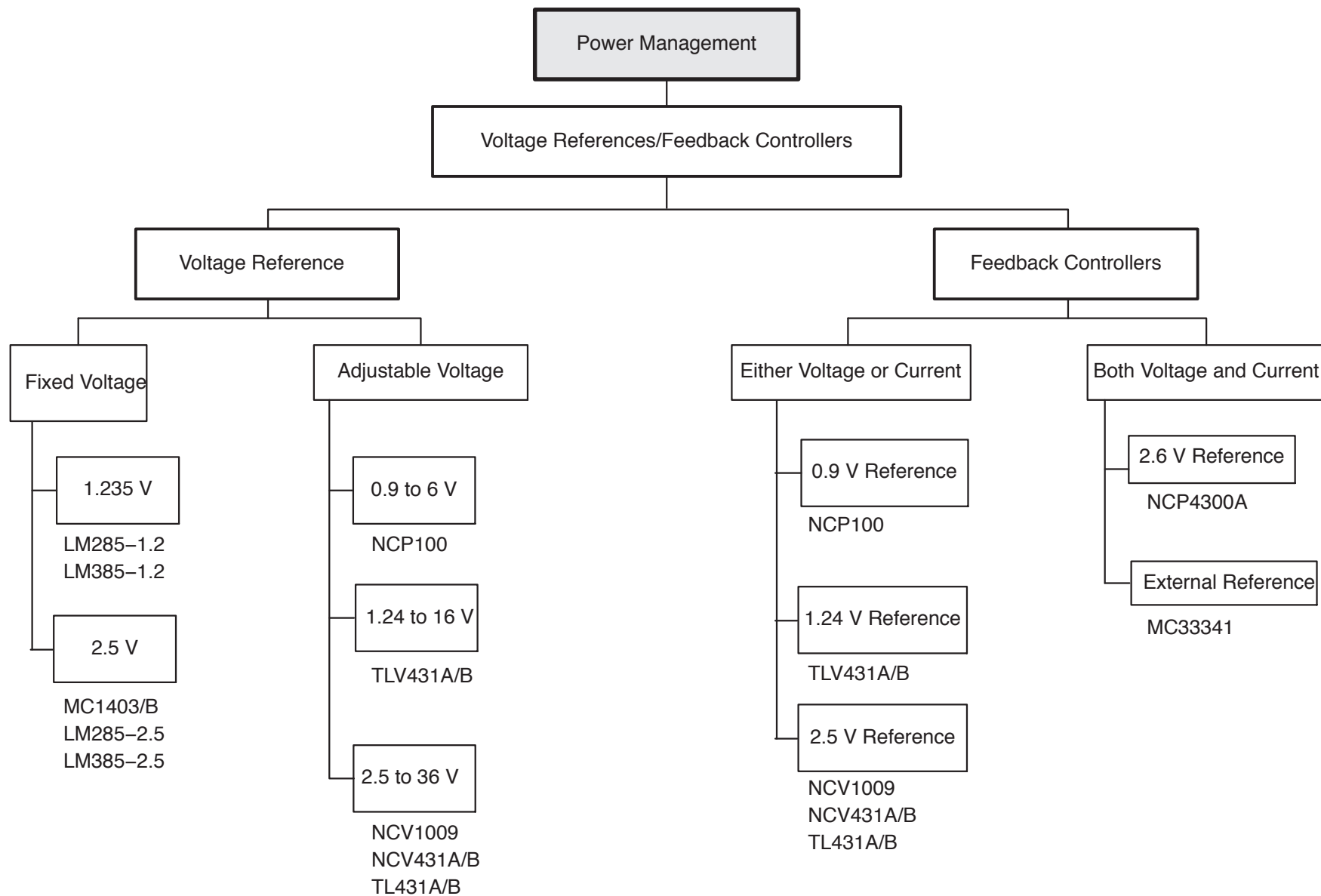
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*Coming Soon.

DC–DC SWITCHING, COMPUTING

Device	Description	Phases	Mode	V _{CC} Min (V)	V _{CC} Max (V)	f _{sw} Typ (kHz)	Package
ADP3290	VR11.1 4-Phase Solution	2/3/4	Current/Voltage Mode	6	14.5	100 - 1000	LFCSP-40
ADP3293	VR11.1 8-Bit, Programmable 2- to 3-Phase Synchronous Buck Controller	2/3	Current/Voltage Mode	6	14.5	100 - 1000	LFCSP-40
ADP4000	6-Phase VR11.1 Controller with PMbus	4/5/6	Current/Voltage Mode	4.7	5.75	250 - 9000	LFCSP-48
ADP4100	6-Phase VR11.1 Controller	4/5/6	Current/Voltage Mode	4.7	5.75	250 - 9000	LFCSP-48
NCP1587	Buck Controller	1	Voltage Mode	4.5	13.2	250 - 300	SOIC-8
NCP1587A	Buck Controller	1	Voltage Mode	4.5	13.2	180 - 220	SOIC-8
NCP5208	DDR-I/O Termination Regulator	1	Voltage Mode	1.7	5.5	-	SOIC-8
NCP5210	3-in-1 DDR Memory Controller	1	Voltage Mode	4.5	13.2	250	DFN-20
NCP5386	1/2 Phase Controller	1/2	Current/Voltage Mode	4.75	7	100 - 1000	QFN-32
NCP5386A	1/2 Phase Controller	1/2	Current/Voltage Mode	4.75	7	100 - 1000	QFN-32
NCP5386B	1/2 Phase Controller	1/2	Current/Voltage Mode	4.75	7	100 - 1000	QFN-32
NCP5392	VR11.1 4 Phase Controller	2/3/4	Current/Voltage Mode	4.75	5.25	100 - 1000	QFN-40
NCP5392P	VR11.1 4 Phase Controller	2/3/4	Current/Voltage Mode	4.75	5.25	100 - 1000	QFN-40



SERIES VOLTAGE REFERENCES

Part Number	Reference Voltage (V)	Tolerance $\pm$ (%)	Typical Temperature Coefficient (ppm/°C)	Typical Quiescent Current (mA)	Package		Operating Temperature Range (°C)
					SO-8	PDIP	
MC1403	2.500	1.0	10	1.200	✓	✓	0 to +70
MC1403B	2.500	1.0	10	1.200	✓	✓	-40 to +85

SHUNT VOLTAGE REFERENCES

Part Number	Reference Voltage (V)	Tolerance $\pm$ (%)	Typical Temperature Coefficient (ppm/°C)	Minimum Operating Current (mA)	Package						Operating Temperature Range (°C)
					SO-8	TO-92	Micro8	TSOP-5*	PDIP	SOT23-3	
LM285-1.2	1.235	1.0	80	0.010	✓	✓					-40 to +85
LM385-1.2	1.235	2.0	80	0.015	✓	✓					0 to +70
LM285-2.5	2.500	1.5	80	0.020	✓	✓					-40 to +85
LM385-2.5	2.500	3.0	80	0.020	✓	✓					0 to +70
LM385B-1.2	1.235	1.0	80	0.015	✓	✓					0 to +70
LM385B-2.5	2.500	1.5	80	0.020	✓	✓					0 to +70
NCV1009	2.500	0.2	–	–	✓	✓					-40 to +125
NCP100	Adjustable 0.9 to 6 V	1.0	25	0.100				✓			-40 to +85
TLV431A	Adjustable 1.24 to 16 V	1.0	–	0.050		✓		✓			-40 to +85
TLV431B	Adjustable 1.24 to 16 V	0.5	–	0.050		✓		✓		✓	-40 to +85
TL431C	Adjustable 2.495 to 36 V	2.2	50	0.500	✓	✓	✓		✓	✓	0 to +70
TL431I	Adjustable 2.495 to 36 V	2.2	50	0.500	✓	✓	✓		✓	✓	-40 to +85
TL431AC	Adjustable 2.495 to 36 V	1.0	50	0.500	✓	✓	✓		✓	✓	0 to +70
TL431A	Adjustable 2.495 to 36 V	1.0	50	0.500	✓	✓	✓		✓	✓	-40 to +85
TL431BC	Adjustable 2.495 to 36 V	0.4	50	0.500	✓	✓	✓		✓	✓	0 to +70
TL431BI	Adjustable 2.495 to 36 V	0.4	50	0.500	✓	✓	✓		✓	✓	-40 to +85
NCV431A	Adjustable 2.495 to 36 V	1.0	50	0.500	✓		✓				-40 to +125
NCV431B	Adjustable 2.495 to 36 V	0.4	50	0.500			✓				-40 to +125

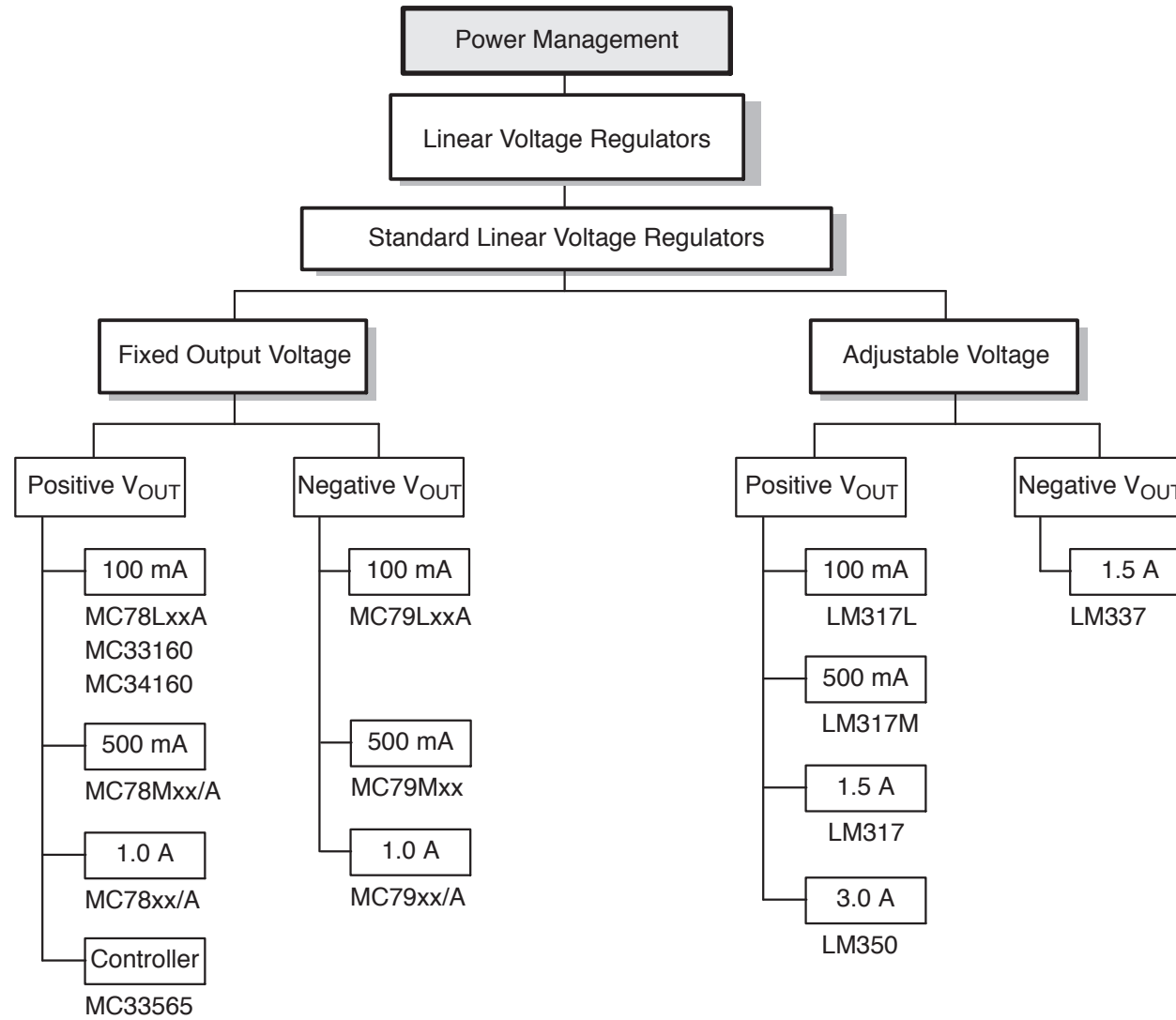
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STANDARD LINEAR VOLTAGE REGULATORS

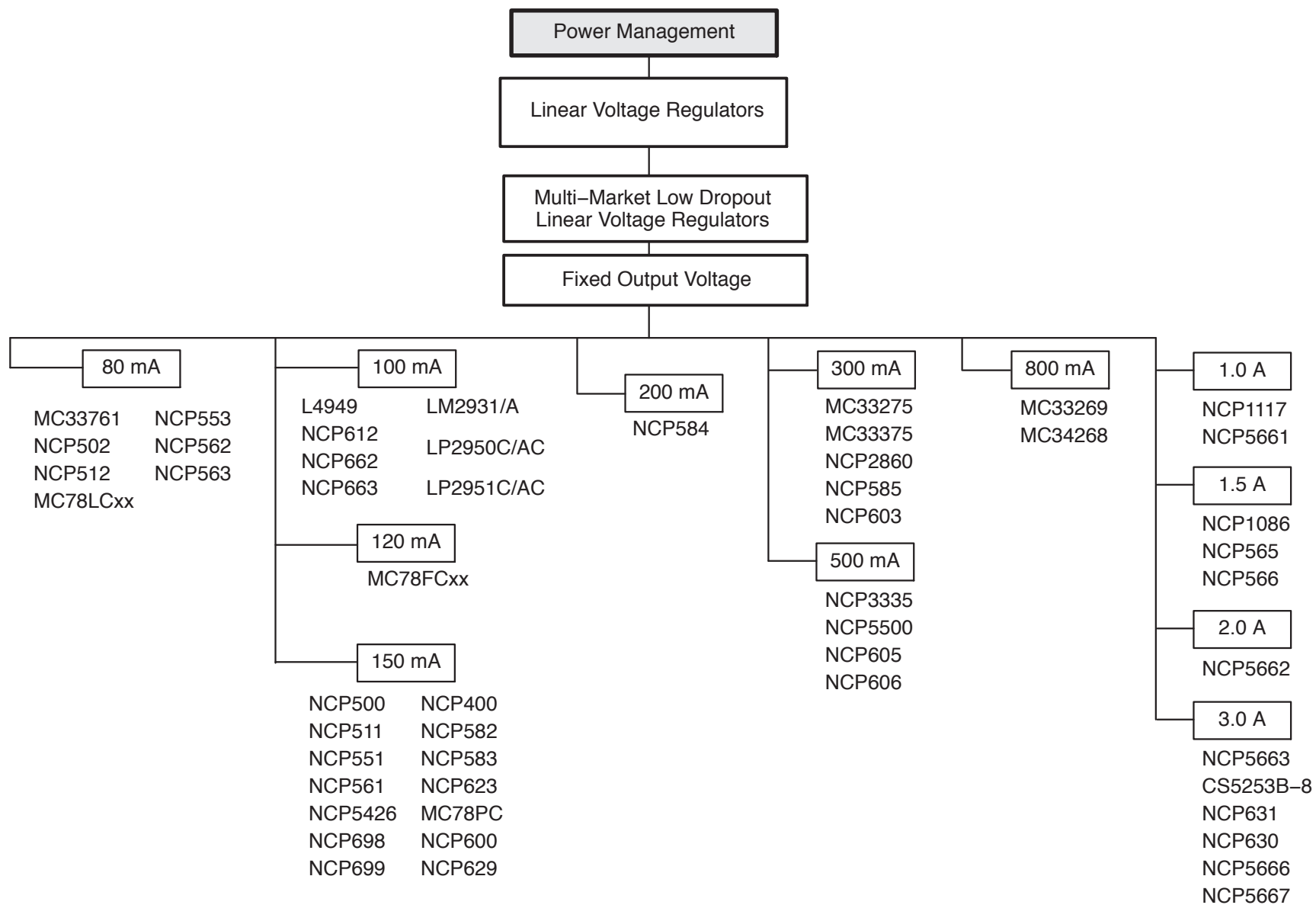
Device	I _{out} (mA)	Dropout* (Typ, mV)	Max Input Voltage (V)	Package(s)	V _{out}	Features
LM317L	100	2	40	SO-8, TO-92-3	Adj	Current & thermal protection
MC33160	100	2	40	SO-16, DIP-16	5 V	Enable, sense, reset
MC34160	100	2	40	SO-16, DIP-16	5 V	Enable, sense, reset
MC78LxxA	100	1.7	40	SO-8, TO-92-3	5, 8, 9, 12, 15, 18, 24 V	Current & thermal protection
MC79Lxx/A	100	1.7 (@ 40 mA)	-40	SO-8, TO-92-3	-(5, 12, 15, 18, 24) V	Current & thermal protection
MC33565 (Controller)	Note 1	Note 1	7	SO-8, Micro8	3.3 V	Controller, Auxillary control, Sense
LM317M	500	2.2	40	TO-220-3, DPAK-3, SOT-223-3	Adj	Current & thermal protection
MC78Mxx/A	500	2	40	TO-220-3, DPAK-3	5, 6, 8, 9, 12, 15, 18, 20, 24 V	Current & thermal protection
MC79Mxx/A	500	1.1	-35	TO-220-3, DPAK-3	-(5, 8, 12, 15) V	Current & thermal protection
MC78xx/A/AE	1.0 A	2	40	D2PAK-3, TO-220-3, DPAK-3	5, 6, 8, 9, 12, 15, 18, 24 V	Current & thermal protection
MC79xx/A	1.0 A	1.3	-40	TO-220-3, D2PAK-3	-(5, 5.2, 6, 8, 12, 15, 18, 24) V	Current & thermal protection
LM317	1.5 A	2.25	40	D2PAK-3, TO-220-3	Adj	Current & thermal protection
LM337	1.5 A	2.4	-40	TO-220-3, D2PAK-3	Adj	Current & thermal protection
LM350	3.0 A	2.7	35	TO-220-3	Adj	Current & thermal protection

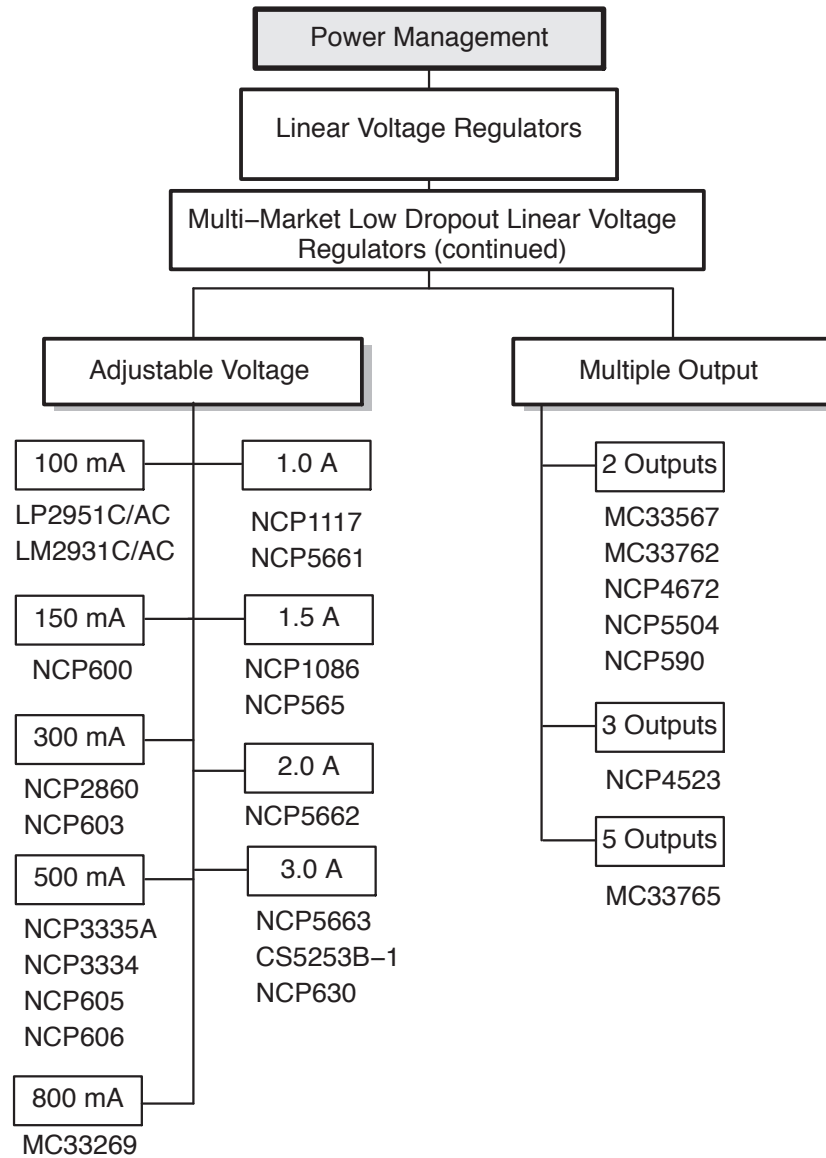
1. These electrical characteristics are determined by an external MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.



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SINGLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS

Device	I _{out} (mA)	Dropout* (Typ, mV)	I _q ** (Typ, μ A)	PSRR**** (dB)	Absolute Max Input Voltage (V)	Package(s)–Pins	V _{out}	Features
NCP698	150	370	2.5	–	6	SC82AB–4	1.3, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 3.5, 5 V	Enable, Ultra Low I _q
NCP699	150	320	40	55	6	SOT–23–5	1.3, 1.4, 1.5, 1.8, 2.5, 2.8, 3, 3.1, 3.3, 5 V	Enable
NCP5426	150	150	120	70 (@ 30 mA)	12	SOT–23–5	1.3 V	Enable, Vibrator driver
NCP584	200	100	3.5	75	6.5	SOT–23–5	0.9, 1.2, 1.5, 1.8, 2.5, 2.6, 2.8, 3, 3.1, 3.3 V	Enable, Tri–mode
MC33275	300	260	125	75	13	SO–8, DPAK–3, SOT–223–3, 4x4 DFN–8	2.5, 3, 3.3, 5 V	Tight line & load Reg.
MC33375	300	260	125	75	13	SO–8, SOT–223–3	1.8, 2.5, 3, 3.3, 5 V	Enable
NCP585	300	230	3.5	75 (@ 50 mA)	6.5	SOT–23–5, HSON–6	0.9, 1.0, 1.2, 1.25, 1.5, 1.8, 2.5, 2.8, 3, 3.3 V	Enable, Tri–mode
NCP2860	300	150	355	70	6	Micro8	Adj, 2.77 V	Low noise, Enable, Flag
NCP603	300	157	145	62	6.5	TSOP–5	Adj, 1.3, 1.5, 1.8, 2.8, 3, 3.3, 3.5, 5 V	Enable
NCP5500	500	230	300	75 (@ 100 mA)	18	DPAK–5, SO–8	Adj, 1.5, 3.3, 5 V	Enable, low noise
NCP5501	500	230	300	75 (@ 100 mA)	18	DPAK–3	1.5, 3.3, 5 V	Low noise
NCP3334	500	340 (max)	190 (max)	75	16	SO–8	Adj	Enable, High accuracy
NCP3335A	500	340 (max)	190 (max)	75	16	Micro8, 3x3 DFN–10	Adj, 1.5, 1.8, 2.5, 2.8, 2.85, 3.0, 3.3, 5 V	Enable, Ultra High accuracy
NCP605	500	170	145 (@ 500mA)	62	6.5	3x3.3 DFN–6	Adj, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 5 V	Enhanced ESD protection
NCP606	500	170	145 (@ 500mA)	62	6.5	3x3.3 DFN–6	Adj, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3, 5 V	Enable, Enhanced ESD protection
MC33269	800	1.1 V	5.5 mA	55	20	SO–8, DPAK–3, SOT–223–3, TO–220–3	Adj, 3.3, 5, 12 V	Current limit protection
MC34268	800	950 (@ 490 mA)	3.0 mA	55 (min)	15	SO–8, DPAK–3, SOT–223–3	2.85 V	SCSI–2 Active Terminator
NCP1117	1.0 A	1.07 V (@ 800 mA)	3.6 mA	64 (@ 500 mA)	20	DPAK–3, SOT–223–3	Adj, 1.5, 1.8, 1.9, 2, 2.5, 2.85, 3.3, 5, 12 V	Current limit protection
NCP5661	1.0 A	1.0 V	1.3 mA (@ 1 A)	70	18	DPAK–5, 3x3.3 DFN–6	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3 V	Enable, fast transient, flag
NCP565	1.5 A	900	1.5 mA (@ 1.5 A)	85	18	D2PAK–3/5, SOT–223–3, 3x3.3 DFN–6	Adj, 1.2, 1.5, 2.8, 3.0, 3.3 V	Fast transient, Ultra High PSRR

Bold Denotes NEW Products, Packages, and/or Voltage Options

Contact an ON Semiconductor Sales Representative for other voltage options or for automotive grade regulators.

2. These electrical characteristics are determined by an external MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** I_q was measured at 0 or 0.1 mA load unless noted

**** PSRR was measured at f = 120 Hz for V_{out} = 3.3 @ full load unless otherwise noted.

SINGLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS (CONTINUED)

Device	I _{out} (mA)	Dropout* (Typ, mV)	I _q ** (Typ, μ A)	PSRR**** (dB)	Absolute Max Input Voltage (V)	Package(s)–Pins	V _{out}	Features
NCP566	1.5 A	900	1.5 mA (@ 1.5 A)	85	9	SOT–223–3	1.2, 1.8, 2.5 V	Fast transient, Ultra High PSRR
NCP1086	1.5 A	1.05 V	5 mA (@ 10 mA)	80	7	D2PAK–3, TO–220–3, SOT–223–3	Adj, 3.3 V	Fast transient, Ultra High Accuracy
NCP5662	2.0 A	1.0 V	1.3 mA (@ 2 A)	70	18	D2PAK–5, 4x4 DFN–8	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3 V	Enable, fast transient, flag
CS5253/CS5253B	3.0 A	400	–	80	13	D2PAK–5	Adj, 2.5 V	Control, Sense, Ultra High PSRR
NCP630	3.0 A	1.0 V	0.4 mA (@ 300 mA)	88	12	D2PAK–5	Adj, 3.47 V	Enable, Fast transient, Ultra High PSRR
NCP631	3.0 A	1.0 V	0.4 mA (@ 300 mA)	76	9	D2PAK–5	3.47 V	Enable, Soft–Start
NCP5663	3.0 A	1.0 V	1.3 mA (@ 3 A)	70	18	D2PAK–5	Adj, 1.5, 1.8 V	Enable, fast transient, flag
NCP5666	3.0 A	1.0 V	1.8 mA (@ 3 A)	70	18	D2PAK–5	2.5, 5 V	Enable, Fast transient
NCP5667	3.0 A	1.0 V	2.4 mA (@ 3 A)	70	18	D2PAK–3	5 V	Enhanced ESD protection
NCP102 (Controller)	Note 2	Note 2	1.4 mA (@ V _{CC} = 5 V)	50 (min)	15	TSOP–6	Adj down to 0.8 V	Enable, MLCC and POSCAP Compatible
NCP3520 (Controller)	Note 2	Note 2	1.25 mA	72	7	Micro8	1.2 V	Controller, Enable, NRCS
NCP3521 (Controller)	Note 2	Note 2	1.25 mA	72	7	Micro8	1.5 V	Controller, Enable, NRCS

Bold Denotes NEW Products, Packages, and/or Voltage Options

Contact an ON Semiconductor Sales Representative for other voltage options or for automotive grade regulators.

2. These electrical characteristics are determined by an external MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** I_q was measured at 0 or 0.1 mA load unless noted

**** PSRR was measured at f = 120 Hz for V_{out} = 3.3 @ full load unless otherwise noted.

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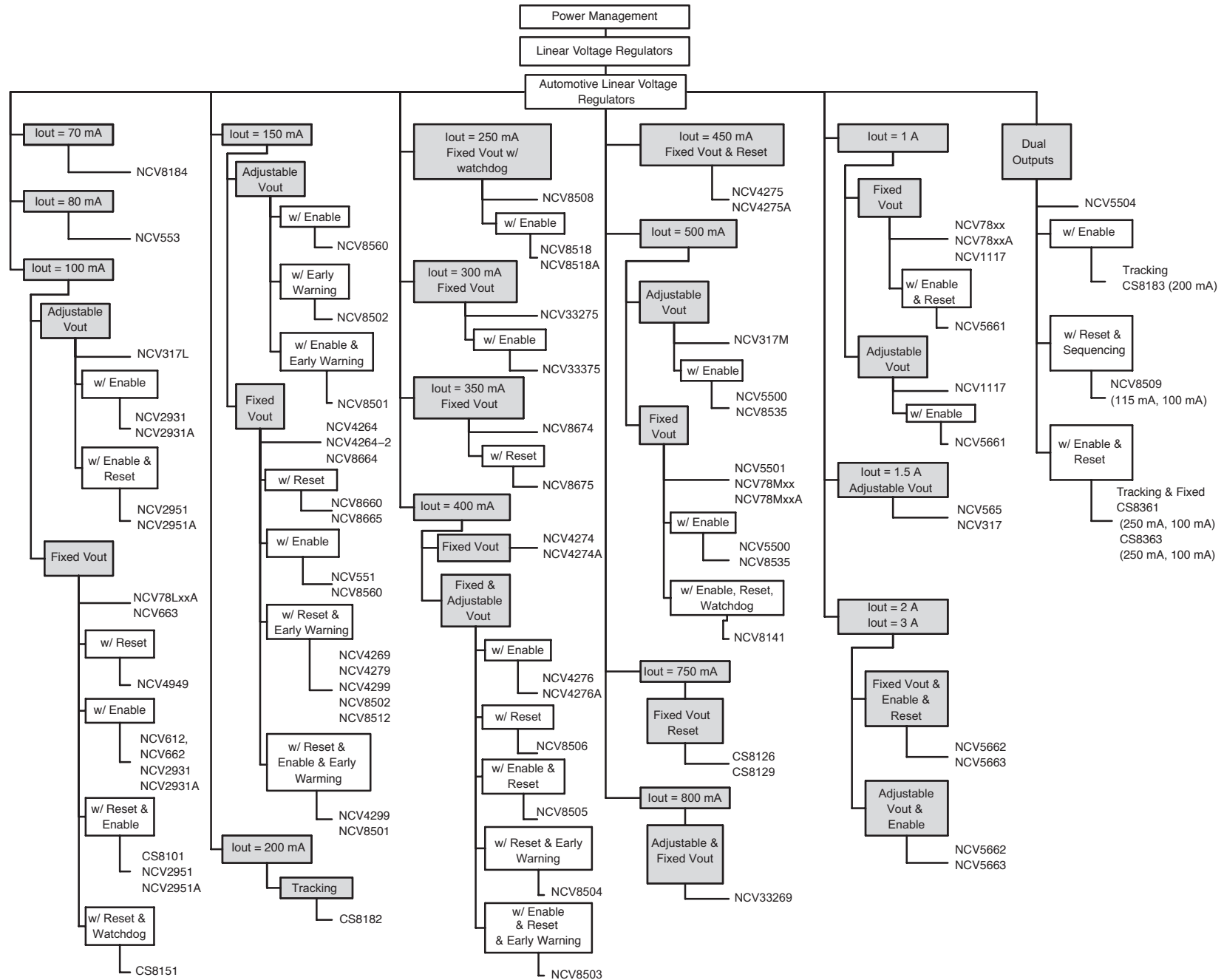
MULTIPLE OUTPUT LOW DROPOUT LINEAR VOLTAGE REGULATORS

Device	I _{out} (mA)	Dropout* (Typ, mV)	I _q ** (Typ)	Max Input Voltage (V)	Package	V _{out}	Features
MC33567 (Dual Controller)	Note 3	Note 3	6.3 mA	12.5	SO-8	1.8/1.5, 2.5/2.5, 2.3/1.2 V	Controller, Enable, Undervoltage detection
NCP4672 (Dual)	30, 80	150, — (@ 20mA)	1.0 mA	18	SO-8	3.5/1.8 V	Programmable delay, Reset
MC33762 (Dual)	80, 80	160, 160	180	12	Micro8	2.5/2.5, 2.8/2.8, 3/3 V	Enable, Fast off to on, low noise
NCP4523 (Triple)	150, 80, 80	220, 160, 160	210	7	SSOP-8	2.8/2.8/2.8, 3/3/3, 2.35/2.8/2.8 V	Tight line & load Reg., High PSSR
MC33765 (5 Outputs)	30, 40, 50, 150, 60	110, 110, 110, 170, 110	470	5.3	TSSOP-16	5 x 2.8 V	Enable, Byp Pin, Ultra Low noise
NCP5504 (Dual)	250, 250	250, 250	370	18	DPAK-5	3.3 / Adj V	Low noise, High PSSR
NCP590 (Dual)	300, 300	165, 165	115	5.5	2x2 DFN-8	Combinations ranging from 0.8 to 5V	Enable, Ultra High Accuracy, Ultra Low Dropout

3. These electrical characteristics are determined by an external MOSFET used in conjunction with the LDO controller.

*Voltage dropout was measured at full load for V_{out} = 3.3 V where applicable unless noted.

** I_q was measured at 0 or 0.1 mA load unless noted



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SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS

Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (♦♦ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
NCV8184	Tracking	± 3 mV	70 mA	0.6 V	20 µA	70 µA (100 µA)	♦						♦		♦	42 V	DPAK–5, SOIC–8, SOIC–8 ePad
NCV553	5	± 3%	80 mA	0.8 V	–	6 µA (1 mA)							♦		♦	12 V	SC–82
CS8101	5	± 2%	100 mA	0.6 V	50 µA	140 µA (100 µA)	♦	♦					♦	♦	♦	60 V	SOIC–8, SOIC–20 Fused
CS8151	5	± 2%	100 mA	0.6 V	–	750 µA (200 µA)		♦	♦		♦	♦	♦	♦	♦	74 V	SOIC–14, SOIC–16, D2PAK–7
NCV317L	Adj	± 4%	100 mA	1.9 V (Typ)	–	–							♦		♦	40 V	SOIC–8, TO–92
NCV2931	Adj, 5	± 5%	100 mA	0.6 V	1 mA	1 mA (10 mA)	♦						♦	♦	♦	60 V	SOIC–8, D2PAK–3, DPAK–3
NCV2931A	Adj, 5	± 3.8%	100 mA	0.6 V	1 mA	1 mA (10 mA)	♦						♦	♦	♦	60 V	SOIC–8, SOT–223, DPAK–3
NCV2951	Adj, 5	± 2.4%	100 mA	0.45 V	–	120 µA (100 µA)	♦	♦					♦		♦	32 V	SOIC–8
NCV2951A	Adj, 3.3, 5	± 1.5%	100 mA	0.45 V	–	120 µA (100 µA)	♦	♦					♦		♦	32 V	SOIC–8
NCV4949	5	± 2%	100 mA	0.5 V	–	260 µA (300 µA)		♦	♦	♦			♦		♦	40 V	SOIC–20, SOIC–8, SOIC–8 ePad
NCV612	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.1, 3.3, 5.0	± 3%	100 mA	0.3 V	1 µA	90 µA (1 mA)	♦						♦		♦	6 V	SC–70
NCV662	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.3, 5.0	± 4%	100 mA	0.3 V	1 µA	6 µA (1 mA)	♦						♦		♦	6 V	SC–82
NCV663	1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.3, 5.0	± 4%	100 mA	0.3 V	–	6 µA (1 mA)							♦		♦	6 V	SC–82
NCV78LxxA	5, 8, 12, 15, 24	± 4%	100 mA	1.7 V (Typ)	–	–							♦		♦	30 V	SOIC–8, TO–92
NCV551	1.4, 1.5, 1.8, 2.5, 2.7, 2.8, 3.0, 3.1, 3.2, 3.3, 5	± 3%	150 mA	0.22 V	1 µA	8 µA (1 mA)	♦						♦		♦	12 V	TSOP–5
NCV4264	3.3, 5	± 2%	150 mA	0.5 V	–	400 µA (1 mA)							♦		♦	45 V	SOT–223
NCV4264–2	3.3, 5	± 2%	150 mA	0.5 V	–	70 µA (100 µA)							♦		♦	45 V	SOT–223
NCV4269	5	± 2%	150 mA	0.5 V	–	250 µA (1 mA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–8 ePad, SOIC–20 Fused, SOIC–14 Fused
NCV4279	5	± 2%	150 mA	0.5 V	–	250 µA (1 mA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–14 Fused
NCV4299	3.3, 5	± 2%	150 mA	0.5 V	1 µA	105 µA (1 mA)	♦	♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–14 Fused
NCV8501	Adj, 2.5, 3.3, 5, 8, 10	± 2%	150 mA	0.6 V	30 µA	75 µA (100 µA)	♦	♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–16 ePad
NCV8502	Adj, 2.5, 3.3, 5, 8, 10	± 2%	150 mA	0.6 V	–	75 µA (100 µA)		♦♦	♦	♦			♦		♦	60 V	SOIC–8, SOIC–16 ePad
NCV8512	5	± 2%	150 mA	0.6 V	–	200 µA (100 µA)		♦♦	♦	♦			♦		♦	60 V	SOIC–16 ePad

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS (CONTINUED)

Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (◆◆ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
NCV8560	Adj, 1.3, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3,3.5, 5.0	±2%	150 mA	0.125 V	1 µA	180 µA (150 mA)	◆						◆		◆	6 V	DFN–6 3x3, TSOP–5
NCV8660	3.3, 5	±2%	150 mA	0.6 V	–	40 µA (150 mA)		◆	◆				◆		◆	40 V	SOIC–8 Fused, DPAK–5
NCV8664	3.3, 5	±2%	150 mA	0.6 V	–	30 µA (100 µA)							◆		◆	45 V	SOIC–8 Fused, DPAK–3, SOT–223
NCV8665	5	±2%	150 mA	0.6 V	–	40 µA (100 µA)		◆	◆				◆		◆	45 V	SOIC–8 Fused, D2PAK–5
CS8182	Tracking	±5 mV	200 mA	0.6 V	55 µA	150 µA (100 µA)	◆						◆		◆	45 V	DPAK–5, D2PAK–5, SOIC–8 Fused
NCV8508	5	±3%	250 mA	0.9 V	–	150 µA (150 mA)		◆	◆		◆	◆	◆		◆	60 V	D2PAK–7, SOIC–16 Fused, SOIC–8 ePad
NCV8518A	5	±2%	250 mA	0.75 V	1 µA	150 µA (150 mA)	◆	◆	◆		◆	◆	◆		◆	45 V	SOIC–8 ePad, SOIC–16 ePad
NCV33275	3.3, 5	±2%	300 mA	0.5 V	–	200 µA (0 µA)							◆		◆	13 V	SOT–223
NCV33375	1.8	±2%	300 mA	0.5 V	4 µA	200 µA (0 µA)	◆						◆		◆	13 V	SOT–223
NCV8674	5, 12	±2%	350 mA	0.6 V	–	38 µA (100 µA)							◆		◆	45 V	D2PAK–3
NCV8675	3.3, 5	±2%	350 mA	0.6 V	–	50 µA (100 µA)		◆	◆				◆		◆	45 V	D2PAK–5
NCV8503	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	1 µA	350 µA (100 µA)	◆	◆◆	◆	◆			◆		◆	60 V	SOIC–16 ePad
NCV8504	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	–	150 µA (100 µA)		◆◆	◆	◆			◆		◆	60 V	SOIC–16 ePad
NCV8505	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	1 µA	350 µA (100 µA)	◆	◆	◆				◆		◆	60 V	D2PAK–7
NCV8506	Adj, 2.5, 3.3, 5	±2%	400 mA	0.6 V	–	150 µA (100 µA)		◆	◆				◆		◆	60 V	D2PAK–7
NCV4274	2.5, 3.3, 5	±4%	400 mA	0.5 V	–	250 µA (1 mA)							◆		◆	60 V	DPAK–3, D2PAK–3, SOT–223
NCV4274A	2.5, 3.3, 5	±2%	400 mA	0.5 V	–	250 µA (1 mA)							◆		◆	60 V	DPAK–3, D2PAK–3, SOT–223
NCV4276	Adj, 1.8, 2.5, 3.3, 5	±4%	400 mA	0.5 V	10 µA	220 µA (1 mA)	◆						◆		◆	45 V	DPAK–5, D2PAK–5
NCV4276A	Adj, 3.3, 5	±2%	400 mA	0.5 V	10 µA	220 µA (1 mA)	◆						◆		◆	45 V	DPAK–5, D2PAK–5
NCV4275A	3.3, 5	±2%	450 mA	0.5 V	–	200 µA (1 mA)		◆	◆				◆		◆	45 V	DPAK–5, D2PAK–5
NCV317M	Adj	±4%	500 mA	2.2 V (Typ)	–	–							◆		◆	40 V	DPAK–3
NCV5500	Adj, 1.5, 3.3, 5	±4.9%	500 mA	0.7 V	50 µA	500 µA (100 µA)	◆						◆		◆	18 V	SOIC–8, DPAK–5
NCV5501	1.5, 3.3, 5	±4.9%	500 mA	0.7 V	–	500 µA (100 µA)							◆		◆	18 V	DPAK–3
NCV78Mxx	5, 8, 12, 15	±4%	500 mA	*	–	*							◆		◆	35 V	TO–220, DPAK–3
NCV78MxxA	5	±5%	500 mA	*	–	*							◆		◆	35 V	DPAK–3
NCV8141	5	±3%	500 mA	1.5 V	50 µA	*	◆	◆	◆		◆		◆	◆	◆	60 V	D2PAK–7

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

ON Semiconductor Selector Guide – Power Management

SINGLE AUTOMOTIVE LINEAR VOLTAGE REGULATORS (CONTINUED)

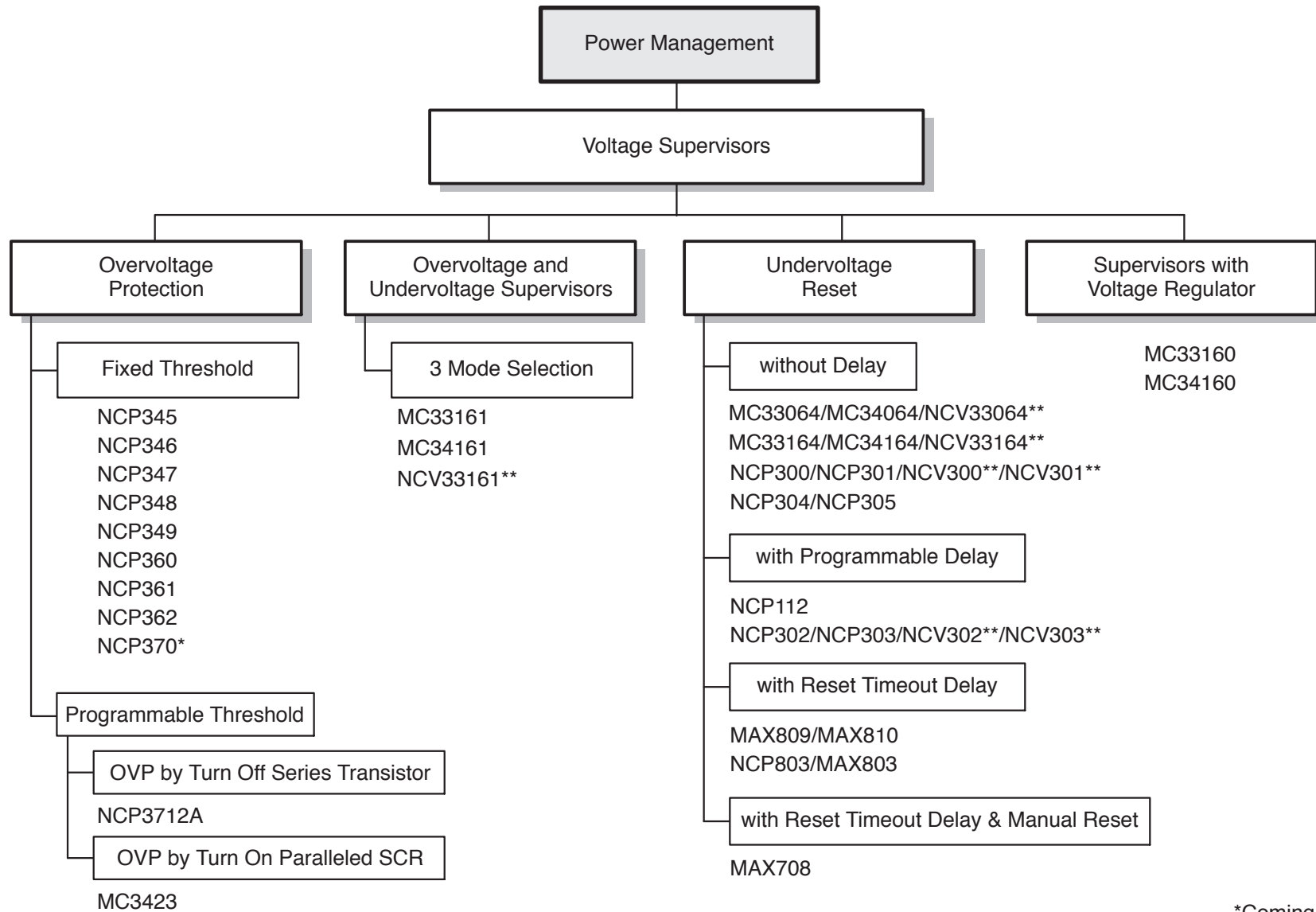
Device	Output Voltage (V)	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset (♦♦ = Adjustable)	Delay	Early Warning Flag/Monitor	Watchdog	Wakeup	Current Limit	Overvoltage	Overtemperature	Peak Transient	Packages
NCV8535	Adj, 1.5, 1.8, 2.5, 2.8, 2.85, 3.0, 3.3, 5	± 1.5%	500 mA	0.34 V	1 µA	190 µA (100 µA)	♦						♦		♦	16 V	DFN–10 3x3
CS8126	5	± 3%	750 mA	0.6 V	–	–		♦	♦				♦	♦	♦	60 V	D2PAK–7
CS8129	5	± 3%	750 mA	0.6 V	–	–		♦	♦				♦	♦	♦	60 V	SOIC–16
NCV33269	Adj, 3.3, 5, 12	± 2%	800 mA	1.35 V	–	–							♦		♦	20 V	DPAK–3
NCV78xxA	5, 12	± 4%	1 A	*	–	–							♦		♦	35 V	D2PAK–3, TO–220
NCV78xx	5, 8, 12, 15	5%	1 A	*	–	–							♦		♦	35 V	TO–220, DPAK–3, D2PAK–3
NCV5661	Adj, 1.2, 1.5, 1.8, 2.5, 2.8, 3.0, 3.3	± 2%	1 A	1.3 V	300 µA	–	♦	♦					♦		♦	18 V	DPAK–5, DFN–6 3x3
NCV1117	Adj, 1.5, 1.8, 2, 2.5, 3.3, 5, 12	± 2%	1 A	1.2 V	–	–							♦		♦	20 V	DPAK–3, SOT–223
NCV317	Adj	± 4%	1.5 A	2.25 V Typ	–	–							♦		♦	40 V	TO–220, D2PAK–3
NCV565	Adj	± 3%	1.5 A	1.3 V	–	–							♦		♦	18 V	D2PAK–5
NCV5662	Adj, 1.5	± 2%	2 A	1.3 V	300 µA	–	♦	♦					♦		♦	18 V	D2PAK–5
NCV5663	Adj, 1.5	± 2%	3 A	1.3 V	300 µA	–	♦	♦					♦		♦	18 V	D2PAK–5

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details. * See datasheet for details.

DUAL AUTOMOTIVE LINEAR VOLTAGE REGULATORS

Device	Output Voltage	Tolerance	Output Current	Dropout (Max)	Sleepmode Current (Max)	Quiescent Current (Max) @ Low Load (Load)	Enable	Reset	Delay	Sequenced	Current Limit	Overvoltage	Overtemperature	Peak Transient	Package(s)
CS8361	5 V Tracking	± 2% 25 mV	100 mA 250 mA	0.6 V 0.7 V	200 µA	200 µA (300 µA)	♦	♦				♦	♦	♦	60 V D2PAK–7, SOIC–16 Fused
NCV8509	5.0, 5.0, 3.3 V 2.6, 2.5, 1.8 V	± 2% ± 2%	115 mA 100 mA	0.6 V –	–	175 µA (200 µA)		♦	♦	♦	♦		♦	50 V	SOIC–16 ePad
NCV5504	Adj, 3.3 V	± 2% ± 2%	250 mA 250 mA	0.4 V 0.4 V	–	450 µA (0 µA)						♦	♦	18 V	DPAK–5

NOTE: All devices in this table are AEC–Qualified and PPAP–Capable. Contact ON Semiconductor for details.



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VOLTAGE SUPERVISORS

Description	Typical Threshold Voltage (V _{th}) (V)	Supply Voltage Range (V)	Typical Supply Current (μA)	Maximum Supply Current (μA)	Threshold Hysteresis (Typ) (mV)	Operating Temp. Range (°C)	Package	Description	Time Delay (Typ)
MAX809	4.90, 4.63, 4.55, 4.38, 4.00, 3.08, 2.93, 2.63, 2.32, 1.60, 1.2 *	1.2 to 5.5	0.5	2.0	–	–40 to +105	SOT23	3–Pin Microprocessor Reset Monitors	240 ms**
MAX810	4.63, 4.38, 3.08, 2.93, 2.63, 1.2 *	1.2 to 5.5	0.5	2.0	–	–40 to +105	SOT23	3–Pin Microprocessor Reset Monitors	240 ms**
MC33064	4.60	–1.0 to 10	390	500	20	–40 to +85	SO–8, Micro8, TO–92, SOT–23–5	Undervoltage Sensing Circuit	Ext. Capacitor Dependent
MC34064	4.60	–1.0 to 10	390	500	20	0 to +70	SO–8, Micro8, TO–92, SOT–23–5	Undervoltage Sensing Circuit	Ext. Capacitor Dependent
MC33161	1.27	2.0 to 40 (Pos Sensing) 4.0 to 40 (Neg Sensing)	560	900	25	–40 to +105	SO–8, DIP–8, Micro8	Universal Voltage Monitor	Ext. Capacitor Dependent
MC34161	1.27	2.0 to 40 (Pos Sensing) 4.0 to 40 (Neg Sensing)	560	900	25	0 to +70	SO–8, DIP–8, Micro8	Universal Voltage Monitor	Ext. Capacitor Dependent
MC33164	2.71 (V _{IN} Increasing) 2.65 (V _{IN} Decreasing)	–1.0 to 12	24	40	60	–40 to +125	SO–8, Micro8, TO–92	Micropower Undervoltage Sensing Circuits	Ext. Capacitor Dependent
MC34164	2.71 (V _{IN} Increasing) 2.65 (V _{IN} Decreasing)	–1.0 to 12	24	40	60	0 to +70	SO–8, Micro8, TO–92, SOT–23–5	Micropower Undervoltage Sensing Circuits	Ext. Capacitor Dependent
MC3423	2.6	4.5 to 40	6.0 mA	10 mA	–	0 to +70	SO–8, DIP–8	Overvoltage Crowbar Sensing Circuit	0.5 μs
NCP300/1	0.9 to 4.9 V by Steps of 0.1 V	0.8 to 10	0.20 to 0.34**	1.2 to 1.4**	45 to 235**	–40 to +125	Thin SOT23–5	Voltage Detector Series NCP300– Complementary Output, NCP301–Open Drain	High to Low 45–97** μs Low to High 77–130** μs

*Voltages from 1.2 to 4.9 V by steps of 0.1 V are available upon request.

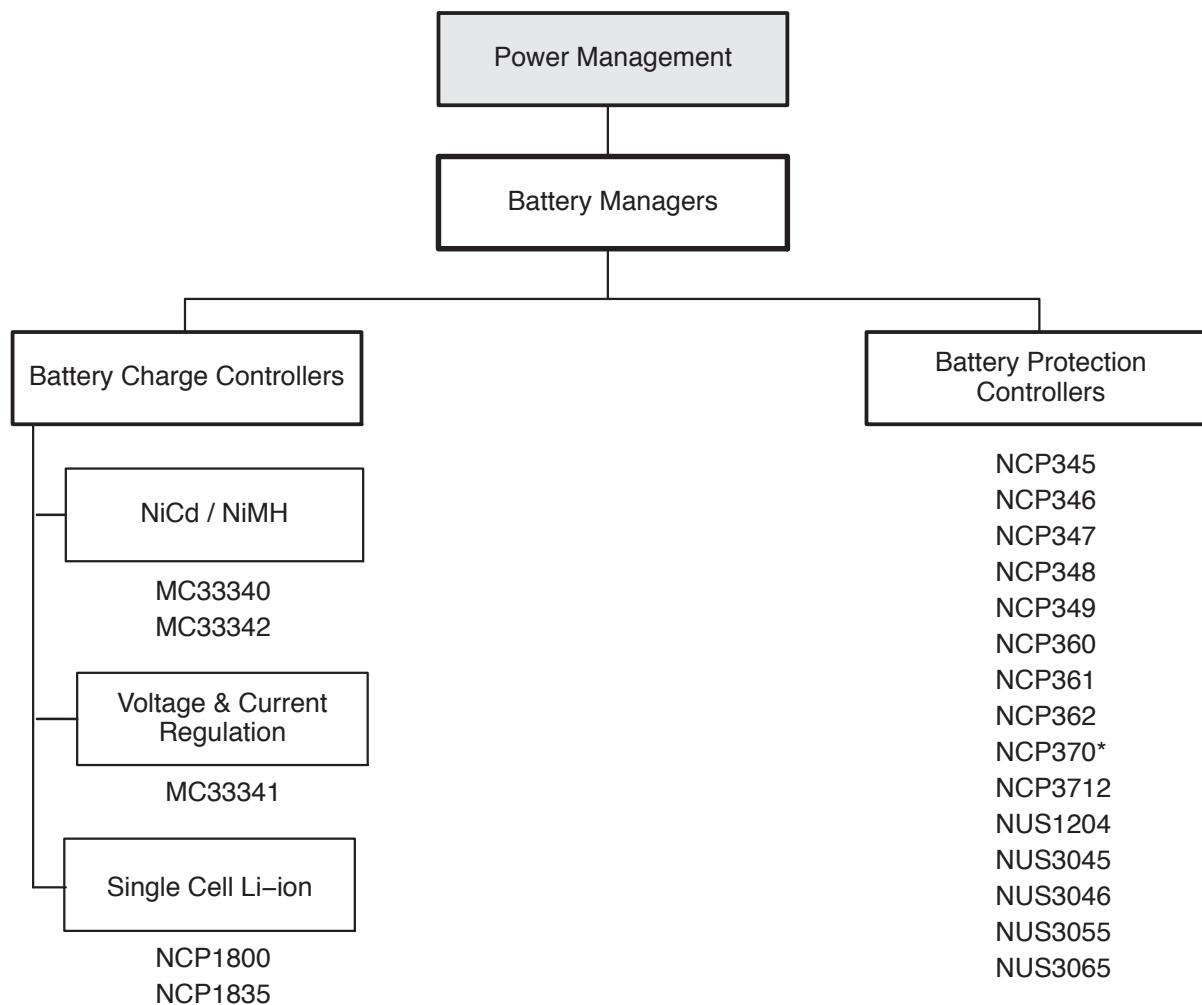
**Depends on the voltage threshold of the part.

VOLTAGE SUPERVISORS (CONTINUED)

Description	Typical Threshold Voltage (V _{th}) (V)	Supply Voltage Range (V)	Typical Supply Current (μA)	Maximum Supply Current (μA)	Threshold Hysteresis (Typ) (mV)	Operating Temp. Range (°C)	Description	Time Delay (Typ)	Package
NCP302/3	0.9 to 4.9 V by Steps of 0.1 V	0.8 to 10	0.20 to 0.34**	1.2 to 1.4**	45 to 235**	–40 to +125	Voltage Detector Series with Programmable Delay NCP302–Complementary Output, NCP303–Open Drain	Ext. Capacitor Dependent	Thin SOT23–5
NCP304/5	0.9 to 4.9 V by Steps of 0.1 V	0.8 to 10	0.8 to 1.1**	3.0 to 3.9**	45 to 235**	–40 to +125	Voltage Detector Series NCP304–Complementary Output, NCP305–Open Drain	High to Low 10–18** μsec Low to High 6–21** μsec	SC–82AB
NCP345	6.85	3.0 to 25	750	1000	100	–40 to +85	Overvoltage Protection IC Driver	10 μs	Thin SOT–23–5
NCP346	4.45, 5.5	3.0 to 25	750	1200	50	–40 to +85	Overvoltage Protection IC Driver	1.8 msec Turn–On 0.5 μsec Turn–Off	Thin SOT–23–5
NCP347	5.63, 5.9, 7.2, 5.85	1.2 to 28	170	250	60 to 70**	–40 to +85	Positive overvoltage protection controller with internal low R _{ON} N–MOSFET	1.5 μs	WDFN–10
NCP348	6.02, 6.4	1.2 to 28	170	250	60 to 70**	–40 to +85	Positive overvoltage protection controller with internal low R _{ON} N–MOSFET	1.5 μs	WDFN–10
NCP349*	5.68	1.2 to 28	170	250	70	–40 to +85	Positive overvoltage protection IC with internal N–MOSFET	1.5 μs	DFN–6
NCP360	5.675, 6.25, 7.07, 7.2	1.2 to 20	24	35	100	–40 to +85	USB Positive overvoltage protection controller with internal P–MOSFET	0.8 μs	μDFN–6 TSOP–5
NCP361	5.675	1.2 to 20	24	35	100	–40 to +85	USB Positive overvoltage and overcurrent protections controller with internal P–MOSFET	0.8 μs	μDFN–6 TSOP–5
NCP362*	5.675	1.2 to 20	24	35	100	–40 to +85	USB Positive overvoltage and overcurrent IC with internal P–MOSFET and TVS integrated	0.8 μs	μDFN–10
NCP370*	6.6	–28 to 28	0.02	1	80	–40 to +85	Positive and Negative overvoltage protection IC with internal dual N–MOSFETs and reverse charge control	1.5 μs	LLGA–12
NCP803/ MAX803	4.9, 4.63, 4.38, 3.08, 2.93, 2.63, 2.32, 1.60, 1.2	1.2 to 5.5	0.5	2.0	–	–40 to +105	3 Pin Microprocessor, Reset Monitors	240 ms**	SOT–23, SC–70
NCP112	3.3, 5.0, 12	4.5 to 16	3.0 mA	5.0 mA	–	0 to +85	Triple Supervisor for Desktop Power Supply Monitoring	Programmable ON/OFF, Power Good, Undervoltage Blocking	SO–14 PDIP–14

*Coming Soon.

**Depends on the voltage threshold of the part.



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BATTERY MANAGERS

Device	Description	Key Features	Package
NCP1800	Single-Cell Lithium Ion CCCV Battery Charger	- Industry Leading Standby Current 0.5 μA - Adjustable Charge Current Limit	Micro8™
MC33340/2	Nickel Chemistry Battery Cradle Charger	Peak Voltage Detection	SO-8
NCP345	Overvoltage Protection Driver	30 V Capability, 6.85 V Detect Threshold 1 μS Overvoltage Disconnect Time	SOT-23-5
NCP346	Overvoltage Protection Driver	30 V Capability, 4.45 V and 5.5 V Detect Threshold 1 μS Overvoltage Disconnect Time	SOT-23-5
NCP347/NCP348	30 V, 2 A, Positive overvoltage protection controller with internal low R_{ON} N-MOSFET	- No External MOSFET :FLAG and EN Pins	DFN-10
NCP349*	Positive overvoltage protection IC with internal N-MOSFET	- No External MOSFET :FLAG and EN Pins	DFN-6
NCP360	USB positive overvoltage protection controller with internal P-MOSFET	- No External MOSFET - FLAG and EN Pins - Low Quiescent Current	μ DFN-6 TSOP-5
NCP361	20 V, 500 mA, USB positive overvoltage and overcurrent protection controller with internal P-MOSFET	- No External MOSFET - FLAG and EN Pins - Low Quiescent Current - OCF Function	μ DFN-6 TSOP-5
NCP362*	USB positive overvoltage and overcurrent IC with internal P-MOSFET and TVS integrated	- No External MOSFET - FLAG and EN Pins - Low Quiescent Current - OCF Function - TVS Integrated	μ DFN-10
NCP370*	Positive and negative overvoltage protection IC with internal dual N-MOSFETs and reverse charge control	- No External MOSFET - FLAG and EN Pins - Protect Accessories	LLGA-12
NCP1835	Up to 1 A Single-Cell Lithium-ion/Polymer Integrated CCCV Battery Charger	No External MOSFET	DFN-10
NCP1835B	Up to 300 mA Single-Cell Lithium-ion/Polymer Integrated CCCV Battery Charger	No External MOSFET	DFN-10
NUS1204	Overvoltage Protection IC with Integrated MOSFET	Integrated NCP304 + -12 V P-Channel MOSFET	DFN-6
NUS3045	Overvoltage Protection IC with Integrated 30 V P-Channel MOSFET	Integrated NCP345 + 30 V P-Channel MOSFET	DFN-8
NUS3046	Overvoltage Protection IC with Integrated MOSFET	Integrated NCP346 + 30 V P-Channel MOSFET	DFN-8
NUS3055	Overvoltage Protection IC with Integrated MOSFET	Integrated NCP345 + 30 V P-Channel MOSFET	LLGA-8
NUS3065	Overvoltage Protection IC with Integrated MOSFET	Integrated NCP345 + 30 V P-Channel MOSFET	LLGA-8
NUS3045	Overvoltage Protection IC with Integrated 30 V P-Channel Power MOSFET	Integrated NCP345 + 30 V P-Channel MOSFET	DFN-8
MC33341	Power Supply Battery Charger Regulation Control Unit	Operating Voltage Range of 2.3 V to 16 V	SO-8 DIP-8

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ON Semiconductor Selector Guide – Power Management

INRUSH CURRENT LIMITERS

Device	Description	Mode	V _I Max (V)	R _{DS(on)} Max (mΩ)	T _{SD} Typ (°C)	T _{hyst} Typ (°C)	Package
NIS5112D1	Electronic Fuse	Latch Off	18	35	135	–	SOIC–8
NIS5112D2	Electronic Fuse	Auto–Retry	18	35	135	40	SOIC–8
NIS5132MN1	12 V Electronic Fuse	Latch Off	18	55	175	45	DFN–10
NIS5135MN1	5 V Electronic Fuse	Latch Off	–	82	175	45	DFN–10

Amplifiers and Comparators

Amplifiers and Comparators

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SINGLE OPERATIONAL AMPLIFIERS

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, V _S = 5.0 V) (mV)	I _{IB} (typ) (nA)	I _D (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM201A	±3.0	±22	1.0	0.5	2.0	30	1.8	–25 to +85	96	–	1	Split	DIP–8, SO–8	General Purpose, Precision Non Compensated
LM201AV	±3.0	±22	1.0	0.5	2.0	30	1.8	–40 to +105	96	–	1	Split	DIP–8, SO–8	General Purpose, Precision Non Compensated
LM301A	±3.0	±18	1.0	0.5	7.5	70	1.8	0 to 70	90	–	1	Split	DIP–8, SO–8	General Purpose, Non Compensated
LMV321	2.5	5.5	1	1.0	9	1	140	–40 to +85	65	50	1	Single	SC–70 TSOP–5	Low Voltage, Rail-to-Rail
LMV931	1.8	5	1.5	0.48	6	1	90	–40 to +125	70	50	1	Single	SC–70	Low Voltage, Rail-to-Rail
MC33071	3.0 or ±1.5	44	4.5	13*	5.0	100	1.6	–40 to +85	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33071A	3.0 or ±1.5	44	4.5	13*	3.0	100	1.6	–40 to +85	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33171	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.18	–40 to +85	90	32	1	Single, Split	DIP–8, SO–8	Low Power, Single Supply, Two Voltage Ranges
MC33201	1.8 or ±0.9	12	2.2	1.0	6.0	80	0.9	–40 to +105	90	20	1	Single, Split	DIP–8, SO–8	Low Voltage, Rail-to-Rail
MC33201V	1.8 or ±0.9	12	2.2	1.0	6.0	80	0.9	–55 to +125	90	20	1	Single, Split	DIP–8, SO–8	Low Voltage, Rail-to-Rail, Extended Temp. Range
MC33501	1.0 or ±0.5	7.0 or ±3.5	4 @ V _S = 5	3.0	5.0	0.04 pA	1.2 @ V _S = 1 V	–40 to +105	75	30	1	Single, Split	TSOP–5*	One Volt SMARTMOS™, Rail-to-Rail
MC33503	1.0 or ±0.5	7.0 or ±3.5	4 @ V _S = 5	3.0	5.0	0.04 pA	1.2 @ V _S = 1 V	–40 to +105	75	30	1	Single, Split	TSOP–5*	One Volt SMARTMOS, Rail-to-Rail

SINGLE OPERATIONAL AMPLIFIERS (continued)

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, Vs = 5.0 V) (mV)	I _B (typ) (nA)	I _D (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC34071	3.0 or ±1.5	44	4.5	13*	5.0	100	1.6	0 to 70	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC34071A	3.0 or ±1.5	44	4.5	13*	3.0	100	1.6	0 to 70	97	32	1	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
NCS2001	0.9 or ±0.45	7.0 or ±3.5	1.4	1.6	6.0	10 pA	.80	–40 to +105	70	100	1	Single, Split	TSOP–5*, SC70–5	One Volt, CMOS Rail–to–Rail
NCS2002	0.9 or ±0.45	7.0 or ±3.5	0.8	1.2	6.0	10 pA	.80	–40 to +105	82	100	1	Single, Split	TSOP–6*	One Volt, CMOS Rail–to–Rail with Enable
NCS7101	1.8 or ±0.9	10 or ±5.0	1.0	1.2	7.0	1.0 pA	1.1	–40 to +85	65 (min)	140	1	Single, Split	TSOP–5*	Low Voltage, Rail–to–Rail
NCV2002	0.9 or ±0.45	7.0 or ±3.5	0.8	1.2	6.0	10 pA	.80	–40 to +125	82	100	1	Single, Split	TSOP–6*	One Volt, CMOS Rail–to–Rail with Enable
NE5230	±0.9 or 1.8	±7.5 or 15	0.6	0.25	3.0	40	0.6	0 to 70	95	30	1	Single, Split	SO–8, PDIP–8	Single Low Voltage Op Amp
NE5534	±3.0	±20	10	13	4.0*	500	4.0	0 to 70	100	4.0	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
NE5534A	±3.0	±20	10	13	4.0*	500	4.0	0 to 70	100	3.5	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
SA5230	±0.9 or 1.8	±7.5 or 15	0.6	0.25	3.0	40	0.6	–40 to 85	95	30	1	Single, Split	SO–8, PDIP–8	Single Low Voltage Op Amp
SA5534	±3.0	±20	10	13	4.0*	500	4.0	–40 to 85	100	4.0	1	Single, Split	PDIP–8	Single Low Noise Op Amp
SA5534A	±3.0	±20	10	13	4.0*	500	4.0	–40 to 85	100	3.5	1	Single, Split	SO–8, PDIP–8	Single Low Noise Op Amp
SE5534	±3.0	±20	10	13	2.0*	400	4.0	–55 to 125	100	4.0	1	Single, Split	PDIP–8	Single Low Noise Op Amp
SE5534A	±3.0	±20	10	13	2.0*	400	4.0	–55 to 125	100	3.5	1	Single, Split	PDIP–8	Single Low Noise Op Amp

DUAL OPERATIONAL AMPLIFIERS

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, V _S = 5.0 V) (mV)	I _{IB} (typ) (nA)	I _D [*] (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM258	3.0 or ±1.5	32 or ±18	1.0	0.6	5.0	45	0.7	–25 to +85	85	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Noise
LM358	3.0 or ±1.5	32 or ±18	1.0	0.6	7.0	45	0.7	0 to 70	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Noise
LMV358	2.7	5	1	1	9.0	1	140	–40 to +85	65	50	2	Single	Micro8, SOIC–8	Low Voltage, Rail-to-Rail
LM833	±2.5	36	15	7.0	5.0	300	4.0	–40 to +85	100	4.5	2	Single, Split	DIP–8, SO–8	Low Noise
LM2904	3.0 or ±1.5	26 or ±13	1.0	0.6	7.0	45	0.7	–40 to +105	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Power
LM2904V	3.0 or ±1.5	26 or ±13	1.0	0.6	7.0	45	0.7	–40 to +125	70	–	2	Single, Split	DIP–8, SO–8, Micro8	Low Power
MC33072	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	3.2	–40 to +85	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33072A	3.0 or ±1.5	44 or ±22	4.5	13*	3.0	100	3.2	–40 to +85	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = –1.0
MC33077	±2.5	±18	37	11	1 @ V _S = ±15 V	280	3.5	–40 to +85	107	4.4	2	Split	DIP–8, SO–8	Low Noise
MC33078	±5.0	±18	16	7.0	2.0	300	4.1	–40 to +85	100	4.5	2	Split	DIP–8, SO–8	Low Noise
MC33172	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.36	–40 to +85	90	32	2	Single, Split	DIP–8, SO–8	Low Power, Single Supply, Two Voltage Ranges
MC33172V	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.36	–40 to +105	90	32	2	Single, Split	SO–8	Low Power, Single Supply, Two Voltage Ranges, Extended Temp. Range
MC33178	±2.0	±18	5.0	2.0	3.0	100	0.85	–40 to +85	110	7.5	2	Split	DIP–8, SO–8	High Output Current, Low Power, Low Noise

*I_D typical for total device (all channels)

DUAL OPERATIONAL AMPLIFIERS (continued)

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, V _S = 5.0 V) (mV)	I _{IB} (typ) (nA)	I _D * (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC33202	1.8 or ±0.9	12 or ±6	2.2	1.0	8.0	80	1.8	−40 to +105	90	20	2	Single, Split	DIP–8, SO–8, Micro8™	Low Voltage, Rail–to–Rail
MC33202V	1.8 or ±0.9	12 or ±6	2.2	1.0	8.0	80	1.8	−55 to +125	90	20	2	Single, Split	DIP–8, SO–8	Low Voltage, Rail–to–Rail, Extended Temp. Range
MC33272A	3.0 or ±1.5	36 or ±18	24	10	1 @ V _S = ±15 V 2 @ V _S = 5.0 V	300	4.30	−40 to +85	100	18	2	Single, Split	DIP–8, SO–8	Single Supply, High SR, Low Input Offset Voltage
MC33502	1.0	7.0	5.0	3.0	5.0	0.04 pA	3.3	−40 to +105	75	30	2	Single, Split	DIP–8, SO–8	One Volt SMARTMOS, Rail–to–Rail
MC34072	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	3.2	0 to 70	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = −1.0
MC34072A	3.0 or ±1.5	44 or ±22	4.5	13*	3.0	100	3.2	0 to 70	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, *Av = −1.0
MC34072V	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	3.2	−40 to +125	97	32	2	Single, Split	DIP–8, SO–8	High SR, Wide BW, Single Supply, Extended Temp. Range, *Av = −1.0
NE592	−8.0	+8.0	90	–	–	9.0 μA	18	0–70	86	–	2	–	SO–8, 14 PDIP–8, 14	Video Amplifier
NE5532/A	±3.0	±20	10	9.0	4.0 @ ±15 V	200	8.0	0 to 70	100	8.0	2	Split	DIP–8, SO–8, SO–16W	Low Noise
SA5532	±3.0	±20	10	9.0	4.0 @ ±15 V	200	8.0	−40 to 85	100	8.0	2	Split	DIP–8	Low Noise
SE5532/A	±3.0	±20	10	9.0	2.0 @ ±15 V	200	8.0	−55 to 125	100	8.0	2	Split	DIP–8, SO–8	Low Noise
TCA0372	5.0 or ±2.5	40 or ±20	1.4	1.4	15 @ ±15 V	100	5.0	−40 to +125	90	22	2	Single, Split	SOP (12+2+2) DIP–8, DIP–16	Power, High Current
TCA0372B	5.0 or ±2.5	40 or ±20	1.4	1.4	15 @ ±15 V	100	5.0	−40 to +125	90	22	2	Single, Split	DIP–8, SO–16W	Power, High Current

*I_D typical for total device (all channels)

QUAD OPERATIONAL AMPLIFIERS

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, V _S = 5.0 V) (mV)	I _{IB} (typ) (nA)	I _D [*] (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
LM224	3.0 ±1.5	32 ±16	1.0	0.6	5.0	90	–	–25 to +85	85	–	4	Single, Split	DIP–14, SO–14	Low Power
LM324	3.0 ±1.5	32 ±16	1.0	0.6	7.0	90	–	0 to +70	70	–	4	Single, Split	DIP–14, SO–14	Low Power
LMV324	2.5	5.5	1.0	1.0	9.0	1	140	–40 to +85	65	50	4	Single	SO_14, TSSOP–14	Low Voltage, Rail–to–Rail
LM324A	3.0 ±1.5	32 ±16	1.0	0.6	3.0	45	0.7	0 to +70	70	–	4	Single, Split	DIP–14, SO–14	Low Power
LM2902	3.0 ±1.5	26 ±13	1.0	0.6	7.0	90	–	–40 to +105	70	–	4	Single, Split	DIP–14, SO–14	Low Power
LM2902V	3.0 ±1.5	26 ±13	1.0	0.6	7.0	90	–	–40 to +125	70	–	4	Single, Split	DIP–14, SO–14	Low Power, Extended Temp. Range
MC3303	3.0 ±1.5	36 ±18	1.0	0.6	8.0	200	2.8	–40 to +85	90	–	4	Single, Split	DIP–14, SO–14	Low Power
MC33074	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	6.4	–40 to +85	97	32	4	Single, Split	DIP–14, SO–14, TSSOP–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC33074A	3.0 or ±1.5	44 or ±22	4.5	13*	3.0	100	6.4	–40 to +85	97	32	4	Single, Split	DIP–14, SO–14, TSSOP–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC33079	±5.0	±18	16	7.0	2.5	300	8.4	–40 to +85	100	4.5	4	Split	DIP–14, SO–14	Low Noise
MC33174	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.72	–40 to +85	90	32	4	Single, Split	DIP–14, SO–14, TSSOP–14	Low Power, Single Supply, Two Voltage Ranges
MC33174V	3.0 or ±1.5	44 or ±22	1.8	2.1	5.0	20	0.72	–40 to +105	90	32	4	Single, Split	DIP–14, SO–14	Low Power, Single Supply, Two Voltage Ranges, Extended Temp. Range
MC33179	±2.0	±18	5.0	2.0	3.0	100	1.7	–40 to +85	110	7.5	4	Split	DIP–14, SO–14	High Output Current, Low Power, Low Noise

*I_D typical for total device (all channels)

QUAD OPERATIONAL AMPLIFIERS (continued)

Device Name	V _{CC} (min) (V)	V _{CC} (max) (V)	GBW (typ) (MHz)	Slew Rate (typ) (V/us)	V _{IO} (max @ 25°C, V _S = 5.0 V) (mV)	I _{IB} (typ) (nA)	I _D [*] (typ) (mA)	Temp Range (°C)	CMR (typ) (dB)	e _n (typical) (nV/√Hz) @ f = 1.0 kHz	Number of Channels	Supply Type	Package	Description
MC33204	1.8 or ±0.9	12 or ±6.0	2.2	1.0	10	80	3.6	–40 to +105	90	20	4	Single, Split	DIP–14, SO–14, TSSOP–14	Low Voltage, Rail–to–Rail
MC33204V	1.8 or ±0.9	12 or ±6.0	2.2	1.0	10	80	3.6	–55 to +125	90	20	4	Single, Split	DIP–14, SO–14	Low Voltage, Rail–to–Rail, Extended Temp. Range
MC33274A	3.0 or ±1.5	36 or ±18	24	10	1.0 @ V _S = ±15 V 2.0 @ V _S = 5.0 V	300	8.6	–40 to +85	100	18	4	Single, Split	DIP–14, SO–14	Single Supply, High SR, Low Input Offset Voltage
MC3403	3.0 ±1.5	36 ±18	1.0	0.6	10	200	2.8	0 to 70	90	–	4	Single, Split	DIP–14, SO–14	Low Power
MC34074	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	6.4	0 to 70	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC34074A	3.0 or ±1.5	44 or ±22	4.5	13*	3.0	100	6.4	0 to 70	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
MC34074V	3.0 or ±1.5	44 or ±22	4.5	13*	5.0	100	6.4	–40 to +125	97	32	4	Single, Split	DIP–14, SO–14	High SR, Wide BW, Single Supply, *AV = –1.0
NCV33274A	3.0 or ±1.5	36 or ±18	24	10	3.5 @ V _S = ±15 V 2.0 @ V _S = ±5.0 V	300	8.6	–40 to +125	100	18	4	Single, Split	DIP–14, SO–14	Single Supply, High SR, Low Input Offset Voltage

*I_D typical for total device (all channels)

SINGLE COMPARATORS

Device Name	V _{CC} (min)	V _{CC} (max)	V _{IO} (max) (mV)	I _{IO} (max) (nA)	I _{IB} (typ) (nA)	I _Q (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM211	5.0 or ±2.5	36 or ±15	3.0	10	45	2.4	–25 to +85	200	Single Split	1	SO–8	Highly Flexible Voltage
LM311	5.0 or ±2.5	36 or ±15	7.5	50	45	2.4	0 to 70	200	Single Split	1	SO–8 DIP–8	Highly Flexible Voltage
NCS2200	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to 105	700	Single Split	1	SOT23–5 QFN 2x2.2	Low Voltage CMOS
NCS2201	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to 105	700	Single Split	1	SOT23–6	Low Voltage CMOS with Enable
NCS2202	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to 105	700	Single Split	1	SOT23–5	Low Voltage CMOS
NCS2203	0.85 or ±0.425	6.0 or ±3.0	+8.0	–	1.0 pA	10	–40 to 105	700	Single Split	1	SOT23–6	Low Voltage CMOS with Enable

DUAL COMPARATORS

Device Name	V _{CC} (min)	V _{CC} (max)	V _{IO} (max) (mV)	I _{IO} (max) (nA)	I _{IB} (typ) (nA)	I _Q * (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM293	2.0 or ±1.0	36 or ±18	5.0	50	25	0.4	–25 to +85	1300	Single Split	2	SO–8	Low Offset Voltage
LM393	2.0 or ±1.0	36 or ±18	5.0	50	25	0.4	0 to 70	1300	Single Split	2	SO–8 DIP–8	Low Offset Voltage
LM2903	2.0 or ±1.0	36 or ±18	7.0	50	25	0.4	–40 to +105	1500	Single Split	2	SO–8 DIP–8	Low Offset Voltage
LM2903V	2.0 or ±1.0	36 or ±18	7.0	50	25	0.4	–40 to +125	1500	Single Split	2	SO–8 DIP–8	Low Offset Voltage

*I_Q typical for total device (all channels)

QUAD COMPARATORS

Device Name	V _{CC} (min)	V _{CC} (max)	V _{IO} (max) (mV)	I _{IO} (max) (nA)	I _{IB} (typ) (nA)	I _q * (typ) (mA)	Temp Range (°C)	Response Time (ns)	Supply Type	Number of Channels	Package	Description
LM239	3.0 or ±1.5	36 or ±18	5.0	50	25	0.8	–25 to +85	1300	Single Split	4	SO–14 DIP–14	TTL and CMOS Compatible
LM339	3.0 or ±1.5	36 or ±18	5.0	50	25	0.8	0 to 70	1300	Single Split	4	SO–14 DIP–14	TTL and CMOS Compatible
LM2901	3.0 or ±1.5	36 or ±18	7.0	50	25	0.8	–40 to +105	1300	Single Split	4	SO–14 DIP–14	TTL and CMOS Compatible
LM2901V	3.0 or ±1.5	36 or ±18	7.0	50	25	0.8	–40 to +125	1300	Single Split	4	SO–14 DIP–14	TTL and CMOS Compatible
MC3302	3.0 or ±1.5	30 or ±15	20	100	25	0.8	–40 to +85	1300	Single Split	4	SO–14 DIP–14	TTL and CMOS Compatible

*I_q typical for total device (all channels)

AUDIO AMPLIFIERS

Audio Output/ Application	Class	Topology/ Features	Output Power	PSRR @ 217 Hz	Efficiency	THD + N	Turn-On Time (typ)	I _q (typ)	Shutdown Current (typ)	Package	Device Solutions
Mono Speaker – Basic Telephone Operations and Polyphonic Ringtones	AB	BTL	1 W+	–73 dB	63%	0.02%	285 ms	1.5 mA	10 nA	Micro8™ Microbump–9	NCP2890
	AB	BTL	1 W+	–73 dB	63%	0.02%	100 ms	1.5 mA	10 nA	Micro8™ Microbump–9	NCP2892A
	AB	Differential	1 W+	–80 dB	64%	0.006%	140 ms	1.9 mA	20 nA	Microbump–9 DFN–10	NCP4894
Stereo Headphones – MP3 Players, Bluetooth Headsets	AB	Virtual Ground No Output Cap	135 mW/Ch	–82 dB	63%	0.003%	285 ms	1.54 mA	10 nA	Micro10	NCP2809
	AB	Differential	150 mW/Ch	–80 dB	64%	0.006%	140 ms	1.9 mA	20 nA	Microbump–9 DFN10	NCP4894
Mono Speaker/Earpiece – Low Cost Integrated Solution	AB	Single-End/ Differential	1 W to Speaker; 250 mW to Earpiece	–70 dB	64%	SE 0.003% BTL 0.01%	140 ms	1.7 mA	20 nA	Microbump–9	NCP4896
Mono Speaker – Handsfree Speaker Phone	D	Filterless, Gain Select by Resistor	2 W+	–65 dB	90%	0.05%	9 ms	2.2 mA	300 nA	Microbump–9 DFN–8	NCP2820
Stereo Speakers – Offer Stereo Sound Quality to Play Video/Music on Demand, MP3	D	Filterless, Gain Selection by Resistor	2W+ per Channel	–65 dB	90%	0.05%	9 ms	4.4 mA	600 nA	Microbump–9	2x NCP2820
Mono Speaker – Handsfree Speaker Phone	D	Filterless Integrated Gain. Selectable Gain of 6 dB or 12 dB on External Pin.	2.65W	–65 dB	90%	0.05%	9 ms	2.5 mA	500 nA	Microbump–9	NCP2821

TRANSCONDUCTANCE AMPLIFIERS

Device Name	Channels	V _{CC} (typ) (V)	T _A (min) (°C)	T _A (max) (°C)	g _M (typ) (μmho)	V _{IO} (typ) (mV)	I _{IB} (typ) (μA)	S _R (typ) (V/μs)	B _W (typ) (MHz)	e _n (typ) (pA/Hz)	THD (typ) (%)	Package
AU5517	2	44	–40	125	9600	0.4	0.4	50	2	25	0.5	SOIC–16
NE5517A	2	44	0	70	9600	0.4	0.4	50	2	25	0.5	PDIP–16
NE5517	2	44	0	70	9600	0.4	0.4	50	2	25	0.5	SOIC–16, PDIP–16

VIDEO AMPLIFIERS

Device Name	Channels	Filter Order	V _{CC} (V)	I _{CC} (mA)	G (dB)	B _W (MHz)	Attenuation (dB)	ΔG _D (ns)	Temperature Range (°C)	Package
NCS2561	1	2	2.7 – 3.3	6	6 ± 0.2	9.3	22 @ 27 MHz	15 for SD	–40 to +125	SC–88
NCS2553	3	6	5	23	6 ± 0.2	9	45 @ 27 MHz	27 for SD	–40 to +85	SOIC–8
NCS2563	3	6	5	22	6 ± 0.2	33	36 @ 74.25 MHz	6 for HD	–40 to +85	SOIC–8
NE592D14	1	–	8	18	100	90	–	–	0 to +70	SOIC–14
NE592D8	1	–	8	18	400	40	–	–	0 to +70	SOIC–8
NE592N14	1	–	8	18	100	90	–	–	0 to +70	PDIP–14
NE592N8	1	–	8	18	400	40	–	–	0 to +70	PDIP–8

COMPANDORS

Device Name	Channels	V _{CC} (min) (V)	V _{CC} (max) (V)	I _{CC} (max) (V)	THD (typ) (%)	e _n (typ) (μV)	V _{REF} (V)	T _A (min) (°C)	T _A (max) (°C)	Package
NE570	2	6	24	4.3	0.3	20	1.8	0	70	SO–16 WB
SA571	2	6	18	4.3	0.5	20	1.8	–40	85	SO–16 WB, PDIP–16
SA572D	2	6	22	6.3	0.05	6	2.5	–40	85	SO–16 WB, TSSOP–16, PDIP–16
SA575D	2	3	7	4.2	0.12	6		–40	85	SOIC–20 WB, TSSOP–20, PDIP–20

Drivers

Drivers

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DISPLAY/LED DRIVERS

Device	Type	I _O Max (mA)	V _O Max (V)	f _{SW} Typ (kHz)	LEDs in Series, Max #	LEDs in Parallel, Max #	Package
NCP3063BD	Buck or Boost	1500	–	150	10	–	SOIC–8
NCP3063BMN	Buck or Boost	1500	–	150	10	–	DFN–8
NCP3063BP	Buck or Boost	1500	–	150	10	–	PDIP–8
NCP3063D	Buck or Boost	1500	–	150	10	–	SOIC–8
NCP3063MN	Buck or Boost	1500	–	150	10	–	DFN–8
NCP3063P	Buck or Boost	1500	–	150	10	–	PDIP–8
NCP3065D	Inductive Boost	1500	–	250	8	–	SOIC–8
NCP3065MN	Buck or Boost	1500	–	250	8	–	DFN–8
NCP3065P	Buck or Boost	1500	–	250	8	–	PDIP–8
NCV3065D	Buck	1500	–	250	8	–	SOIC–8
NCV3065MN	LED Driver	1500	–	250	8	–	DFN–8
NCV3065P	Buck–Boost	1500	–	250	8	–	PDIP–8
NCP5005SN	Inductive Boost	50	22	1200	5	–	TSOP–5
NCP5006SN	Inductive Boost	–	22	1200	5	–	TSOP–5
NCP5007SN	Inductive Boost	50	22	1200	5	–	TSOP–5
NCP5008DM	Inductive Boost	75	15	–	4	–	Micro–10
NCP5010FC	Inductive Boost	25	22	1000	5	–	FLIP–CHIP–8
NCP5030MT	Buck–Boost	1200	5.5	700	1	–	WDFN–12
NCP5050MT	–	1200	20	1700	5	–	WDFN–10
NCP5080MU	–	150	40V	100000	–	–	LLGA–12
NCP5602MU	Charge Pump	60	5.5	1000	–	2	LLGA–12
NCP5603MN	Charge Pump	350	5.5	650	1	10	DFN–10
NCP5604AMT	Charge Pump	120	–	1000	1	4	QFN–16
NCP5604BMT	Charge Pump	120	–	1000	1	3	QFN–16
NCP5608MT	Charge Pump	500	–	1300	–	8	QFN–24
NCP5612MU	Charge Pump	60	5.5	1000	–	2	LLGA–12
NLSF595DT	LED Driver	8	5.5	–	1	8	TSSOP–16
NLSF595MN	LED Driver	8	5.5	–	1	8	QFN–16
NUD4001D	Linear	500	28	–	8	–	SOIC–8
NUD4011D	Linear	70	200	–	100	–	SOIC–8

LOAD DRIVERS

DARLINGTON TRANSISTOR ARRAYS

Device	Number of Drivers	V _{CC} Max (V)	V _{(BR)GSS} Max (V)	V _{(BR)DSS} Max (V)	I _D Max (A)	r _{DS(on)} Max (Ω)	T _j Max (°C)	Package
MC1413BD	7	50	30	50	0.5	4.6	150	SOIC–16
MC1413BP	7	50	30	50	0.5	4.6	150	PDIP–16
MC1413D	7	50	30	50	0.5	4.6	150	SOIC–16
MC1413P	7	50	30	50	0.5	4.6	150	PDIP–16
NCV1413BD	7	50	30	50	0.5	4.6	150	SOIC–16
ULN2003AD	7	50	–	–	–	4.6	150	SOIC–16
ULQ2003AD	7	50	–	–	–	4.6	150	SOIC–16

RELAY DRIVERS

Device	Type	Number of Drivers	V _{CC} Max (V)	V _{(BR)GSS} Max (V)	V _{(BR)DSS} Max (V)	I _D Max (A)	r _{DS(on)} Max (Ω)	T _j Max (°C)	Package
MDC3105D	Dual 5 V	2	6	6	6.6	0.4	0.64	150	SC–74
MDC3105	Single 5 V	1	6	6	6.6	0.4	0.64	150	SOT–23
NUD3105D	Dual 5 V	2	6	6	6	0.5	0.9	150	SC–74
NUD3105	Single 5 V	1	6	6	6	0.5	0.9	150	SOT–23
NUD3112D	Dual 12 V	2	14	6	14	0.5	0.9	150	SC–74
NUD3112	Single 12 V	1	14	6	14	0.5	0.9	150	SOT–23
NUD3124D	Dual 24 V	2	28	12	28	0.15	0.8	150	SC–74
NUD3124	Single 24 V	1	28	12	28	0.15	0.8	150	SOT–23
NUD3160D	Dual 60 V	2	60	12	60	0.15	1.8	150	SC–74
NUD3160	Single 60 V	1	60	12	60	0.15	1.8	150	SOT–23

MOSFET/IGBT DRIVERS

Device	Configuration	Number of Drivers	V _{CC} Max (V)	Drive Source/ Sink Typ (mA)	Rise Time (ns)	Fall Time (ns)	t _p Max (ns)	Package
ADP3110A	Dual	2	13.2	1000 / 1000	40	20	65	DFN–8, SOIC–8
ADP3120A	Dual	2	13.2	1500 / 1500	20	16	70	DFN–8, SOIC–8
ADP3419	Dual Synchronous	2	6	1000 / 1000	14	11	70	MSOP–10
MC33151	Dual Inverting	2	18	1500 / 1500	14	16	100	SOIC–8, PDIP–8
MC34151	Dual Inverting	2	18	1500 / 1500	14	16	100	SOIC–8, PDIP–8
MC33152	Dual Non–Inverting	2	18	1500 / 1500	14	15	120	SOIC–8, PDIP–8
MC34152	Dual Non–Inverting	2	18	1500 / 1500	14	15	120	SOIC–8, PDIP–8
NCV33152	Dual Non–Inverting	2	18	1500 / 1500	15	36	120	SOIC–8
MC33153	Single	1	20	1000 / 2000	17	17	300	SOIC–8, PDIP–8
NCP3418A	Dual	2	13.2	1500 / 1500	16	11	60	SOIC–8, SOIC–8 EP
NCP3418B	Dual	2	13.2	1500 / 1500	16	11	60	SOIC–8, DFN–10
NCP3488	Dual	2	13.2	1500 / 1500	16	11	60	SOIC–8
NCP5104	Single	2	20	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5106A	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5106B	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5111	Single	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5181	Dual	2	20	1400 / 2200	40	40	170	SOIC–8, PDIP–8
NCP5304	Dual	2	23	250 / 500	85	35	170	SOIC–8, PDIP–8
NCP5351	Dual	2	6.3	1400 / 2200	10	14	80	SOIC–8, DFN–10
NCP5355	Dual	2	13.2	1400 / 2200	15	15	60	SOIC–8, SOIC–8 EP
NCP5359	Dual	2	15	1500 / 1500	16	11	35	SOIC–8, DFN–10
NCV7512	Quad Low–Side	4	5.25	1	1400	1400	1000	LQFP–32
NCV7513	Hex Low–Side	6	5.25	1	1400	1400	1000	LQFP–32
NCV7517	Hex Low–Side	6	5.25	100 / 100	277	277	1000	LQFP–32
NCV7702B	Dual H–Bridge	4	16	1000 / 1000	10000	10000	10000	SOIC–24
NCV7703	Triple Half–Bridge	6	40	1500 / 1500	5000	2000	7500	SOIC–14
NCV7708A	Double Hex	12	40	1400 / 2200	2000	2000	7500	SOIC–28

MOTOR DRIVERS

Device	Type	V _{CC} Min (V)	V _{CC} Max (V)	P _D Max (W)	I _O Max (A)	Package
AMIS30521	Stepper Motor Driver	6	40	1.28	1.6	NQFP-32
AMIS30623	Stepper Motor Driver and Controller with LIN	6	40	0.32	0.8	SOIC-20, NQFP-32
AMIS30624	Stepper Motor Driver and Controller with I2C	6	40	0.32	0.8	SOIC-20, NQFP-32
MC3479	Stepper Motor Controller, Two-Phase	7.2	16.5	1.54	0.5	PDIP-16
MC33030	DC Servo Motor Controller	8	36	0.691	1	SOIC-16, PDIP-16
MC33033	Brushless DC 3-Phase Motor Controller	10	30	0.619	0.1	SOIC-20, PDIP-20
NCV33033	Brushless DC 3-Phase Motor Controller	10	30	0.619	0.1	SOIC-20
MC33035	Brushless DC 3-Phase Motor Controller	10	30	0.65	0.1	SOIC-24, PDIP-24
NCV33035	Brushless DC 3-Phase Motor Controller	10	30	0.65	0.1	SOIC-24
MC33039	Closed-Loop Brushless Motor Adapter	5.5	9	0.65	0.02	SOIC-8, PDIP-8
NCV33039	Closed-Loop Brushless Motor Adapter	5.5	9	0.65	0.02	SOIC-8
TDA1085C	Universal Motor Controller	15	16	1	0.2	PDIP-16
CS3351	Alternator Voltage Regulator Darlington Driver	–	27	–	–	SOIC-14
CS3361	Alternator Voltage Regulator FET Driver	–	27	–	–	SOIC-14
CS4121	Precision Air-Core Tach/Speedo Driver	8	16	–	0.01	SOIC-20, PDIP-16
CS8190	Precision Air-Core Tach/Speedo Driver with RTZ	8.5	15	–	0.01	SOIC-20, PDIP-16

Analog Switches

Analog Switches

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AUDIO SWITCHES

Device	Configuration	THD (%)	R _{on} Max (Ω)	I _{lkg} Max (μA)	V _{CC} Min (V)	V _{CC} Max (V)	Packages
NLAS5113	SPST	0.08	1.1	2	1.65	4.5	UDFN-6, SC-88
NLAS5213A	Dual SPST	–	1.3	1	1.65	4.5	UDFN-8, US-8
NLAS5213B	Dual SPST	–	1.3	1	1.65	4.5	UDFN-8, US-8
NLAS4157	SPDT	0.012	1	1	1.65	5.5	SC-88/SC70-6/SOT-363
NLAS5123	SPDT	0.012	1	1	1.65	5.5	UDFN-6, WDFN-6
NLAS5157	SPDT	0.02	0.5	1	1.65	4.5	UDFN-6
NLAS5223	Dual SPDT	0.12	0.5	1	1.65	3.6	WQFN-10
NLAS5223L	Dual SPDT	0.12	0.5	1	1.65	3.6	WQFN-10
NLAS5223B	Dual SPDT	0.08	0.5	1	1.65	4.5	uQFN-10, WQFN-10
NLAS5223BL	Dual SPDT	0.08	0.5	1	1.65	4.5	WQFN-10
NLAS52231	Dual SPDT	0.03	0.5	1	1.65	4.5	UQFN-10
NLAS4684	Dual SPDT	0.14	0.5	1	1.8	5.5	DFN-10, Flip-Chip-10, Micro-10
NLAS6234	DPDT	0.02	0.35	1	2.7	4.5	UQFN-10
NLAS8232H	DPDT/Audio	0.05	5	2	2.7	4.3	UQFN-10
NLAS8232H	DPDT/Data	0.05	6	2	2.7	4.3	UQFN-10
NLAS4783	Triple SPDT	0.008	1.2	1	1.65	3.6	QFN-16
NLAS4783B	Triple SPDT	0.008	1.2	1	1.65	4.5	QFN-16
NLAS3699	Dual DPDT	0.01	0.75	1	1.65	3.6	QFN-16
NLAS3699B	Dual DPDT	0.01	0.75	1	1.65	4.5	QFN-16
NLAS3799	Dual DPDT	0.042	0.5	1	1.65	3.6	WQFN-16
NLAS3799L	Dual DPDT	0.042	0.5	1	1.65	3.6	WQFN-16
NLAS3799B	Dual DPDT	0.042	0.4	1	1.65	4.3	UQFN-16, WQFN-16
NLAS3799BL	Dual DPDT	0.042	0.4	1	1.65	4.3	WQFN-16
NLAS3899B	Dual DPDT	0.007	4	1	1.65	4.3	WQFN-16
NLMD5820	Amp+DPST	0.08	0.5	2	1.65	4.2	UDFN-16

DATA SWITCHES

Device	Data Type	Configuration	C _{on} Typ (pF)	Bandwidth Typ (MHz)	R _{on} Max (Ω)	I _{lkg} Max (μA)	V _{cc} Min (V)	V _{cc} Max (V)	Packages
NLAS7213	USB HS	DPST	5	1100	10	1	1.65	4.5	UQFN-8
NLAS4717	USB	DPDT	110	40	4.5	1	1.8	5.5	Flip-Chip-10, Micro-10
NLAS4717EP	USB	DPDT	38	90	4.5	1	1.8	5.5	WQFN-10, Flip-Chip-10
NLAS7222A	USB HS	DPDT	7	500	9	1	3	3.6	UQFN-10, WQFN-10
NLAS7222B	USB HS	DPDT	8	500	8	1	1.65	4.5	UQFN-10
NLAS7222C	USB HS	DPDT	10	500	8	1	1.65	4.5	UQFN-10
NLAS7223B	USB HS	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN-10
NLAS7223C	USB HS	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN-10
NLAS7242	USB HS	DPDT	7.5	900	7.5	1	1.65	4.5	UQFN-10
NLAS8232H	USB HS	DPDT	9	720	6	2	2.7	4.3	UQFN-10
NLAS8232H	Audio	DPDT	10	300	5	2	2.7	4.3	UQFN-10
NLAS8252	USB	DP3T	16	200	6	1	1.65	4.5	UQFN-12
NLAS3899B	SIM	Dual DPDT	20	280	4	1	1.65	4.3	WQFN-16

GENERAL PURPOSE SWITCHES

Device	Configuration	Number of Elements	Channels	r _{on} Max (Ω)	I _{lkg} Max (μA)	V _{cc} Min (V)	V _{cc} Max (V)	Package
MC14016B	Quad SPST	4	1	660	0.1	3	18	PDIP-14, SOIC-14
MC14051B	SP8T	1	8	500	0.1	3	18	PDIP-16, SOEIAJ-16, SOIC-16, TSSOP-16
MC14052B	DP4T	2	4	500	0.1	3	18	PDIP-16, SOEIAJ-16, SOIC-16, TSSOP-16
MC14053B	Triple SPDT	3	2	500	0.1	3	18	PDIP-16, SOEIAJ-16, SOIC-16, TSSOP-16
MC14066B	Quad SPST	4	1	500	0.1	3	18	PDIP-14, SOEIAJ-14, SOIC-14, TSSOP-14
MC14067B	SP16T	1	16	500	0.1	3	18	SOIC-24
MC14551B	4PDT	4	2	500	0.1	3	18	PDIP-16, SOEIAJ-16, SOIC-16
MC74HC4051A	SP8T	1	8	190	0.2	2	12	PDIP-16, SO-16 WB, SOEIAJ-16, SOIC-16, TSSOP-16
MC74HC4052A	DP4T	2	4	190	0.1	2	12	PDIP-16, SO-16 WB, SOEIAJ-16, SOIC-16, TSSOP-16

GENERAL PURPOSE SWITCHES

Device	Configuration	Number of Elements	Channels	r_{on} Max (Ω)	I_{IKG} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Package
MC74HC4053A	Triple SPDT	3	2	190	0.1	2	12	PDIP-16, SO-16 WB, SOEIAJ-16, SOIC-16, TSSOP-16
MC74HC4066A	Quad SPST	4	1	120	0.1	2	12	PDIP-14, SOEIAJ-14, SOIC-14, TSSOP-14
MC74HC4316A	Quad SPST	4	1	160	0.1	2	6	PDIP-16, SOEIAJ-16, SOIC-16
MC74HC4851A	SP8T	1	8	550	0.1	2	6	PDIP-16, SO-16 WB, SOIC-16, TSSOP-16
MC74HC4852	DP4T	2	4	550	0.1	2	6	PDIP-16, SO-16 WB, SOIC-16, TSSOP-16
MC74LVX4066	Quad SPST	4	1	25	0.1	2	6	SOEIAJ-14, SOIC-14, TSSOP-14
MC74LVX8051	SP8T	1	8	30	0.2	2	6	SOEIAJ-16, SOIC-16, TSSOP-16
MC74LVX8053	Triple SPDT	3	2	30	0.1	2	6	SOEIAJ-16, SOIC-16, TSSOP-16
MC74LVXT4066	Quad SPST	4	1	25	0.1	2	5.5	SOEIAJ-14, SOIC-14, TSSOP-14
MC74LVXT8051	SP8T	1	8	30	0.1	2	6	SOEIAJ-16, SOIC-16, TSSOP-16
MC74LVXT8053	Triple SPDT	3	2	30	0.1	2	6	SOEIAJ-16, SOIC-16, TSSOP-16
MC74VHC1G66	Single SPST	1	1	45	0.1	2	5.5	UDFN-6, SC-88A, SC-70-5, TSOP-5 / SOT23-5
MC74VHC1GT66	Single SPST	1	1	45	0.1	2	5.5	SC-88A, SC-70-5, TSOP-5 / SOT23-5
MC74VHC4051	SP8T	1	8	160	0.1	2	6	SOEIAJ-16, SOIC-16, TSSOP-16
MC74VHC4066	Quad SPST	4	1	120	0.1	2	12	SOEIAJ-14, SOIC-14, TSSOP-14
NL7WB66	Dual SPST	2	1	11	0.1	1.65	5.5	US-8
NLAS1053	Single SPDT	1	2	28	1	2	5.5	US-8
NLAS2066	Dual SPST	2	1	11	0.1	1.65	5.5	US-8
NLAS3158	Dual SPDT	2	2	6	1	1.65	5.5	DFN-12
NLAS323	Dual SPST	2	1	30	0.1	2	5.5	US-8
NLAS324	Dual SPST	2	1	30	0.1	2	5.5	US-8
NLAS325	Dual SPST	2	1	30	0.2	2	5.5	US-8
NLAS3799	Dual DPDT	4	2	0.5	1	1.65	3.6	QFN-16
NLAS3899B	Dual DPDT	4	2	4	1	1.65	4.3	QFN-16
NLAS4051	SP8T	1	8	37	0.1	2.5	5.5	SOIC-16, TSSOP-16
NLAS4051S	SP8T	1	8	26	0.1	2.5	5.5	TSSOP-16
NLAS4053	Triple SPDT	3	2	37	0.1	2.5	5.5	SOIC-16, TSSOP-16

GENERAL PURPOSE SWITCHES

Device	Configuration	Number of Elements	Channels	r_{on} Max (Ω)	I_{IKG} Max (μA)	V_{CC} Min (V)	V_{CC} Max (V)	Package
NLAS44599	Dual DPDT	4	2	30	0.2	2	5.5	QFN-16
NLAS4501	Single SPST	1	1	30	0.1	2	5.5	SC-88A, SC-70-5, TSOP-5 / SOT23-5
NLAS4599	Single SPDT	1	2	30	0.1	2	5.5	SC-88/SC70-6, TSOP-6
NLAS4717EP	Dual SPDT	2	2	4.5	1	1.8	5.5	Flip-Chip-10, WQFN-10
NLAS5113	SPST	1	1	1.1	2	1.65	4.5	UDFN-6, SC-88/SC-70-6
NLAS5123	Single SPDT	1	2	1	1	1.65	5.5	UDFN-6, WDFN-6
NLAS5223L	Dual SPDT	2	2	0.5	1	1.65	3.6	WQFN-10
NLAS5223	Dual SPDT	2	2	0.5	1	1.65	3.6	WQFN-10
NLAS9431	Dual DPDT	4	2	30	0.2	2	5.5	QFN-16
NLASB3157	Single SPDT	1	2	7	1	1.65	5.5	SC-88/SC-70-6, WDFN-6
NLAST4051	SP8T	1	8	37	0.1	2.5	5.5	TSSOP-16
NLAST4053	Triple SPDT	3	2	26	1	2.5	5.5	TSSOP-16
NLAST44599	Dual DPDT	4	2	30	0.2	2	5.5	QFN-16
NLAST4501	Single SPST	1	1	30	0.1	2	5.5	SC-88A, SC-70-5, TSOP-5 / SOT23-5
NLAST4599	Single SPDT	1	2	30	0.1	2	5.5	SC-88/SC-70-6, TSOP-6
NLAST9431	Dual DPDT	4	2	30	0.2	2	5.5	QFN-16

VIDEO SWITCHES

Device	Number of Inputs	Number of Outputs	B_W Typ (MHz)	I_{CCH} Typ (mA)	V_{CC} Min (V)	V_{CC} Max (V)	T_A Min ($^{\circ}C$)	T_A Max ($^{\circ}C$)	Package
NCS6415	8	6	20	30	8	11	0	70	SOIC-20
NCS6416	6	6	15	30	4.75	5.25	0	70	SOIC-20
NCS6433	4	8	570		4	5.5	-40	85	TSSOP-16, SOIC-16

Thermal Managers

Thermal Managers

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THERMAL MANAGERS**REMOTE THERMAL SENSORS**

Device	Data Transmission Standard	I _{CC} Max (mA)	V _{CC} Min (V)	V _{CC} Max (V)	T Min (°C)	T Max (°C)	Temperature Error (°C)	Package
ADM1021A	SMBus	–	3	5.5	–55	125	–	QSOP–16
ADM1023	SMBus	–	3	5.5	–	–	–	QSOP–16
ADM1032	SMBus	0.215	3	5.5	0	120	±3	SOIC–8, MSOP–8
ADT7481	SMBus	0.35	3	3.6	–40	125	±1.5	MSOP–10
ADT7482	SMBus	0.35	3	3.6	–40	125	±1.5	MSOP–10
ADT7483A	SMBus	0.35	3	3.6	–40	125	±1.5	QSOP–16
ADT7484A	SST	5	3	3.6	–40	125	±4	SOIC–8, MSOP–8
ADT7485A	SST	–	3	3.6	–	–	–	MSOP–10
ADT7486A	SST	5	3	3.6	–40	125	±4	MSOP–10
ADT7488A	SST	5	3	3.6	–40	125	±4	MSOP–10

REMOTE THERMAL SENSORS WITH FAN CONTROL

Device	Data Transmission Standard	I _{CC} Max (mA)	V _{CC} Min (V)	V _{CC} Max (V)	T Min (°C)	T Max (°C)	Package
ADM1024	SMBus	3.5	2.8	5.5	0	100	TSSOP–24
ADM1034	SMBus	3	3	3.6	–40	125	QSOP–16
ADT7463	SMBus	3	3	5.5	–40	120	QFN–24, QSOP–24
ADT7466	SMBus	3	3	5.5	–40	125	QSOP–16
ADT7467	SMBus	3	3	5.5	–40	120	QSOP–16
ADT7468	SMBus	3	3	5.5	–40	120	QSOP–24
ADT7473	SMBus	3	3	3.6	–40	125	QSOP–16
ADT7475	SMBus	3	3	3.6	–40	125	QSOP–16
ADT7476A	SMBus	3	3	3.6	–40	125	QSOP–24
ADT7490	SMBus	–	3	3.6	–	–	QSOP–24

SYSTEM MONITORS

Device	Data Transmission Standard	I _{CC} Max (mA)	V _{CC} Min (V)	V _{CC} Max (V)	T Min (°C)	T Max (°C)	Package
ADM1026	SMBus	4	3	5.5	0	100	LQFP–48
ADT7462A	SMBus	4	3	5.5	–40	125	LFCSP–32

DSP Systems

DSP Systems

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AUDIO DSP SYSTEMS

Device	Type	DSP Core (bits)	Coprocessor Type	MIPS	Dynamic Range (dB)	RAM (kB)	I _{standby} Typ (μA)	Audio Inputs	Audio Outputs	Package
0W344-004-XTP	BelaSigna 200	16	WOLA	40	83	42	250	2	2	QFN-52
0W344-005-XTP	BelaSigna 200	16	WOLA	40	83	42	250	2	2	QFN-52
0W588-002-XUA	BelaSigna 200	16	WOLA	40	83	42	250	2	2	WLCSP-40
0W633-001-XTP	BelaSigna 250	16	WOLA	60	88	42	50	2	2	LFBGA-57
0W888-002-XTP	BelaSigna 250	16	WOLA	60	88	42	50	2	2	LFBGA-64

Memory

Memory

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PARALLEL SRAM

Device	Density	Organization (bits)	f _{cycle} Max (MHz)	V _{CC} Min (V)	V _{CC} Max (V)	I _{standby} Typ (μA)	I _{act} Max (μA)	Package
N25S818HAS21I	256 kb	32k x 8	16	1.7	1.95	0.2	–	SOIC–8
N25S818HAT21I	256 kb	32k x 8	16	1.7	1.95	0.2	–	TSSOP–8
N25S830HAS22I	256 kb	32k x 8	20	2.7	3.6	1	–	SOIC–8
N25S830HAT22I	256 kb	32k x 8	20	2.7	3.6	1	–	TSSOP–8
N64S818HAS21I	64 kb	8k x 8	16	1.7	1.95	1	4	SOIC–8
N64S818HAT21I	64 kb	8k x 8	16	1.7	1.95	1	4	TSSOP–8
N64S830HAS22I	64 kb	8k x 8	20	2.7	3.6	1	4	SOIC–8
N64S830HAT22I	64 kb	8k x 8	20	2.7	3.6	1	4	TSSOP–8

SERIAL SRAM

Device	Density	Organization (bits)	t _{ACC} Max (ns)	V _{CC} Min (V)	V _{CC} Max (V)	I _{standby} Typ (μA)	I _{act} Max (μA)
N01L6183AT27I	1 Mb	64k x 16	70	1.65	2.2	0.5	10
N01L63W2AB25I	1 Mb	64k x 16	55	2.3	3.6	2	20
N01L63W2AT25I	1 Mb	64k x 16	55	2.3	3.6	2	20
N01L63W3AB25I	1 Mb	64k x 16	55	2.3	3.6	2	20
N01L63W3AT25I	1 Mb	64k x 16	55	2.3	3.6	2	20
N01L63W3AT25IT	1 Mb	64k x 16	55	2.3	3.6	2	20
N01L83W2AN25I	1 Mb	128k x 8	55	2.3	3.6	2	20
N01L83W2AN25IT	1 Mb	128k x 8	55	2.3	3.6	2	20
N01L83W2AN5I	1 Mb	128k x 8	55	2.3	3.6	2	20
N01L83W2AT25I	1 Mb	128k x 8	55	2.3	3.6	2	20
N01L83W2AT25IT	1 Mb	128k x 8	55	2.3	3.6	2	20
N02L6181AB27I	2 Mb	128k x 16	70	1.65	2.2	0.5	10
N02L6181AB28I	2 Mb	128k x 16	85	1.65	2.2	0.5	10
N02L63W2AB25I	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W2AT25I	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W3AB25I	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W3AB25IT	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W3AB5I	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W3AB5IT	2 Mb	128k x 16	55	2.3	3.6	2	20

SERIAL SRAM

Device	Density	Organization (bits)	t _{ACC} Max (ns)	V _{CC} Min (V)	V _{CC} Max (V)	I _{standby} Typ (μA)	I _{act} Max (μA)
N02L63W3AT25I	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L63W3AT25IT	2 Mb	128k x 16	55	2.3	3.6	2	20
N02L83W2AN25I	2 Mb	256k x 8	55	2.3	3.6	2	20
N02L83W2AN25IT	2 Mb	256k x 8	55	2.3	3.6	2	20
N02L83W2AN5I	2 Mb	256k x 8	55	2.3	3.6	2	20
N02L83W2AN5IT	2 Mb	256k x 8	55	2.3	3.6	2	20
N02L83W2AT25I	2 Mb	256k x 8	55	2.3	3.6	2	20
N02L83W2AT5I	2 Mb	256k x 8	55	2.3	3.6	2	20
N04L63W1AB27I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AB27IT	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AB7I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AB7IT	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AT27I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AT27IT	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W1AT7I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W2AB27I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W2AT27I	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W2AT27IT	4 Mb	256k x 16	70	2.3	3.6	4	20
N04L63W2AT7I	4 Mb	256k x 16	70	2.3	3.6	4	20
N08L6182AB1E	8 Mb	512k x 16	70	1.65	2.2	0.5	100
N08L6182AB27I	8 Mb	512k x 16	70	1.65	2.2	0.5	100
N08L6182AB7I	8 Mb	512k x 16	70	1.65	2.2	0.5	100
N08L6182AB7IT	8 Mb	512k x 16	70	1.65	2.2	0.5	100
N08L63W2AB27I	8 Mb	512k x 16	70	2.3	3.6	4	20
N08L63W2AB7I	8 Mb	512k x 16	70	2.3	3.6	4	20

EMI/RFI Filters

EMI/RFI Filters

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AUDIO FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	I _R Max (μ A)	V _(BR) Typ (V)	V _{RWM} Max (V)	Package
NUF2114MNT1G	2 Line Audio EMI Filter with ESD Protection	8.4	60	0.1	15.7	12	DFN-8
NUF2116MNT1G	2 Line Audio EMI Filter with ESD Protection	64	50	0.1	15.7	12	DFN-8
NUF2441FCT1G	Integrated Passive Filter with ESD Protection	0.28	250	0.1	15	12	FLIP-CHIP-6
NUF2450MUT2G	2 Line EMI Filter with ESD Protection	1.3	240	0.1	7	5	UDFN-8
NUF4220MNT1G	4 Line Audio EMI Filter with ESD Protection	0.85	205	0.1	7	5	DFN-8

DATA FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	I _R Max (μ A)	V _(BR) Typ (V)	V _{RWM} Max (V)	Package
NUF2042XV6	USB Upstream Terminator with ESD Protection	22	42	0.01	6.8	5.25	SOT-563
NUF2101M	USB 1.1 Down Stream EMI Filter with ESD Protection	30	55	0.1	7	5.25	TSOP-6
NUF2221W1	Zener USB Upstream Terminator with ESD Protection	22	42	0.1	6.8	5.25	SC-88
NUF2222FC	2 Line USB 1.1 Upstream EMI Filter	33	36	0.1	7.6	5.6	Flip-Chip-8
NUF2230XV6	2 Line EMI Filter with ESD Protection	100	16	1	7	5	SOT-563
NUF2900MN	Two Line EMI Filter with ESD Protection for High Speed Data Interface	3.6	33	0.1	7	5	DFN-8
NUF3101FC	3 Line EMI Filter	47	18	0.1	7	5.6	Flip-Chip-8
NUF3102MU	Low Capacitance 3 Line EMI Filter	100	13	1	7	5	UDFN-8
NUF4000MU	4 Channel, 100 Ohms, 17 pF	100	15	0.1	7	5	UDFN-8
NUF4001MU	Low Capacitance 4 Line EMI Filter with ESD Protection	100	13	0.1	7	5	UDFN-8
NUF4010MU	4 Channel, 100 ohms, 8.5 pF	100	7	0.1	7	5	UDFN-8
NUF4107FC	4 Channel EMI Pi-Filter Array with Full USB Filter	22	60	0.1	6.8	3.3	Flip-Chip-17
NUF4211MN	Low Capacitance 4 Line EMI Filter with ESD Protection	100	8.5	0.1	7	5	DFN-8
NUF4401MN	4 Line EMI Filter with ESD Protection	200	15	0.1	7	5	DFN-8
NUF4402MN	4 Line EMI Filter with ESD Protection	100	12	0.1	7	5	DFN-8
NUF4403MN	4 Line EMI Filter with ESD Protection	100	17	0.1	7	5	DFN-8
NUF6001MU	6 Line EMI Filter with ESD Protection	100	17	0.1	7	5	UDFN-12
NUF6005MU	6 channel, 100 ohm, 12 pF	100	10	0.1	7	5	UDFN-12
NUF6010MU	6 Line EMI Filter with ESD Protection	100	7	0.1	6.8	5	UDFN-12
NUF6105FC	6 Channel EMI Pi-Filter Array with ESD Protection	100	53	0.1	7	3.3	FLIP-CHIP-15
NUF6106FC	6 Channel EMI Pi-Filter Array with ESD Protection	100	21	0.1	7	3.3	FLIP-CHIP-15
NUF6107MN	4 Channel Data Line EMI Filter	100	30	0.1	6.8	5	DFN-12

DATA FILTERS

Device	Description	R Typ (Ω)	C Typ (pF)	I _R Max (μ A)	V _(BR) Typ (V)	V _{RWM} Max (V)	Package
NUF6400MN	6 line EMI Filter	100	50	0.1	7	5	DFN-12
NUF6401MN	6 Line EMI Filter with ESD Protection	100	17	1	7	5	DFN-12
NUF6402MN	4 Line EMI Filter with ESD Protection	100	17	1	7	5	DFN-12
NUF6406MN	6 Line EMI Filter with ESD Protection	100	13	1	7	5	DFN-12
NUF6410MN	6 Line EMI Filter with ESD Protection	100	7	0.1	6.8	5	DFN-12
NUF8000MU	8 Channel, 100 ohm, 17pF in UDFN16	100	15	0.1	7	5	UDFN-16
NUF8001MU	Low Capacitance 8 Line EMI Filter with ESD Protection	100	12	0.1	7	5	UDFN-16
NUF8010MU	8 Channel - Low Capacitance	100	7	0.1	7	5	UDFN-16
NUF8152MU	8 Line EMI Filter with ESD Protection	28	20	0.1	7	5	UDFN-16
NUF8401MN	Low Capacitance 8 Line EMI Filter with ESD Protection	100	12	0.1	7	5	DFN-16
NUF8402MN	8 Line EMI Filter with ESD Protection	100	17	0.1	7	5	DFN-16
NUF8410MN	Low Capacitance 8 Line EMI Filter with ESD Protection	100	8.5	0.1	7	5	DFN-16
NUF9001FC	10 Line EMI Filter	200	45	0.1	7	5	Flip-Chip-25
NUF9002FC	Low Capacitance 10 Line EMI Filter with ESD Protection	100	28	0.5	7	5	Flip-Chip-25
NZF220DF	EMI Filter with 6 V TVS Array, 2-Line	100	22	1	7	3	SC-88A
NZF220T	EMI Filter with 6 V TVS Array, 1-Line	100	22	1	7	3	SC-75
STF202-22T1G	Upstream USB Port Filter & 6 V TVS Array, 2-Line	22	68	1	7	5.25	TSOP-6

Bipolar Transistors

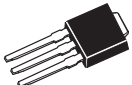
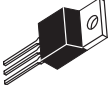
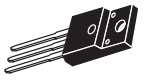
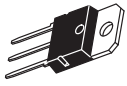
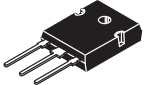
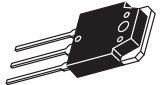
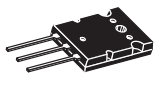
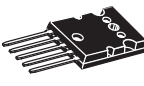
Bipolar Transistors

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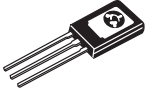
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BIPOLAR TRANSISTORS SELECTOR GUIDE

SELECTION BY PACKAGE

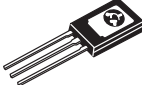
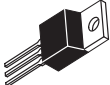
Package	I_C Range (Amps)	V_{CE} Range (Volts)	P_D (Watts)
 SOT-223	0.5–3.0	30–300	2.75–3.0
 DPAK	0.5–10	25–450	12.5–25
 D ² PAK	6.0–10	80–350	50–75
 DPAK	0.5–10	25–450	12.5–25
 TO-225AA	0.3–5.0	25–500	12.5–50
 TO-220AB	0.5–15	32–400	30–150
 Isolated TO-220	1.0–10	60–450	28–45
 TO-218	10–25	60–350	80–150
 TO-247	8.0–30	150–250	100–200
 TO-3P	15–20	150–260	150–200
 TO-264	15–20	250–350	200–250
 TO-264 5-Lead	15	260	200
 TO-3 (TO-204AA) 40 Mil Pins	4.0–30	40–250	115–250
 TO-3 (TO-204AE) 60 Mil Pins	40–60	60–250	150–300

DISCRETE TRANSISTORS

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
0.5	300		MMJT350T1	30/240	0.05	30	2.75	 SOT-223
3.0	40		NJT4030P	200/400	1.0	160 typ	2.0	
	40	NJT4031N		200/400	1.0	215	2.0	
	40	NSS40301MZ4	NSS40300MZ4	200/500	1.0	150	2.0	
6.0	60	NSS60601MZ4	NSS60600MZ4	120/360	1.0	100	2.0	 DPAK
0.5	300	MJD340T4	MJD350T4	30/240	0.05	30	15	
1.0	250	MJD47T4		30/150	0.3	10	15	
	350		MJD5731T4	10 min	1.0	10	15	
	400	MJD50T4		30/150	0.3	10	15	
2.0	45		MJD148T4	50 min	2.0	3.0	20	
	50	NJD2873T4		40 min	2.0	30	12.5	
	450	MJD18002D2T4		6.0 min	2.0	13 typ	25	
3.0	40	MJD31T4	MJD32T4	10 min	1.0	3.0	15	
	100	MJD31CT4	MJD32CT4	10 min	1.0	3.0	15	
4.0	100	MJD243T4	MJD253T4	40/180	0.2	40	12.5	
5.0	25	MJD200T4	MJD210T4	45/180	2.0	65	12.5	
6.0	100	MJD41CT4	MJD42CT4	15/75	3.0	3.0	20	
8.0	80	MJD44H11T4	MJD45H11T4	40 min	4.0	50 typ	20	
10	60	MJD3055T4	MJD2955T4	20/100	4.0	2.0	20	
6.0	100	MJB41CT4	MJB42CT4	15/75	3.0	3.0	65	 D²PAK
8.0	80	MJB44H11T4	MJB45H11T4	40/100	4.0	40	50	
0.3	350	MJE3439		40/160	0.02	15	15	 TO-225AA
0.5	200	MJE344		30/300	0.05	15	20.8	
	250	2N5655		30/250	0.1	10	20	
	300	MJE340	MJE350	30/240	0.05	30	20.8	
	350	2N5657		30/250	0.1	10	20	
		BD159		30/240	0.05	30	20	
1.0	40	2N4921	2N4918	20/100	0.5	3.0	30	
	60	2N4922	2N4919	20/100	0.5	3.0	30	
	80	2N4923	2N4920	20/100	0.5	3.0	30	
1.5	45	BD135	BD136	40/250	0.15	50	12.5	
	60	BD137	BD138	40/250	0.15	50	12.5	
	80	BD139	BD140	40/250	0.15	50	12.5	
2.0	45		BD234	25 min	1.0	3.0	25	
	80	BD237		25 min	1.0	3.0	25	
3.0	40	MJE180	MJE170	50/250	0.1	50	12.5	
	60	MJE181	MJE171	50/250	0.1	50	12.5	
	80	BD179	BD180	40/250	0.15	3.0	25	
		MJE182	MJE172	50/250	0.1	50	12.5	
	500	BUH51 †		8.0 min	1.0	12 typ	50	

†Style 3.

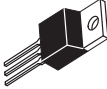
DISCRETE TRANSISTORS (continued)

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
4.0	32	BD435	BD436	50 min	2.0	3.0	36	 TO-225AA
	40	MJE521	MJE371	40 min	1.0	3.0	40	
		2N5190		25 min	1.5	2.0	40	
	45	BD437	BD438	40 min	2.0	3.0	36	
	60	BD439	BD440	25 min	2.0	3.0	36	
		BD787	BD788	20 min	2.0	50	15	
		2N5191	2N5194	25/100	1.5	2.0	40	
	80	2N5192	2N5195	25/100	1.5	2.0	40	
		BD441	BD442	15 min	2.0	3.0	36	
	100	MJE243	MJE253	40/120	0.2	40	15	
5.0	25	MJE200	MJE210	45/180	2.0	65	15	
1.0	60	TIP29A		15/75	1.0	3.0	30	 TO-220AB
	80	TIP29B		15/75	1.0	3.0	30	
	100	TIP29C	TIP30C	15/75	1.0	3.0	30	
	250	TIP47		30/150	0.3	10	40	
	300	TIP48	MJE5730	30/150	0.3	10	40	
	350		MJE5731	30/150	0.3	10	40	
	375		MJE5731A	30/150	0.3	10	40	
	400	TIP50		30/150	0.3	10	40	
2.0	400/700	BUL44		14/36	0.4	13 typ	50	
	450/1000	BUX85		30	0.1	4.0	50	
		MJE18002		14/34	0.2	12 typ	40	
3.0	40	TIP31	TIP32	25 min	1.0	3.0	40	
	60	TIP31A	TIP32A	25 min	1.0	3.0	40	
	80		BD242B	25 min	1.0	3.0	40	
		TIP31B	TIP32B	25 min	1.0	3.0	40	
	100	BD241C	BD242C	25 min	1.0	3.0	40	
		TIP31C	TIP32C	25 min	1.0	3.0	40	
4.0	80	D44C12	D45C12	40/120	0.2	40 typ	30	
	350	MJE15034	MJE15035	10 min	2.0	30	50	
	400/700	MJE13005		6/30	3.0	4.0	60	
	500/800	BUH50		10 typ	2.0	4.0	50	
5.0	250	2N6497		10/75	2.5	5.0	80	
	400/700	BUL45		14/34	0.3	12 typ	75	
		BUL45D2*		22 min	0.8	13 typ	75	
	450/1000	MJE18004		14/34	0.3	13	75	
		MJE18004D2*		15 min	0.8	13	75	

NOTE: When two voltages are given, the format is V_{CEO(sus)}/V_{CES}.

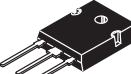
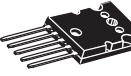
*D2 suffix indicates transistor with built-in C–E freewheeling diode and antisaturation network.

DISCRETE TRANSISTORS (continued)

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
6.0	40		TIP42	15/75	3.0	3.0	65	 TO-220AB
	60	TIP41A	TIP42A	15/75	3.0	3.0	65	
	80	TIP41B	TIP42B	15/75	3.0	3.0	65	
			BD244B	15 min	3.0	3.0	65	
	100	BD243C	BD244C	15 min	3.0	3.0	65	
		TIP41C	TIP42C	15/75	3.0	3.0	65	
	400/700	BUL146		14/34	0.5	14 typ	100	
	450/1000	MJE18006		14/34	0.5	14 typ	100	
7.0	30	2N6288	2N6111	30/150	3.0	4.0	40	
	50		2N6109	30/150	2.5	4.0	40	
	70	2N6292	2N6107	30/150	2.0	4.0	40	
	200	BU406		30 min	1.5	10	60	
8.0	120	MJE15028	MJE15029	20 min	4.0	30	50	
	150	MJE15030	MJE15031	20 min	4.0	30	50	
	250	MJE15032	MJE15033	10 min	2.0	30	50	
	300		MJE5850	15 min	2.0	30 typ	80	
	350		MJE5851	15 min	2.0	30 typ	80	
	400		MJE5852	15 min	2.0	30 typ	80	
		MJE13007		5/30	5.0	14 typ	80	
	450/1000	MJE18008		16/34	1.0	13 typ	125	
10	60	D44H8	D45H8	40 min	4.0	3.0	50	
		MJE3055T	MJE2955T	20/70	4.0	3.0	75	
	80	BD809	BD810	15 min	4.0	1.5	90	
		D44H11	D45H11	40 min	4.0	50 typ	50	
	400/700	BUH100		6.0 min	10	23 typ	100	
12	90	BUV26		12 min	12	30 typ	85	
	120	BUV27		12 min	8.0	30 typ	70	
	400/700	MJE13009		6/30	8.0	4.0	100	
15	60	2N6487	2N6490	20/150	5.0	5.0	75	
	80	2N6488	2N6491	20/150	5.0	5.0	75	
		D44VH10	D45VH10	20 min	4.0	50 typ	83	
	400/700	BUH150		4.0 min	20	23 typ	150	

NOTE: When two voltages are given, the format is V_{CEO(sus)}/V_{CES}.

DISCRETE TRANSISTORS (continued)

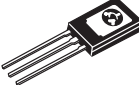
I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
1.0	250	MJF47		30/150	0.3	10	28	 Isolated TO-220
3.0	100	MJF31C	MJF32C	10 min	1.0	3.0	28	
5.0	450/1000	MJF18004		14/34	0.3	13 typ	35	
6.0	400/700	BUL146F		14/34	0.5	14 typ	40	
8.0	150	MJF15030	MJF15031	40 min	3.0	30	35	
	450/1000	MJF18008		16/34	1.0	13 typ	45	
10	60	MJF3055	MJF2955	20/100	4.0	2.0	40	
	80	MJF44H11	MJF45H11	40/100	4.0	40	35	
10	100	TIP33C		20/100	3.0	3.0	80	 TO-218
15	60	TIP3055	TIP2955	5 min	10	2.5	80	
16	160	MJE4343	MJE4353	15 min	8.0	1.0	125	
25	60	TIP35A	TIP36A	15/75	15	3.0	125	
	100	TIP35C	TIP36C	15/75	15	3.0	125	
8.0	150	MJW21192	MJW21191	15 min	8.0	4.0	100	 TO-247
15	260	MJW0281A	MJW0302A	75/150	3.0	30	150	
		MJW3281A	MJW1302A	75/150	4.0	30	200	
16	250	MJW21194	MJW21193	20/60	8.0	4.0	200	
		MJW21196	MJW21195	20/60	8.0	4.0	200	
30	450/1000	MJW18020		14/35	3.0	13 typ	250	
15	260	NJW0281	NJW0302	75/150	3.0	30	150	 TO-3P
	260	NJW3281	NJW1302	75/150	4.0	30	200	
16	250	NJW21194	NJW21193	20/60	8.0	4.0	200	
15	260	MJL3281A	MJL1302A	75/150	4.0	30	200	 TO-264
	350	MJL4281A	MJL4302A	80/250	5.0	35	230	
16	250	MJL21194	MJL21193	25/75	8.0	4.0	200	
		MJL21196	MJL21195	25/75	8.0	4.0	200	
15	260	NJL0281D	NJL0302D	75/150	3.0	30	180	 TO-264 (5-Lead)
	260	NJL3281D	NJL1302D	75/150	4.0	30	200	
	350	NJL4281D	NJL4302D	75/150	5.0	30	250	
16	250	NJL21194D	NJL21193D	25/75	8.0	4.0	200	
10	140	2N3442		20/70	4.0	3.0	117	 TO-3 (TO-204AA)
	250	MJ15011		20/100	2.0	3.0	200	
15	60	2N3055	MJ2955	20/70	4.0	2.5	115	
		2N3055A		20/70	4.0	0.8	115	
	120	MJ15015	MJ15016	20/70	4.0	1.0	180	
	140	MJ15001	MJ15002	25/150	4.0	2.0	200	

NOTE: When two voltages are given, the format is V_{CEO(sus)}/V_{CES}.

DISCRETE TRANSISTORS (continued)

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
16	140	2N3773		15/60	8.0	4.0	150	 TO-3 (TO-204AA)
	200	MJ15022	MJ15023	15/60	8.0	5.0	250	
	250	MJ15024	MJ15025	15/60	8.0	5.0	250	
		MJ21194	MJ21193	25/75	8.0	4.0	250	
		MJ21196	MJ21195	25/75	8.0	4.0	250	
20	60	2N3772		15/60	10	2.0	150	
	90	2N5038		20/100	12	60	140	
	140	MJ15003	MJ15004	25/150	5.0	2.0	250	
25	60	2N5885	2N5883	20/100	10	4.0	200	
	80	2N5886	2N5884	20/100	10	4.0	200	
	100	2N6338		30/120	10	40	200	
	150	2N6341		30/120	10	40	200	
30	40	2N3771		15/60	15	2.0	150	
	60	2N5302		15/60	15	2.0	200	
	100	MJ802	MJ4502	25/100	7.5	2.0	200	
40	200	BUV21		10 min	25	8.0	150	 TO-3 (TO-204AE)
	250	BUV22		10 min	20	8.0	250	
50	80	2N5686	2N5684	15/60	25	2.0	300	
60	60		MJ14001	15/100	50	3.0	300	
	80	MJ14002		15/100	50	3.0	300	

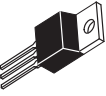
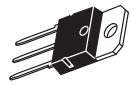
DARLINGTON TRANSISTORS

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	Device Type		h _{FE} Min/Max	@ I _C Amp	f _T MHz Min	P _D (Case) Watts @ 25°C	Package
		NPN	PNP					
2.0	100	MJD112T4	MJD117T4	1000 min	2.0	25	20	 DPAK
4.0	80	MJD6039T4		1k/2k	2.0	25	20	
	350	NJD35N04		2000 min	2.0	90	45	
8.0	100	MJD122T4	MJD127T4	1k/2k	4.0	4	20	
	120		MJD128T4	1k/2k	4.0	4	20	
10	80	MJD44E3T4		1k min	5.0		20	 D ² PAK
10	350	BUB323Z		500/3400	5.0	2.0	75	
2.0	100	MJE270†	MJE271†	1.5k min	0.12	6.0	15	 TO-225AA
4.0	40		2N6034	25 min	1.5	2.0	40	
	45	BD675	BD676	750	1.5	3.0	40	
		BD675A	BD676A	750	2.0	3.0	40	
	60	BD677	BD678	750 min	1.5		40	
		BD677A	BD678A	750 min	2.0		40	
		MJE800	MJE700	750 min	1.5	1.0	40	
		2N6038	2N6035	750/18k	2.0	25	40	
	80	BD679	BD680	750 min	1.5		40	
		BD679A	BD680A	750 min	2.0		40	
		MJE802	MJE702	750 min	1.5	1.0	40	
		MJE803	MJE703	750 min	2.0	1.0	40	
		2N6039	2N6036	750/18k	2.0	25	40	
	100	BD681	BD682	750 min	1.5		40	
2.0	60	TIP110	TIP115	500 min	2.0	25	50	 TO-220AB
	80	TIP111	TIP116	500 min	2.0	25	50	
	100	TIP112	TIP117	500 min	2.0	25	50	
5.0	60	TIP120	TIP125	1k min	3.0	4.0	65	
	80	TIP121	TIP126	1k min	3.0	4.0	65	
	100	TIP122	TIP127	1k min	3.0	4.0	75	
8.0	60	2N6043	2N6040	1k/10k	4.0	4.0	75	
		TIP100		1k/20k	3.0	4.0	80	
	80	BDX53B	BDX54B	750 min	3.0	4.0	60	
		TIP101	TIP106	1k/20k	3.0	4.0	80	
		TIP131		1k/15k	4.0		70	
	100	TIP132		1k/15k	4.0		70	
		2N6045	2N6042	1k/10k	3.0	4.0	75	
		BDX53C	BDX54C	750 min	3.0			
		TIP102	TIP107	1k/20k	3.0	4.0	80	
	400	MJE5742		200 min	4.0		80	

NOTE: When two voltages are given, the format is V_{CEO(sus)}/V_{CES}.

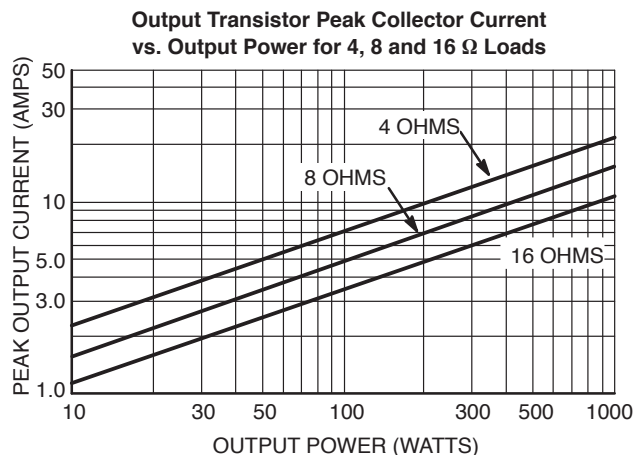
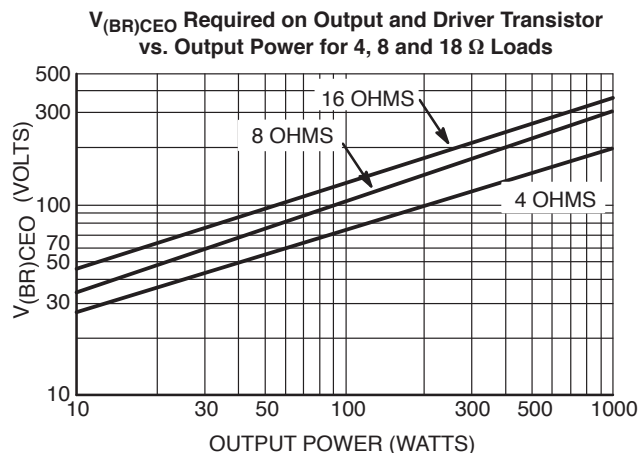
†Style 3.

DARLINGTON TRANSISTORS (continued)

I_C Cont Amps Max	V_{CEO(sus)} Volts Min	Device Type		h_{FE} Min/Max	@ I_C Amp	f_T MHz Min	P_D (Case) Watts @ 25°C	Package
		NPN	PNP					
10	60	2N6387	2N6667	1k/20k	5.0	20	65	 TO-220AB
	80	BDX33B	BDX34B	750 min	3.0	3.0	70	
		2N6388		1k/20k	5.0	20	65	
	100	BDX33C	BDX34C	750 min	3.0	3.0	70	
15	80		BDW46	1k min	5.0	4.0	85	
	100	BDW42	BDW47	1k min	5.0	4.0	85	
5.0	100	MJF122	MJF127	2000 min	3.0	4.0	28	 Isolated TO-220
10	100	MJF6388	MJF6668	3k/20k	3.0	20	40	
10	60	TIP140		500 min	10	4.0	125	 TO-218
		TIP141		500 min	10	4.0	125	
	100	BDV65B	BDV64B	1k min	5.0		125	
		TIP142	TIP147	500 min	10	4.0	125	
	350	BU323Z		500/3400	5.0		150	
15	150		MJH11017	400/15k	10	3.0	150	
	200	MJH11020	MJH11019	400/15k	10	3.0	150	
	250	MJH11022	MJH11021	400/15k	10	3.0	150	
20	100	MJH6284	MJH6287	750/18k	10	4.0	125	
12	100		2N6052	750/18k	6.0	4.0	150	 TO-3 (TO-204AA)
15	250	MJ11022	MJ11021	100 min	15	3.0	175	
20	80		2N6286	750/18k	10	4.0	160	
	100	2N6284	2N6287	750/18k	10	4.0	160	
30	60	MJ11012		1k min	20	4.0	200	
	120	MJ11016	MJ11015	1k min	20	4.0	200	
	250	MJ11022	MJ11021	400/15k	10	3.0	200	
50	60	MJ11028		400 min	50		300	 TO-3 (TO-204AE)
	90	MJ11030		400 min	50		300	
	120	MJ11032	MJ11033	400 min	50		300	

Audio

GENERAL DESIGN CURVES FOR POWER AUDIO OUTPUT STAGES



Another important parameter that must be considered before selecting the output transistors is the safe-operating area these devices must withstand. For a complete discussion see Application Note AN485.

RECOMMENDED POWER TRANSISTORS FOR AUDIO/SERVO LOADS

RMS Power Output	NPN	PNP	Package	P_D Watts @ 25°C	V_{CEO}	I_C Max	h_{FE}		f_T MHz Typ
							Min/Max	@ I_C Amps	
To 25 W	MJE15030	MJE15031	TO-220	50	150	8.0	20 min	4.0	30
	MJE15032	MJE15033	TO-220	50	250	8.0	50 min	1.0	30
25 to 50 W	MJE15034	MJE15035	TO-220	50	350	4.0	50 min	1.0	30
	MJ15001	MJ15002	TO-3	200	140	15	25/150	4.0	3.0
50 to 100 W	MJ15003	MJ15004	TO-3	150	140	20	25/150	5.0	3.0
	MJ15015	MJ15016	TO-3	180	120	15	20/70	4.0	3.0
Over 100 W	MJW21192	MJW21191	TO-3	100	150	8.0	15 min	4.0	4.0
	NJW0281	NJW0302	TO-3P	150	260	15	75/150	3.0	30
	NJL0281D	NJL0302D	TO-264 (5-Lead)	180	260	15	75/150	3.0	30
	MJL21194	MJL21193	TO-264	200	250	16	25/75	8.0	4.0
	MJL21196	MJL21195	TO-264	200	250	16	25/75	8.0	4.0
	MJW21194	MJW21193	TO-247	200	250	16	20/60	8.0	4.0
	NJW21194	NJW21193	TO-3P	200	250	16	20/60	8.0	4.0
	MJW21196	MJW21195	TO-247	200	250	16	25/60	8.0	4.0
	MJL3281A	MJL1302A	TO-264	200	260	15	75/150	5.0	30

RECOMMENDED POWER TRANSISTORS FOR AUDIO/SERVO LOADS (continued)

RMS Power Output	NPN	PNP	Package	P _D Watts @ 25°C	V _{CEO}	I _C Max	h _{FE}		f _T MHz Typ
							Min/Max	@ I _C Amps	
Over 100 W	MJW3281A	MJW1302A	TO-247	200	260	15	75/150	5.0	30
	NJW3281	NJW1302	TO-3P	200	260	15	75/150	5.0	30
	MJL4281A	MJL4302A	TO-264	200	350	15	80/200	5.0	35
	NJL3281D	NJL1302D	TO-264 (5-Lead)	200	260	15	75/150	7.0	30
	NJL4281D	NJL4302D	TO-264 (5-Lead)	250	350	15	75/150	5.0	30
	MJ15024	MJ15025	TO-3	250	250	16	15/60	8.0	4.0
	MJ21194	MJ21193	TO-3	250	250	16	25/75	8.0	4.0

The Power Transistors shown are provided for reference only and show device capability. The final choice of the Power Transistors used is left to the circuit designer and depends upon the particular safe-operating area required and the mounting and heat sinking configuration used.

Bipolar Power Transistors for Electronic Lamp Ballasts

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	V _{CES} Volts Min	Device Type	I _C Operating Amps	h _{FE} min @ I _C Operating V _{CE} = 1.0 V	Inductive Switching @ I _C Operating t _{si} /t _{fi} Max (μs)	P _D (Case) Watts @ 25°C	Package
2.0	400	700	BUL44	1.0	8.0	2.75/0.175	50	 TO-220AB
	450	1000	MJE18002	1.0	6.0	2.75/0.175	50	
4.0	500	800	BUH50	2.0	8.0 typ	2.75/0.15	50	
5.0	400	700	BUL45	2.0	7.0	3.8/0.17	75	
		700	BUL45D2*	2.0	10	2.25/0.015	75	
	450	1000	MJE18004	2.0	6.0	2.5/0.175	75	
		1000	MJE18004D2*	2.0	6.0	2.4/0.15	75	
6.0	400	700	BUL146	3.0	8.0	2.5/0.15	100	
	450	1000	MJE18006	3.0	6.0	3.2/0.15	100	
8.0	450	1000	MJE18008	4.5	6.0	3.2/0.15	125	
10	400	700	BUH100	5.0	10 typ	3.5/0.15	100	
15	400	700	BUH150	10	8.0 typ	2.75/0.175	150	

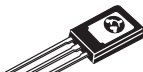
Isolated TO-220

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	V _{CES} Volts Min	Device Type	I _C Operating Amps	h _{FE} min @ I _C Operating V _{CE} = 1.0 V	Inductive Switching @ I _C Operating t _{si} /t _{fi} Max (μs)	P _D (Case) Watts @ 25°C	Package
5.0	450	1000	MJF18004	2.0	6.0	2.5/0.175	35	 Isolated TO-220
6.0	400	700	BUL146F	3.0	8.0	2.5/0.15	40	
8.0	450	1000	MJF18008	4.5	6.0	3.2/0.15	45	

DPAK

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	V _{CES} Volts Min	Device Type	I _C Operating Amps	h _{FE} min @ I _C Operating V _{CE} = 1.0 V	Inductive Switching @ I _C Operating t _{si} /t _{fi} Max (μs)	P _D (Case) Watts @ 25°C	Package
2.0	450	1000	MJD18002D2T4	1.0	6.0	1.2/0.150	25	 DPAK

TO-225AA (TO-126)

I _C Cont Amps Max	V _{CEO(sus)} Volts Min	V _{CES} Volts Min	Device Type	I _C Operating Amps	h _{FE} min @ I _C Operating V _{CE} = 1.0 V	Inductive Switching @ I _C Operating t _{si} /t _{fi} Max (μs)	P _D (Case) Watts @ 25°C	Package
3.0	500	800	BUH51†	1.0	8.0	3.75/0.3	50	 TO-225AA

BUH-Series are specified for Halogen applications.

*D2 suffix indicates transistor with built-in C-E freewheeling diode and antisaturation network.

†Style 3.

The isolated TO-220 is UL RECOGNIZED for its isolation feature and has been evaluated to 3500 volts RMS. Actual isolation rating depends on specific mounting position and maintaining required strike and creepage distances.

BIPOLAR TRANSISTORS

GENERAL-PURPOSE TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MPS8099	–	80	500	100	300	150	–	 TO-226AA, TO-92 Case 29-11
MPSA06	MPSA56	80	500	100	–	100	–	
BC639	–	80	500	40	160	60	0.5	
BC489B	–	80	1000	160	400	100	0.5	
BC639-16	–	80	1000	100	250	60	0.5	
BC546B	–	65	100	180	450	150	10	
MPSA05	MPSA55	60	500	100	–	100	–	
–	MPS2907A	60	600	100	300	200	–	
MPS651	MPS751	60	2000	75	–	75	0.5	
BC637	–	60	500	40	160	–	0.5	
–	2N5087	50	50	250	800	40	2.0	
–	BC307B	45	100	200	460	150	10	
BC337	–	45	800	100	630	210 (Typ)	–	
BC337-25	BC327-25	45	800	160	400	260 (Typ)	–	
BC337-40	BC327-40	45	800	250	630	260 (Typ)	–	
BC550C	–	45	100	380	800	250 (Typ)	2.5	
BC547A	–	45	100	120	220	150	10	
BC547B	BC557B	45	100	180	450	150	10	
–	BC557C	45	100	380	800	150	10	
MPS2222A	–	40	600	100	300	300	–	
2N4401	2N4403	40	600	100	300	200	–	
–	MPS6652	40	1000	50	–	100	–	
2N3904	2N3906	40	200	100	300	250	5.0	
BC548C	–	30	100	420	800	300	10	 TO-226AA, TO-92 Case 29-11
BC549C	–	30	100	420	800	–	–	
MPS2222	–	30	600	100	300	250	–	
2N5088	–	30	50	350	–	50	3.0	
2N5089	–	25	50	450	–	50	2.0	
2N4124	–	25	200	120	360	300	–	
MPS4124	–	25	200	120	360	170	5.0	
MPS5172	–	25	100	100	500	–	–	
–	BC369	20	1000	60	–	65	0.5	
MPSW06	MPSW56	80	500	80	–	50	–	 TO-226AE (1-WATT) TO-92 Case 29-10
MPSW05	–	60	500	60	–	50	250	
MPSW01A	MPSW51A	40	1000	50	–	50	–	
MPSW01	MPSW51	30	1000	50	–	50	–	
MPS6726	–	30	1000	50	250	–	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL-PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MMBT5550L	–	140	600	60	250	–	–	 TO-236AB, SOT-23 Case 318-08
–	BSS63L	100	100	30	–	50	–0.25	
BSS64L	–	80	100	20	–	60	0.15	
MMBTA06L	MMBTA56L	80	500	100	–	100	–	
MMBT8099L	–	80	500	100	300	150	–	
BC846AL	–	65	100	110	220	100	10	
BC846BL	–	65	100	200	450	100	10	
–	BC856AL	65	100	125	250	100	10	
–	BC856BL	65	100	220	475	100	10	
–	MMBT2907AL	60	600	100	300	200	–	
MMBT2484L	–	60	50	250	–	–	3.0	
MMBTA05L	–	60	500	100	–	100	–	
–	MMBTA55L	60	500	100	–	50	–	
MMBT6428L	–	50	200	250	–	100	3.0 (Typ)	
–	MMBT5087L	50	50	250	–	40	2.0	
MMBT6429L	–	45	200	500	–	100	3.0 (Typ)	
BC817-16L	–	45	500	100	250	100	–	
BC817-25L	–	45	500	160	400	100	–	
BC817-40L	–	45	500	250	600	100	–	
–	BC807-16L	45	500	100	250	100	–	
–	BC807-25L	45	500	160	400	100	–	
–	BC807-40L	45	500	250	600	100	–	
BC847AL	–	45	100	110	220	100	10	
BC847BL	–	45	100	200	450	100	10	
BC847CL	–	45	100	420	800	100	10	
BC850BL	–	45	100	200	450	100	4.0	
BC850CL	–	45	100	420	800	100	4.0	
–	BC857AL	45	100	125	250	100	10	
–	BC857BL	45	100	220	475	100	10	
–	BC857CL	45	100	420	800	100	10	
–	BCW68GL	45	800	120	400	100	10	
–	BCW70L	45	100	215	500	–	10	
BCW72L	–	45	100	200	450	300	10	
–	BCX17L	45	500	100	600	–	–	
BCX19L	–	45	500	100	600	–	–	
MMBT2222AL	–	40	600	100	300	300	4.0	
MMBT3904L	–	40	200	100	300	200	5.0	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL-PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
–	MMBT3906L	40	200	100	300	250	4.0	 TO-236AB, SOT-23 Case 318-08
MMBT4401L	–	40	600	100	300	250	–	
–	MMBT4403L	40	600	100	300	200	–	
MMBT3416L	–	40	100	75	225	–	–	
–	MMBT470L	40	100	40	400	125	–	
–	BCW30L	32	100	215	500	–	10	
BCW32L	–	32	100	200	450	–	10	
BCW65AL	–	32	800	100	250	100	10	
BCW65CL	–	32	100	250	630	100	10	
BC848AL	–	30	100	110	220	100	10	
BC848BL	–	30	100	200	450	100	10	
BC848CL	–	30	100	420	800	100	10	
BC849BL	–	30	100	200	450	100	4.0	
BC849CL	–	30	100	420	800	100	4.0	
MMBT489L	–	30	1000	300	900	100	–	
–	MMBT589L	30	1000	100	300	100	–	
–	BC858AL	30	100	125	250	100	10	
–	BC858BL	30	100	220	475	100	10	
–	BC858CL	30	100	420	800	100	10	
–	BC859BL	30	100	220	475	100	4.0	
MMBT5088L	–	30	50	300	900	5	3.0	
MMBT2222L	–	30	600	100	300	250	4.0	
MMBT6521L	–	25	100	300	600	–	–	
MMBT5089L	–	25	50	400	1200	50	2.0	
MMBT4124L	–	25	200	120	360	300	5.0	
BC818-40L	–	25	500	250	600	100	–	
–	MMBT4126L	25	200	120	300	250	4.0	
–	BC808-25L	25	500	160	400	100	–	
BCW33L	–	20	100	420	800	–	10	
MSD601-R	–	50	100	210	340	–	–	 SC-59 Case 318D-04
MSD602-R	–	50	500	120	240	–	–	
MSC2712G	–	50	100	200	400	–	–	
–	MSA1162G	50	100	200	400	–	–	
MSC2712Y	–	50	100	120	240	–	–	
–	MSA1162Y	50	100	120	240	–	–	
–	MSB710-R	50	500	120	240	–	–	
–	MSB709-R	45	100	210	340	–	–	
MSD1328-R	–	20	500	200	350	–	–	
MSD1328-S	–	20	500	300	500	–	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL-PURPOSE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
<i>MMBTA06W</i>	<i>MMBTA56W</i>	80	500	100	–	100	–	 SC-70, SOT-323 Case 419-04
<i>BC846BW</i>	–	65	100	200	450	100	10	
–	<i>BC856BW</i>	65	100	220	475	100	10	
–	<i>MMBT2907AW</i>	60	600	100	–	200	–	
<i>MSD1819A-R</i>	–	50	100	210	340	–	–	
<i>BC847AW</i>	–	45	100	110	220	100	10	
<i>BC847BW</i>	–	45	100	200	450	100	10	
<i>BC847CW</i>	–	45	100	420	800	100	4.0	
–	<i>BC857BW</i>	45	100	220	475	100	10	
–	<i>BC857CW</i>	45	100	420	800	100	10	
–	<i>MSB1218A-R</i>	45	100	210	340	–	–	
MMBT4401W	–	40	600	100	300	250	–	
–	MMBT4403W	40	600	100	300	200	–	
<i>MMBT2222AW</i>	–	40	600	100	300	300	4.0	
<i>MMBT3904W</i>	–	40	200	100	300	300	5.0	
–	<i>MMBT3906W</i>	40	200	100	300	250	4.0	
<i>BC848BW</i>	–	30	100	200	450	100	10	
<i>BC848CW</i>	–	30	100	420	800	100	4.0	
–	<i>BC858AW</i>	30	100	110	220	100	10	
–	<i>BC858BW</i>	30	100	200	450	100	10	
<i>2SC4617</i>	–	50	100	120	560	180 (Typ)	–	 SOT-416, SC-75, SC-90 Case 463-01
–	<i>2SA1774</i>	50	100	120	560	140 (Typ)	–	
<i>BC847BT</i>	–	45	100	200	450	100	10	
<i>BC847CT</i>	–	45	100	420	800	100	4.0	
–	<i>BC857BT</i>	45	100	220	475	100	10	
<i>MMBT3904T</i>	–	40	200	100	300	300	5.0	
–	<i>MMBT3906T</i>	40	200	100	300	250	4.0	
<i>MMBT2222AT</i>	–	40	600	100	300	300	4.0	 SOT-723 Case 631AA-01
–	2SA2029M3	50	100	120	560	140 (Typ)	–	
–	BC856BM3	45	100	220	475	100	10	
–	MMBT2907AM3	60	600	100	–	200	–	
–	NS2029M3	50	100	120	560	100	–	
BC846BM3	–	65	100	200	450	100	10	
2SC5658M3	–	50	100	120	560	180 (Typ)	–	
BC847BM3	–	45	100	200	450	100	10	 SOT-1123 Case 524AA
NST3904F3	–	40	200	100	300	200	5	
–	NST3906F3	40	200	100	300	250	4	
NST847BF3	–	45	100	200	450	100	10	
–	NST857BF3	45	100	200	475	100	10	 SOT-223 Case 318E-04
<i>BCP56</i>	<i>BCP53</i>	80	1000	40	250	50 (Typ)	–	
<i>BCP56-10</i>	<i>BCP53-10</i>	80	1000	63	160	50 (Typ)	–	
<i>BCP56-16</i>	<i>BCP53-16</i>	80	1000	100	250	50 (Typ)	–	
–	<i>PZT2907A</i>	60	600	100	300	200	–	
<i>PZT651</i>	<i>PZT751</i>	60	2000	75	–	75	–	
<i>PZT2222A</i>	–	40	600	100	300	300	–	
<i>BCP68</i>	<i>BCP69</i>	25	1000	85	375	60 (Typ)	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS**GENERAL-PURPOSE TRANSISTORS** (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
–	MMBT2131	30	700	150	–	–	–	 SC-74 Case 318F-05
–	MBT35200M	35	2000	100	400	100	–	 TSOP-6 SINGLE Case 318G-02
NST489AM	–	30	3000	300	900	200	–	
–	NSL12AW	12	2000	100	300	100	–	 SC-88, SOT-363 Case 419B-02

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

GENERAL-PURPOSE MULTIPLE TRANSISTORS

Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
<i>BC846BDW1</i>	Dual NPN	65	100	200	450	100	10	 SC-88, SOT-363 Case 419B-02
<i>BC856BDW1</i>	Dual PNP	65	100	220	475	100	10	
<i>BC846BPDW1</i>	Dual Complementary	65	100	200	475	100	10	
<i>BC847BDW1</i>	Dual NPN	45	100	200	290	100	10	
<i>BC847CDW1</i>	Dual NPN	45	100	420	520	100	4.0	
<i>BC857BDW1</i>	Dual PNP	45	100	220	290	100	10	
<i>BC857CDW1</i>	Dual PNP	45	100	420	520	100	10	
<i>BC847BPDW1</i>	Dual Complementary	45	100	200	290	100	10	
<i>MBT3904DW1</i>	Dual NPN	40	200	100	300	300	5.0	
<i>MBT3906DW1</i>	Dual PNP	40	200	100	300	250	4.0	
<i>MBT3946DW1</i>	Dual Complementary	40	200	100	300	250	5.0/4.0	
<i>MBT2222ADW1</i>	Dual NPN	40	600	100	300	300	4.0	
MBT6429DW1	Dual NPN	45	200	500	1250	100	–	
NST45011MW6	Dual Matched NPN	45	100	200	500	100	10	
UMZ1N	Dual Complementary	50	200	200	400	114 (Typ)	–	
<i>BC848CDW1</i>	Dual NPN	30	100	420	250	100	4.0	 SOT-563 Case 463A-01
<i>BC848CPDW1</i>	Dual Complementary	30	100	420	520	100	4.0/10	
<i>BC847CDXV6</i>	NPN	45	100	420	520	100	–	
EMT1DXV6	Dual PNP	60	100	120	560	140 (Typ)	–	
EMX1DXV6	Dual NPN	50	100	120	560	180 (Typ)	–	
EMX2DXV6	Dual NPN	50	100	120	560	180 (Typ)	–	
EMZ1DXV6	Complementary	60	100	120	560	140 (Typ)	–	
<i>BC847BPDXV6</i>	Complementary	45	100	200	290	100	–	
<i>NST3904DXV6</i>	Dual NPN	40	200	100	300	300	–	
<i>NST3906DXV6</i>	Dual PNP	40	200	100	300	250	–	
<i>NST3946DXV6</i>	Complementary	40	200	100	300	250	–	
<i>NST30010MXV6</i>	Matched Dual PNP	30	100	420	520	100	–	 SOT-963 Case 527AA
NST3904DP6	Dual NPN	40	200	100	300	200	5	
NST3906DP6	Dual PNP	40	200	100	300	250	4	
NST3946DP6	Dual Complementary	40	200	100	300	200	5	
NST847BDP6	Dual NPN	45	100	200	450	100	10	
NST847BPDP6	Dual Complementary	45	100	200	450	100	10	
NST857BDP6	Dual PNP	45	100	200	475	100	10	
HN1B01FDW1	Complementary	50	200	200	400	–	–	 SC-74 Case 318F-05
<i>NSS40301MD</i>	Matched Dual NPN	40	3000	200	500	150	–	 SOIC-8 Case 751 STYLE 16

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW NOISE AND GOOD h_{FE} LINEARITY

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
–	2N5087	50	50	250	800	40	2.0	 TO-226AA, TO-92 Case 29-11 (Note 1)
BC550C	–	45	100	380	800	250 (Typ)	2.5	
2N5088	–	30	50	350	–	50	3.0	
2N5089	–	25	50	450	–	50	2.0	
MMBT2484L	–	60	50	250	–	–	3.0	 TO-236AB, SOT-23 Case 318-08
MMBT6428L	–	50	200	250	–	100	3.0 (Typ)	
–	MMBT5087L	50	50	250	–	40	2.0	
MMBT6429L	–	45	200	500	–	100	3.0 (Typ)	
MMBT5088L	–	30	50	300	900	5	3.0	
MMBT5089L	–	25	50	400	–	50	2.0	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

1. N_F : Noise Figure at $R_S = 2.0\text{ k}\Omega$, $I_C = 200\text{ }\mu\text{A}$, $V_{CE} = 5.0\text{ Volts}$. $f = 30\text{ Hz to }15\text{ kHz}$.

DARLINGTON TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MPSW45A	–	50	1000	25K	150K	100	1.5	 TO-226AE (1-WATT) TO-92 Case 29-10
MPSW45	–	40	1000	25K	150K	100	1.5	
MPSA29	–	100	500	10K	–	125	1.5	 TO-226AA, TO-92 Case 29-11
BC373	–	80	1000	10K	160K	100	1.1	
MPSA27	–	60	500	10K	–	–	1.5	
2N6427	–	40	500	20K	200K	–	1.5	
2N6426	–	40	500	30K	300K	125	1.5	
MPSA14	–	30	500	20K	–	125	1.5	
MPSA13	–	30	500	10K	–	125	1.5	
BC517	–	30	1000	30K	–	200 (Typ)	1.0	
MMBT6427L	–	40	500	20000	200000	–	10	 TO-236AB, SOT-23 Case 318-08
MMBT14L	MMBT64L	30	300	20K	–	125	–	
MMBT13L	–	30	300	10000	–	125	–	
–	MMBT63L	30	500	10000	–	125	–	
BSP52	–	80	1000	2000	–	–	–	 SOT-223 Case 318E-04

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH CURRENT TRANSISTORS (≥ 500 mA)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
BC639	–	80	500	40	160	60	0.5	 TO-226AA, TO-92 Case 29-11
BC489A		80	1000	100	250	100	0.5	
BC639-16	–	80	1000	100	250	60	0.5	
MPS8099	–	80	500	100	300	150	–	
MPSA06	MPSA56	80	500	100	–	100	–	
MPS651	MPS751	60	2000	75	–	75	0.5	
BC637		60	500	40	160	–	0.5	
MPSA05	MPSA55	60	500	100	–	100	–	
–	MPS2907A	60	600	100	300	200	–	
BC337	–	45	800	100	630	210 (Typ)	–	
BC337-25	BC327-25	45	800	160	400	260 (Typ)	–	
BC337-40	BC327-40	45	800	250	630	260 (Typ)	–	
MPS650	MPS750	40	2000	40	–	75	–	
MPS2222A	–	40	600	100	300	300	–	
2N4401	2N4403	40	600	100	300	200	–	
P2N2222A	–	40	600	100	300	300	–	
PN2222A	–	40	600	100	300	300	–	
	MPS6652	40	1000	50	–	100	–	
MPS2222	–	30	600	100	300	250	–	
–	BC369	20	1000	60	–	65	0.5	
MPSW06	MPSW56	80	500	80	–	50	–	 TO-226AE (1-WATT) TO-92 Case 29-10
MPSW05	–	60	500	60	–	50	250	
–	2SA1020	50	2000	70	240	100	–	
MPSW01A	MPSW51A	40	1000	50	–	50	–	
MPSW01	MPSW51	30	1000	50	–	50	–	
MPS6726	–	30	1000	50	250	–	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH CURRENT TRANSISTORS (≥ 500 mA) (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MMBT5550L	–	140	600	60	250	–	–	 TO-236AB, SOT-23 Case 318-08
MMBTA06L	MMBTA56L	80	500	100	–	100	–	
MMBT8099L	–	80	500	100	300	150	–	
–	MMBT2907AL	60	600	100	300	200	–	
MMBTA05L	–	60	500	100	–	100	–	
–	MMBTA55L	60	500	100	–	50	–	
–	BCW68GL	45	800	120	400	100	10	
BCW66GL	–	45	800	160	400	100	10	
–	BCX17L	45	500	100	600	–	–	
BCX19L	–	45	500	100	600	–	–	
MMBT2222AL	–	40	600	100	300	300	4.0	
MMBT4401L	–	40	600	100	300	250	–	
–	MMBT4403L	40	600	100	300	200	–	
BCW65AL	–	32	800	100	250	100	10	
MMBT2222L	–	30	600	100	300	250	4.0	
BCP56	BCP53	80	1000	40	250	50 (Typ)	–	 SOT-223 Case 318E-04
BCP56-10	BCP53-10	80	1000	63	160	50 (Typ)	–	
BCP56-16	BCP53-16	80	1000	100	250	50 (Typ)	–	
–	PZT2907A	60	600	100	300	200	–	
PZT651	PZT751	60	2000	75	–	75	–	
PZT2222A	–	40	600	100	300	300	–	
BCP68	BCP69	25	1000	85	375	60 (Typ)	–	 SOT-416, SC-75, SC-90 Case 463-01
MMBT2222AT	–	40	600	100	300	300	4.0	
–	MMBT2907AW	60	600	100	–	200	–	
MMBT2222AW	–	40	600	100	300	300	4.0	 SC-70, SOT-323 Case 419-04
–	MSB92ASW	300	500	120	200	50	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

HIGH VOLTAGE TRANSISTORS (> 100 V)

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	NF dB Max	Package
				Min	Max			
MPSW42	–	300	500	40	–	50	0.5	 TO-226AE (1-WATT) TO-92 Case 29-10
–	MPSW92	300	500	25	–	50	0.5	
2N5551	–	160	600	80	250	100	8.0	
–	2N5401	150	600	60	240	100	8.0	
MPSA44	–	400	300	50	200	–	–	 TO-226AA, TO-92 Case 29-11
–	2N6520	350	500	30	200	40	–	
MPSA42	–	300	500	40	–	50	0.5	
–	MPSA92	300	500	40	–	50	0.5	
2N5550	–	160	600	80	–	100	0.15	
MMBT6517L	–	350	500	15	–	40	–	 TO-236AB, SOT-23 Case 318-08
–	MMBT6520L	350	500	15	–	40	–	
MMBT42L	–	300	500	40	–	50	–	
–	MMBT492L	300	500	25	–	50	–	
MMBT5551L	–	160	600	80	250	–	–	
–	MMBT5401L	150	500	50	–	100	8.0	
MMBT5550L	–	140	600	60	250	–	–	 SOT-223 Case 318E-04
BSP19A	–	350	1000	40	–	70	–	
PZTA42	PZTA92	300	500	40	–	50	–	
–	PZTA96S	450	500	50	150	–	–	
–	BSP16	300	1000	30	120	15	–	
BF720	BF721	250	100	50	–	60	–	 SC-70, SOT-323 Case 419-04
MSD42W	–	300	150	40	–	–	–	
–	MSB92W	300	500	25	–	50	–	
–	MSB92AW	300	500	120	200	50	–	
–	MSB92ASW	300	500	120	200	50	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

RF TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	Cap pF Max	Package
				Min	Max			
<i>MPSH10</i>	–	25	–	60	–	650	$C_{RB} = 0.65$	 TO–226AA, TO–92 Case 29–11
<i>MMBTH10L</i>	–	25	–	60	–	650	$C_{CB} = 0.7$	
<i>MMBTH10–4L</i>	–	25	–	120	240	800	$C_{CB} = 0.7$	
MMBT918L	–	15	50	20	–	600	$C_{OBO} = 1.7$	
BSV52L	–	12	100	40	120	400	–	 TO–236AB, SOT–23 Case 318–08

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

SWITCHING TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	T_{off} ns Max	Package
				Min	Max			
–	<i>MPS2907A</i>	60	600	100	300	200	110	 TO–226AA, TO–92 Case 29–11
<i>2N4401</i>	<i>2N4403</i>	40	600	100	300	200	–	
<i>2N3904</i>	<i>2N3906</i>	40	200	100	300	250	300	
P2N2222A	–	40	600	100	300	300	285	
<i>MPS2222A</i>	–	40	600	100	300	300	285	
–	<i>MMBT2907AL</i>	60	600	100	300	200	100	 TO–236AB, SOT–23 Case 318–08
<i>MMBT2222AL</i>	–	40	600	100	300	300	285	
<i>MMBT3904L</i>	–	40	200	100	300	300	250	
–	<i>MMBT3906L</i>	40	200	100	300	250	300	
<i>MMBT4401L</i>	–	40	600	100	300	250	255	
–	<i>MMBT4403L</i>	40	600	100	300	200	255	
<i>MMBT2369L</i>	–	15	200	40	120	–	18	
<i>MMBT2369AL</i>	–	15	200	40	120	–	18	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

SWITCHING TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	T_{off} ns Max	Package
				Min	Max			
–	<i>MMBT2907AW</i>	60	600	100	300	200	100	 SC-70, SOT-323 Case 419-04
<i>MMBT3904W</i>	–	40	200	100	300	300	250	
–	<i>MMBT3906W</i>	40	200	100	300	250	300	
<i>MMBT2222AW</i>	–	40	600	100	300	300	285	
<i>MMBT4401W</i>	–	40	600	100	300	250	255	
–	<i>MMBT4403W</i>	40	600	100	300	200	255	
<i>MMBT3904T</i>	–	40	200	100	300	300	250	 SOT-416, SC-75, SC-90 Case 463-01
–	<i>MMBT3906T</i>	40	200	100	300	250	300	
<i>MMBT2222AT</i>	–	40	600	100	300	300	285	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

MULTIPLE SWITCHING TRANSISTORS

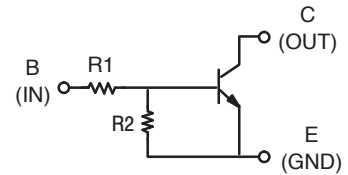
Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE}		f_T MHz Min	T_{off} ns Max	Package
				Min	Max			
<i>MBT3904DW1</i>	Dual NPN	40	200	100	300	300	250	 SC-88, SOT-363 Case 419B-02
<i>MBT3906DW1</i>	Dual PNP	40	200	100	300	250	300	
<i>MBT3946DW1</i>	Dual Complementary	40	200	100	300	250	250/300	
<i>MBT2222ADW1</i>	Dual NPN	40	600	100	300	300	285	
HN1B01FDW1	Dual Complementary	50	200	200	400	–	–	 SC-74 Case 318F-05

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.



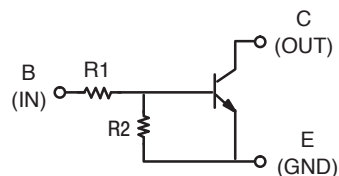
NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	$R1$ Ω	$R2$ Ω	Package
MUN2211	MUN2111	50	100	35	10K	10K	 SC-59 Case 318D-04
MUN2212	MUN2112	50	100	60	22K	22K	
MUN2213	MUN2113	50	100	80	47K	47K	
MUN2214	MUN2114	50	100	80	10K	47K	
MUN2215		50	100	160	10K	∞	
MUN2216		50	100	160	4.7K	∞	
MUN2230		50	100	3.0	1.0K	1.0K	
MUN2232		50	100	15	4.7K	4.7K	
MUN2233		50	100	80	4.7K	47K	
MUN2234		50	100	80	22K	47K	
MUN2237		50	100	80	47K	22K	
MUN2240	–	50	100	160	47K	∞	
MMUN2211L	MMUN2111L	50	100	35	10K	10K	 TO-236AB, SOT-23 Case 318-08
MMUN2212L	MMUN2112L	50	100	60	22K	22K	
MMUN2213L	MMUN2113L	50	100	80	47K	47K	
MMUN2214L	MMUN2114L	50	100	80	10K	47K	
MMUN2215L	MMUN2115L	50	100	160	10K	∞	
MMUN2216L	MMUN2116L	50	100	160	4.7K	∞	
MMUN2231L		50	100	8.0	2.2K	2.2K	
MMUN2232L	MMUN2132L	50	100	15	4.7K	4.7K	
MMUN2233L	MMUN2133L	50	100	80	4.7K	47K	
MMUN2234L		50	100	80	22K	47K	
MMUN2238L	–	50	100	160	2.2K	∞	
MUN5211	MUN5111	50	100	35	10K	10K	 SC-70, SOT-323 Case 419-04
MUN5212	MUN5112	50	100	60	22K	22K	
MUN5213	MUN5113	50	100	80	47K	47K	
MUN5214	MUN5114	50	100	80	10K	47K	
MUN5215		50	100	160	10K	∞	
MUN5230		50	100	3.0	1.0K	1.0K	
	MUN5131	50	100	8.0	2.2K	2.2K	
MUN5232	MUN5132	50	100	15	4.7K	4.7K	
MUN5233	MUN5133	50	100	80	4.7K	47K	
MUN5235	MUN5135	50	100	80	2.2K	47K	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS) (continued)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.



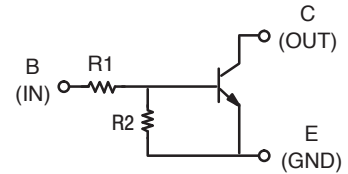
NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R_1 Ω	R_2 Ω	Package
<i>DTC114EE</i>	<i>DTA114EE</i>	50	100	35	10k	10k	 SOT-416, SC-75, SC-90 Case 463-01
<i>DTC124EE</i>		50	100	60	22k	22k	
<i>DTC144EE</i>	<i>DTA144EE</i>	50	100	80	47k	47k	
<i>DTC114YE</i>	<i>DTA114YE</i>	50	100	80	10k	47k	
<i>DTC114TE</i>	<i>DTA114TE</i>	50	100	160	10k	∞	
<i>DTC143EE</i>	<i>DTA143EE</i>	50	100	15	4.7k	4.7k	
<i>DTC143ZE</i>	<i>DTA143ZE</i>	50	100	80	4.7k	4.7k	
<i>DTC124XE</i>	–	50	100	80	22k	47k	
<i>DTC123JE</i>		50	100	80	2.2k	47k	
<i>DTC115EE</i>	<i>DTA115EE</i>	50	100	80	100k	100k	
<i>DTC114EM3</i>	<i>DTA114EM3</i>	50	100	35	10k	10k	 SOT-723 Case 631AA-01
<i>DTC124EM3</i>	<i>DTA124EM3</i>	50	100	60	22k	22Kk	
<i>DTC144EM3</i>	<i>DTA144EM3</i>	50	100	80	47k	47k	
<i>DTC114YM3</i>	<i>DTA114YM3</i>	50	100	80	10k	47k	
<i>DTC114TM3</i>	<i>DTA114TM3</i>	50	100	160	10k	∞	
<i>DTC143TM3</i>	<i>DTA143TM3</i>	50	100	160	4.7k	∞	
<i>DTC123EM3</i>	<i>DTA123EM3</i>	50	100	8.0	2.2k	2.2k	
<i>DTC143EM3</i>	<i>DTA143EM3</i>	50	100	15	4.7k	4.7k	
<i>DTC143ZM3</i>	<i>DTA143ZM3</i>	50	100	80	4.7k	4.7k	
<i>DTC124XM3</i>	<i>DTA124XM3</i>	50	100	80	22k	47k	
<i>DTC123JM3</i>		50	100	80	2.2k	47k	
<i>DTC115EM3</i>	<i>DTA115EM3</i>	50	100	80	100k	100k	
<i>DTC144WM3</i>	<i>DTA144WM3</i>	50	100	80	47k	22k	
<i>DTC144TM3</i>	<i>DTA144TM3</i>	50	100	160	47k	∞	
NSBC114EF	NSBA114EF3	50	100	35	10k	10k	 SOT-1123 Case 524AA
NSBC144EF3	NSBA144EF3	50	100	80	47k	47k	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

DUAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.



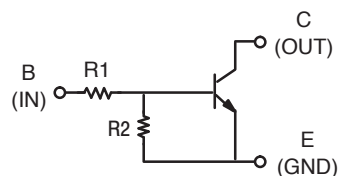
NPN	PNP	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	R_1 Ω	R_2 Ω	Package
MUN5211DW1	MUN5111DW1	50	100	35	10k	10k	 SC-88, SOT-363 Duals Case 419B-02
MUN5212DW1		50	100	60	22k	22k	
MUN5213DW1	MUN5113DW1	50	100	80	47k	47k	
MUN5214DW1	MUN5114DW1	50	100	80	10k	47k	
MUN5215DW1	MUN5115DW1	50	100	160	10k	∞	
MUN5216DW1	MUN5116DW1	50	100	160	4.7k	∞	
MUN5230DW1		50	100	3.0	1.0k	1.0k	
MUN5232DW1		50	100	15	4.7k	4.7k	
MUN5233DW1	MUN5133DW1	50	100	80	4.7k	47k	
MUN5235DW1	MUN5135DW1	50	100	80	2.2k	47k	
MUN5237DW1		50	100	80	47k	22k	
NSBC114EDXV6	NSBA114EDXV6	50	100	35	10k	10k	 SOT-563 Duals Case 463A-01
NSBC124EDXV6		50	100	60	22k	22k	
NSBC144EDXV6	NSBA144EDXV6	50	100	80	47k	47k	
NSBC114YDXV6	NSBA114YDXV6	50	100	80	10k	10k	
NSBC114TDXV6		50	100	160	10k	—	
NSBC143ZDXV6		50	100	80	4.7k	4.7k	
	NSBA123JDXV6	50	100	80	2.2k	47k	
NSBC115EDXV6	NSBA115EDXV6	50	100	80	100k	100k	 SOT-963 Case 527AA
NSBC114EDP6	NSBA114EDP6	50	100	35	10k	10k	
NSBC114YDP6	NSBA114YDP6	50	100	80	10k	47k	
NSBC144EDP6	NSBA144EDP6	50	100	80	47k	47k	 SOT-1123 Case 524AA
NSBC114YF3	NSBA114YF3	45	100	80	10k	47k	
IMH20TR1	—	15	600	100	2.2k	—	 SC-74 Case 318F-05

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

COMBINATIONAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.



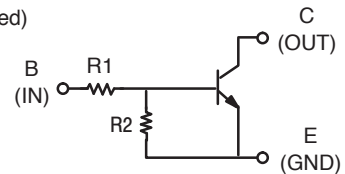
Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	Q1	Q2	Package
MUN5311DW1	Dual Complementary	50	100	35	MUN5211	MUN5111	 SC-88, SOT-363 Case 419B-02
MUN5312DW1		50	100	60	MUN5212	MUN5112	
MUN5313DW1		50	100	80	MUN5213	MUN5113	
MUN5314DW1		50	100	80	MUN5214	MUN5114	
MUN5315DW1		50	100	160	MUN5215	MUN5115	
MUN5316DW1		50	100	160	MUN5216	MUN5116	
MUN5330DW1		50	100	3.0	MUN5230	MUN5130	
MUN5333DW1		50	100	80	MUN5233	MUN5133	
MUN5334DW1		50	100	80	22k/47k	22k/47k	
MUN5335DW1		50	100	80	MUN5235	MUN5135	
NSB4904DW1		50	100	80	22k/47k	22k/47k	
NSB13211DW6		50	100	15	4.7k/10k	4.7k/10k	
UMC3N	Dual Common Base Collector	50	100	35	4.7k/10k	47k/47k	 SC-88A, SOT-353 SC70-5 Case 419A-02
UMC5N		50	100	20	47k/∞	47k/∞	
NSB1706DMW5	Dual Common Emitter	50	100	80	4.7k/47k	4.7k/47k	
EMC3DXV5	Dual Common Base Collector	50	100	35	10k/10K	10k/10k	 SOT-553 Case 463B-01
EMC4DXV5		50	100	80	10k/47k	4.7k/47k	
EMC5DXV5		50	100	35	4.7k/10Kk	4.7k/47k	
EMG2DXV5	Dual Common Base, Common Emitter	50	100	80	4.7k/47k	4.7K/47k	
NSTB1002DXV5	Dual Common Base Collector	40	100	100	47k/47k	47k/47k	
NSTB1005DXV5		50	100	80	47k/47k	47k/47k	
NSB1010XV5		50	100	–	4.7k/4.7k	10k/10k	
EMD4DXV6	Dual Complementary	50	100	80	10k/47k	47l/47k	 SOT-563 Case 463A-01
EMD5DXV6		50	100	20	4.7k/10k	4.7k/10k	
NSBC114EPDXV6		50	100	35	10k/10k	10k/10k	
NSBC114YPDXV6		50	100	80	10k/47k	10k/47k	
NSBC123JPDXV6		50	100	80	2.2k/47k	2.2k/47k	
NSBC124EPDXV6		50	100	60	22k/22k	22k/22k	
NSBC143TPDXV6		50	100	160	4.7k/∞	4.7k/∞	
NSBC143ZPDXV6		50	100	80	4.7k/47k	4.7k/47k	
NSBC144EPDXV6		50	100	80	47k/47k	47k/47k	
NSB1011XV6	Dual NPN	50	100	–	2.2k/47k	10k/10k	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

COMBINATIONAL DIGITAL TRANSISTORS (BIAS RESISTOR TRANSISTORS) (continued)

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.

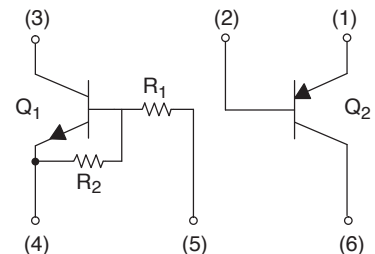


Device	Type	$V_{(BR)CEO}$	I_C mA Max	h_{FE} Min	Q1	Q2	Package
NSBC114EPD6	Dual Complementary	50	100	35	10k/10k	10k/10k	 SOT-963 Case
NSBC114YPDP6		50	100	80	10k/47k	10k/47k	
NSBC115TPDP6		50	100	160	100k/∞	100k/∞	
NSBC144EPDP6		50	100	80	47k/47k	47k/47k	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

COMPLEX DIGITAL TRANSISTORS

These devices include bias resistors on the semiconductor chip with the transistor. See the BRT diagram for orientation of resistors.



Device	Switching Transistor				Digital Transistor			Package
	$V_{(BR)CEO}$ V	I_C (mA) Max	h_{FE}					
			Min	Max	h_{FE} Min	R1 Ω	R2 Ω	
EMF5XV6	12	500	270	680	80	47K	47K	 SOT-563 Case 463A-01
EMF18XV6	60	100	120	560	80	47K	47K	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW SATURATION VOLTAGE TRANSISTORS

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A		f_t MHz Min	$V_{CE(sat)}$ @ 1.0 A Max	Package
					Min	Max			
NSS1C201L	–	100	2	3	120	360	100	0.09	 TO-236AB, SOT-23 Case 318-08 STYLE 6
–	NSS1C200L	100	2	3	120	360	120	0.115	
NSS60201L	–	60	2	4	200	500	150	0.070	
–	NSS60200L	60	2	4	200	500	150	0.095	
NSS40201L	–	40	2	4	200	500	150	0.060	
–	NSS40200L	40	2	4	200	500	150	0.090	
NSS30101L	–	30	1	2	100	500	100	0.200	
–	NSS30100L	30	1	2	100	500	100	0.300	
NSS20201L	–	20	2	4	200	500	150	0.050	
–	NSS20200L	20	2	4	200	500	150	0.080	
NSS12201L	–	12	2	4	200	500	150	0.055	
–	NSS12200L	12	2	4	200	500	150	0.080	
NSS30071MR6	–	30	0.7	2	150	500	100	0.250	 SC-74 Case 318F-05 STYLE 2
–	NSS30070MR6	30	0.7	2	150	500	100	0.250	
–	NSS35200MR6	35	2	5	100	400	100	0.150	 TSOP-6 Single Case 318G-02 STYLE 6
NSS30201MR6	–	30	2	5	200	900	100	0.150	
NSS20201MR6	–	20	2	5	200	900	100	0.150	
–	NSS20300MR6	20	2	5	100	400	100	0.150	
NSS40601CF8	–	40	6	6	225	500	100	0.065	 ChipFET™ Case 1206A-03 STYLE 4
–	NSS40600CF8	40	6	6	220	500	100	0.065	
–	NSS35200CF8	35	2	7	100	400	100	0.150	
NSS20601CF8	–	20	6	6	250	500	100	0.050	
–	NSS20600CF8	20	6	6	220	500	100	0.060	
NSS12601CF8	–	12	6	6	250	500	100	0.050	
–	NSS12600CF8	12	6	6	210	500	100	0.060	
NSS40501UW3	–	40	5	6	250	500	100	0.045	 WDFN3 Case 506AU-01
–	NSS40500UW3	40	5	6	250	500	100	0.080	
NSS20501UW3	–	20	5	6	250	500	100	0.045	
–	NSS20500UW3	20	5	6	250	500	100	0.090	
NSS12501UW3	–	12	5	6	250	500	100	0.045	
–	NSS12500UW3	12	5	6	250	500	100	0.070	
–	NSS40200UW6	40	2	4	150	500	100	0.120	 WDFN6 Case 506AS-01
–	NSS20200W6	20	2	3	120	360	100	0.92	 SC-88, SOT-363 Case 419B-02 STYLE 20
–	NSS12200MW6	12	1	2	200	500	150	0.280	
–	NSS12200W	12	2	3	100	300	100	0.290	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

BIPOLAR TRANSISTORS

LOW SATURATION VOLTAGE TRANSISTORS (continued)

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A		f_t MHz Min	$V_{CE(sat)}$ @ 1.0 A Max	Package
					Min	Max			
–	NSS12100XV6	12	1	2	200	500	150	0.280	 SOT-563 Case 463A-01
NSS20101J	–	20	1	1	200	500	350	0.22	
–	NSS12100M3	12	1	3	120			0.6	
NJD2873	–	50	2	3	120	360	65	0.300	 DPAK Case 369C-01
–	NSS1C200MZ4	100	2	3	120	360	120	0.125	 SOT-223 Case 318E-04
NSS40301MZ4	–	40	3	5	200	500	150	0.045	
–	NSS40300MZ4	40	3	5	200	500	150	0.050	
NSS60601MZ4	–	60	6	12	120	360	100	0.060	
–	NSS60600MZ4	60	6	12	120	360	100	0.065	
–	NSB9435	30	3	5	125	500	110	0.210	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

LOW SATURATION VOLTAGE MULTIPLE TRANSISTORS

Device	Type	$V_{(BR)CEO}$	I_C DC	I_C Peak	h_{FE}		f_t	$V_{CE(sat)}$	Package
					Min	Max			
NSS40301MD	Matched Dual NPN	40	3	6	200		100	0.05	8  1 SOIC-8 Case 751
NSS40300DD	Dual PNP	40	3	6	220		100	0.095	
NSS40300MD	Matched Dual PNP	40	3	6	220		100	0.095	
NSS40302PD	Dual Complementary	40	3	6	200		100	0.06	

LOAD SWITCH TRANSISTORS (Low Saturation Voltage Transistors with BRT Driver)

NPN	PNP	$V_{(BR)CEO}$	I_C DC A Max	I_C Peak A Max	h_{FE} @ 1.0 A		f_t MHz Min	$V_{CE(sat)}$ @ 0.1 A Max	Package
					Min	Max			
–	EMF5XV6	50	0.1	0.5	270	680	–	0.250	 SOT-563 Case 463A-01
–	EMF18XV6	50	0.1	0.5	120	560	–	0.400	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

FETs

FETs

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Product Summary

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What's New For . . .

Computing – MOSFETs for Desktop and Notebook PCs, Workstations, Graphic Cards, Hard Disk Drives, Game Consoles

ON Semiconductor has introduced an enhanced portfolio of 30 V MOSFETs utilizing our latest Trench technology providing up to a 54% reduction in R_G . These products are available in two packages: DPAK (including IPAK and IPAK with trimmed leads) and our leading edge SO-8FL flat lead power package.

The new 30 V DPAK devices include the NTD4809NH, NTD4810NH, NTD4813NH, and NTD4815NH.

The new 30 SO-8FL devices include the NTMFS4837NH, NTMFS4839NH, and NTMFS4841NH.

Consumer – MOSFETs for Cell Phones, Digital Still Cameras, Media Players, PDAs, Portable Games, Battery Packs, MP3 Players, GPS, USB, Modems, Radio, Set-Top Boxes.

Addressing the industry's needs for thinner, smaller, faster, and cooler devices for portable devices, ON Semiconductor is pleased to announce the following 20 V NTGD3133P, 20 V NTGS3443T, and 30 V NTGS4111P additions to the TSOP-6 family.

ON Semiconductor has also expanded its SOT-723 offering with the addition of the 20 V NTK3043N, NTK3134N, NTK3139P, and NTK3142P. The devices feature low $I_{GSS} < 1.0 \mu A$, ESD protected gates, $R_{DS(on)}$ 1.5 V_{GS} rated, and an ultra-low profile of 0.50 mm for slim designs.

Automotive – MOSFETs for Entertainment, Power Train, Safety and Control, Comfort and Convenience, Body Electronics.

ON Semiconductor has released a line of 40 V low $R_{DS(on)}$ devices targeted for ABS applications including the NTB5404N, NTB5405N, NTD5406N, and NTD5407N.

How To Use This Selector Guide

1. Choose the Product Type (MOSFET).
2. Choose the Package Type, i.e., DPAK, SOT-23.
3. Choose the Channel Polarity* (i.e., N, P, Complementary).
4. Choose the Voltage Level.
5. View the Electrical Specifications and Find the Device Number.

*Configuration Codes: S = Single, D = Dual, C = Complementary, F = FETKY, L = Load Switch, Q = Quad

Junction Field–Effect Transistors

JFETs

HIGH–FREQUENCY AMPLIFIERS

N–Channel	$R_e Y_{fs} $ mmho Min	$R_e Y_{os} $ μmho Max	C_{iss} pF Max	C_{rss} pF Max	NF dB Max	V_{GSS} V_{GDO} Volts Min	$V_{GS(off)}$ Volts		I_{DSS} mA		Package
							Min	Max	Min	Max	
J310	12 (Typ)	250 (Typ)	7.5	2.5	1.5 (Typ)	25	2.0	6.5	24	60	 TO–226AA, TO–92 Case 29–11
MMBF5457L	1.0	50	7.0	3.0	4.0	25	0.5	6.0	1.0	5.0	 TO–236AB, SOT–23 Case 318–08
MMBF5484L	3.0	50	5.0	1.0	3.0	25	0.3	3.0	1.0	5.0	
MMBFJ309L	10	250	5.0	2.5	4.0	25	1.0	4.0	12	30	
MMBFJ310L	8.0	250	5.0	2.5	4.0	25	2.0	6.5	24	60	
MMBFU310L	10	250	5.0	2.5	4.0	25	2.5	6.0	24	60	
MMBF4416L	4.5	50	4.0	0.8	2.0	30	–	6.0	5.0	15	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

SWITCHES AND CHOPPERS

N–Channel	P–Channel	$R_{DS(on)}$ Ω Max	C_{iss} pF Max	C_{rss} pF Max	V_{GSS} V_{GDO} Volts Min	$V_{GS(off)}$ Volts		I_{DSS} mA		t_{on} ns Max	t_{off} ns Max	Package
						Min	Max	Min	Max			
J112	–	50	28	5.0	35	1.0	5.0	5.0	–	–	–	 TO–226AA, TO–92 Case 29–11
MMBF4391L	–	30	10	3.5	30	4.0	10	50	150	–	–	 TO–236AB, SOT–23 Case 318–08
MMBF4392L	–	60	10	3.5	30	2.0	5.0	25	75	–	–	
MMBF4393L	–	100	10	3.5	30	0.5	3.0	5.0	30	–	–	
–	MMBFJ175L	125	11	5.5	30	3.0	6.0	7.0	60	–	–	
–	MMBFJ177L	300	–	–	30	0.8	2.5	1.5	20	–	–	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

LOW–FREQUENCY/LOW–NOISE

N–Channel	P–Channel	$R_e Y_{fs} $ @ 1 kHz mmho Min	$R_e Y_{os} $ @ 1 kHz μmho Max	C_{iss} pF Max	C_{rss} pF Max	V_{GSS} V_{GDO} Volts Min	$V_{GS(off)}$ Volts		I_{DSS} mA		Package
							Min	Max	Min	Max	
–	MMBF5460L	1.0	75	7.0	2.0	40	0.8	6.0	1.0	5.0	 TO–236AB, SOT–23 Case 318–08
BFR30L	–	1.0	40	5.0	1.5	25	–	5.0	4.0	10	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Qg Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
SOT-963 CASE 527AD									
Complementary									
20		1.5/5.0	2.0/6.0	3.0/7.0		0.28	0.20	NTUD3169C	C
		3.0/5.0	4.0/7.0	6.0/ 10.0		0.20	0.20	NTUD3127C	C
N-Channel									
20		1.5	2.0	3.0		0.28	0.20	NTUD3170N	D
		3.0	4.0	6.0		0.20	0.20	NTUD3128N	D
P-Channel									
20		5.0	7.0	10.0		0.18	0.20	NTUD3129P	D
20		5.0	6.0	10.0		0.20	0.20	NTUD3171P	D
SOT-723 CASE 631AA									
N-Channel									
20		3.4	4.5	10.0		0.26	0.44	NTK3043N	S
		0.4	0.5	0.7		0.89	0.45	NTK3134N	S
P-Channel									
20		0.5	0.7	1.0		0.78	0.45	NTK3139P	S
		0.3	0.5	10.0		0.26	0.40	NTK3142P	S
SOT-563 CASE 463A									
Complementary									
20		0.55/0.9	0.7/1.2	0.9/2.0	1.5/1.7	0.57/ 0.455	0.28	NTZD3155C	C
20		0.55/0.9	0.7/1.2	0.9/2.0	1.3/1.4	0.54/ 0.43	0.28	NTZD3156C	
N-Channel									
20		0.55	0.07	0.90	1.5	0.57	0.28	NTZD3154N	D
60	1.60	2.50			0.7	0.31	0.28	NTZD5110N	D
P-Channel									
20		0.90	1.20	2.00	1.7	0.46	0.28	NTZD3152P	D
		0.15	0.20	0.24	5.6	0.95	0.21	NTZS3151P	S
SC-75 CASE 463									
N-Channel									
20		3.000	3.500			0.24	0.30	NTA4001N	S
		0.230	0.275	0.070	1.8	0.92	0.30	NTA4153N	S
30		7.000	7.500			0.15	0.30	NTA7002N	S
P-Channel									
20		0.360	0.450	1.000	2.1	0.76	0.30	NTA4151P	S
SC-89 CASE 463C									
N-Channel									
20		0.230	0.275	0.700	1.8	0.92	0.30	NTE4153N	S
P-Channel									
20		0.360	0.450	1.000	2.1	0.76	0.31	NTE4151P	S

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
WDFN6 2*2*.75 (μCool™) CASE 506AN									
Complementary									
20			.065/ 0.100	.075/ 0.135	.120/.200	3.80	3.30	NTLJD3119C	C
FETKY® N-Channel									
20		0.070	0.090	0.125/ 0.250	5.4	4.60	1.50	NTLJF4156N	F
FETKY® P-Channel									
20		0.100	0.135	0.200	5.5	3.30	1.50	NTLJF3117P	F
N-Channel									
12		0.040	0.050	0.075	7.0	3.40	1.50	NTLJS2103P	S
30		0.070	0.090	0.125/ 0.0250	5.4	4.60	1.50	NTLJD4116N	D
		0.035	0.045	0.055	8.5	7.80	1.92	NTLJS4114N	S
P-Channel									
12		0.090	0.120	0.150	5.5	3.50	1.50	NTLJD2104P	D
20		0.100	0.135	0.200	5.5	4.10	1.50	NTLJD3115P	D
		0.040	0.050	0.075/ 0.2	13.0	7.70	1.90	NTLJS3113P	S
30	0.135	0.200			7.0	3.40	1.50	NTLJD4150P	D
		0.062	0.075		9.9	5.90	3.20	NTLJS4149P	S
DFN8 3x3x.75 Case 506BC									
P-Channel									
12		0.040	0.050		13.0	6.20	2.20	NUS3116M	D
		0.040	0.050		13.0	5.70	0.42	NUS5531M	S
SC-88 (SOT-363) Case 419B									
Complementary									
20/8		0.375/ 0.3	0.455/ 0.46	0.900	1.3/2.2	0.63/ 0.755	0.27	NTJD4105C	C
20		0.375/ 0.3	0.445/ 0.5		3.0	0.93	0.35	NTJD3158C	C
30/20		1.5/ 0.260	2.5/ 0.500		1.5/3.5	0.25/ 0.88	0.27	NTJD4158C	C
N-Channel									
20		0.375	0.445		1.3	0.63	0.27	NTJD4401N	D
		0.060	0.070	0.085	6.9	3.20	1.00	NTJS3157N	S
25		0.350	0.040		0.8	1.20	0.63	NTJS4405N	S
30		1.500	2.500		0.9	0.25	0.27	NTJD4001N	D
	0.060	0.085			2.8	2.60	0.95	NTJS4160N	S
60	1.600	2.500			0.9	0.304	0.266	NTJD5121N	D
P-Channel									
8		0.300	0.460	0.900	2.2	0.78	0.27	NTJD2152P	D
12		0.060	0.090	0.160	8.6	3.30	0.63	NTJS3151P	S
20		0.260	0.500	1.000	2.2	0.88	0.35	NTJD4152P	D
		0.060	0.085	0.205	10.0	4.20	1.00	NTJS4151P	S

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
SC-88 (SOT-363) Case 419B									
P-Channel Load Switch									
8		0.175	0.220	0.320		1.30	0.40	NTJD1155L	L
SC-70 Case 419									
N-Channel									
20	1.00	1.40			1.4	0.30	0.15	MMBF2201N	S
25		0.35	0.40		1.2	0.70	0.28	NTS4409N	S
30		1.50	2.00		0.9	0.27	0.33	NTS4001N	S
30	0.093	0.10	0.14		4.38	1.70	0.35	NTS4172N	S
60	1.60	2.50			0.70	0.34	0.33	2N7002W	S
P-Channel									
8		0.10	0.14	0.21	6.4	1.40	0.29	NTS2101P	S
20	2.20	3.50			6.4	1.37	0.33	MMBF2202P	S
		0.12		0.16	2.7	0.30	0.15	NTS4101P	S
TSOP-6 Case 318G									
Complementary									
20		0.06/ 0.11	0.09/ 0.145	0.15/ 0.22	5.2	3.5/2.7	1.10	NTGD3149C	C
30		0.09/ 0.17	0.125/ 0.3		3.7	2.9/2.2	1.10	NTGD4167C	C
N-Channel									
20		0.045	0.055		8.0	5.10	1.00	NTGS3446	S
20		0.070	0.100		3.8	3.50	1.10	NTGD3148N	D
20		0.024	0.032		13.2	6.20	1.40	NTGS3130N	S
30	0.025	0.035			12.0	7.00	1.00	NTGS4141N	S
30		0.090	0.125		3.7	2.90	1.10	NTGD4169F	D
P-Channel									
12		0.040	0.053	0.072	10.4	5.30	1.60	NTGS3447P	S
20		0.145	0.200		3.8	2.50	1.30	NTGD3147F	D
20		0.033	0.040	0.051	18.0	5.80	1.60	NTGS3136P	S
30	0.160	0.280			5.6	2.30	1.30	NTGD4161P	D
20		0.145	0.200		3.7	2.30	1.10	NTGD3133P	D
		0.090	0.135		6.2	3.30	1.00	NTGS3441	S
		0.110	0.165		3.3	3.16	0.98	NTGS3441P	S
		0.065	1.000		7.5	4.40	1.00	NTGS3443	S
30	0.100	0.170			9.0	3.50	1.00	NTGS3455	S
	0.060	0.110			15.3	4.70	1.25	NTGS4111P	S
60	0.110	0.142			18.1	2.90	1.40	NTGS5120P	S
P-Channel Load Switch									
8		0.055	0.070	0.140		3.30	0.83	NTGD1100L	L
TSSOP-8 CASE 948S									
N-Channel									
20		0.022	0.030		12.5	7.00	1.81	NTQD6968N	D

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
SOT-23 CASE 318									
N-Channel									
20	0.090	0.130			6.0	0.75	0.40	MGSF1N02L	S
		0.085	0.115		3.5	2.80	1.25	MGSF2N02EL	S
	1.100	1.400			1.4	0.30	0.23	MMBF0201NL	S
		0.080	0.105		2.4	3.20	1.25	NTR4501N	S
		0.050	0.063	0.087	7.3	4.00	1.25	NTR3161N	S
30	0.100	0.145			6.0	2.10	0.73	MGSF1N03L	S
		1.500	2.000		1.2	0.56	0.83	NTR4003N	S
	0.110	0.140			3.6	2.50	0.73	NTR4503N	S
	0.055	0.070	0.110		4.76	4.00	1.25	NTR4170N	S
50		3.500	10.000			0.20	0.23	BSS138L	S
60	7.500	7.500				0.12	0.23	2N7002L	S
	1.600	2.500			0.7	0.38	0.42	2N7002K	S
	2.500	3.000			0.81	0.31	0.30	2N7002E	S
	5.000					0.50	0.23	MMBF170L	S
100	6.000					0.17	0.23	BSS123L	S
P-Channel									
8		0.052	0.072	0.120	12.0	3.70	0.96	NTR2101P	S
20	0.800	1.100			2.2	0.40	0.23	NTR0202PL	S
	0.180	0.280			2.5	1.00	0.40	NTR1P02	S
		0.200	0.350			1.30	0.40	NTR1P02L	S
		0.850	0.120	0.210	7.5	3.20	1.25	NTR4101P	S
		0.070	0.095	0.120	10.3	3.60	1.25	NTR3162P	S
30	0.075	0.110	0.150		15.6	3.50	1.25	NTR4171P	S
	0.200	0.350			6.0	1.95	1.25	NTR4502P	S
50		10.000			6.0	0.13	0.23	BSS84L	S
ChipFET™ CASE 1206A									
Complementary									
20		0.08/ 0.115	0.115/ 0.240		2.6/3.0	3.1/2.1	1.13	NTHC5513	C
		0.080	0.115/ 0.110		2.3/7.4	3.9/4.4	1.13	NTHD3100C	C
		0.045/0. 080	0.050/ 0.110	0.070/ 0.15	7.9/8.9	5.5/4.2	1.13	NTHD3102C	C
FETKY® N-Channel									
20		0.080	0.115		2.6	2.70	1.13	NTHD4N02F	F
FETKY® P-Channel									
20		0.080	0.110	0.170	7.4	4.40	2.10	NTHD3133P	F
		0.080	0.110	0.170	7.4	4.40	1.13	NTHD3101F	F
		0.155	0.240		3.0	4.40	1.13	NTHD4P02F	F

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MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Qg Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
ChipFET™ CASE 1206A									
N-Channel									
20		0.075	0.115		2.6	4.10	1.13	NTHD4508N	D
		0.065	0.105		4.0	4.50	1.13	NTHD5904N	D
		0.030	0.045		12.0	7.20	1.30	NTHS5404	S
30	0.022	0.077			9.2	4.80	1.50	NTHS4166N	S
	0.085	0.140			3.6	3.90	1.13	NTHD4502N	D
	0.038	0.050			9.1	6.70	1.30	NTHS4501N	S
P-Channel									
12		0.040	0.053	0.080	10.5	6.40	2.30	NTHD2110T	S
8		0.058	0.085	0.160	8.0	4.60	1.13	NTHD2102P	D
		0.025	0.036	0.048	15.0	7.50	1.30	NTHS2101P	S
20		0.080	0.110	0.170	7.6	4.10	1.13	NTHD4102P	D
		0.155	0.240		3.0	2.10	1.13	NTHD4401P	D
		0.155	0.260		3.7	3.00	1.13	NTHD5903	D
		0.034	0.040	0.052	25.0	6.70	1.30	NTHS4101P	S
			0.083		9.7	5.30	1.30	NTHS5441	S
		0.065	0.110		7.5	4.90	1.30	NTHS5443	S
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Qg Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		
Micro8™ CASE 846A									
FETKY® P-Channel									
20		0.090	0.150		10.0	3.30	1.42	NTTD4401FR	F
P-Channel									
20		0.090	0.130		10.0	3.20	1.42	NTTS2P02	S
30	0.085	0.135			15.0	3.75	1.78	NTTS2P03	S
DFN 6 3*3*.85 (μCool™) CASE 506									
N-Channel									
20		0.060			2.9	4.30	1.74	NTLGD3502N	D
P-Channel									
20		0.140	0.225		3.8	3.90	1.60	NTLGF3402P	F
DFN 8 3.3*3.3 (EZFET™) CASE 846C									
N-Channel									
20		0.026	0.031		12.0	9.00	1.50	NTLTD7900ZN	D
P-Channel									
20		0.016	0.021		40.0	8.30	1.60	NUS2045MN	S

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V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		
SOT-223 CASE 318E									
N-Channel									
60	1.700				3.2	0.30	0.80	MMFT960	S
	0.110				10.6	3.00	2.10	NTF3055100	S
		0.120			7.6	3.00	2.10	NTF3055L108	S
		0.175			5.1	2.00	2.10	NTF3055L175	S
P-Channel									
20		0.050	0.070		15.0	10.00	8.30	NTF6P02	S
30	0.100	0.150			15.0	5.20	3.13	NTF5P03	S
60	0.170				14.3	2.60	2.30	NTF2955	S
SO-8 (MiniMOS™) CASE 751									
Complementary									
20		.043/ 0.100	0.048/ 0.130		12.0/10.0	5.2/3.4	2.00	NTMD2C02	C
30	0.070/0. 200	0.075/ 0.300			11.5/14.2	4.10	2.00	MMDF2C03HD	C
FETKY N-Channel									
30	0.032	0.040			19.0	6.00	2.00	NTMD6N03	F
	0.032	0.040			19.0	6.00	2.00	NTMSD6N303	F
	0.048	0.070			2.8	3.80	1.60	NTMD4884N	F
	0.012	0.015			10.5	7.20	1.39	NTMS4873N	F
FETKY® P-Channel									
30	0.095	0.165			2.8	2.60	1.60	NTMD4184P	F
	0.085	0.125			16.0	3.86	2.00	NTMSD3P303	F
N-Channel									
20	0.090	0.100			12.5	3.80	2.00	MMDF3N02HD	D
		0.035	0.048		12.0	6.50	2.00	NTMD6N02	D
		0.040	0.050		11.0	5.90	2.50	NTMS4N01	S
	0.023	0.028			26.0	6.50	2.50	NTMS7N03	S
25	0.100	0.200			10.6	3.60	2.00	MMDF2N02E	D
28	0.0080	0.0098			23.0	14.00	2.50	NTMS4503N	S
30	0.0600	0.0800			8.0	4.00	2.00	NTMD4N03	D
	0.0045	0.0055			45.0	18.00	2.50	NTMS4107N	S
	0.0100	0.0140			11.0	12.00	2.30	NTMS4705N	S
	0.0120	0.0150			10.0	10.30	2.20	NTMS4706N	S
	0.0135	0.0165			10.0	6.40	1.49	NTMS4872N	S
	0.0200	0.0270			7.7	5.10	1.28	NTMD4820N	D
	0.0240	0.0360			5.2	4.40	1.14	NTMD4840N	D
	0.0061	0.0075			24.0	9.80	1.55	NTMS4807N	S
	0.0100	0.0160			9.2	7.20	1.37	NTMS4816N	S
40	0.080	0.100			13.9	3.40	2.00	MMDF3N04HD	D
	0.034	0.043				5.80	2.00	NTMD6N04R2	D
50	0.300	0.500	300.00		12.5	2.00	2.00	MMDF1N05E	D

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		
SO-8 (MiniMOS™) CASE 751									
N-Channel									
80	0.215	0.245			9.0	2.30	3.10	NTMD3N08	S
	0.215	0.245			5.0	1.20	1.00	NTMD6601N	D
P-Channel									
30	0.018	0.030			17.0	5.80	1.44	NTMS4176P	S
	0.012	0.019			29.0	7.10	1.52	NTMS4177P	S
16		0.100	0.150		10.0	3.85	2.00	NTMD2P01	D
20	0.160	0.180			15.0	3.30	2.00	MMDF2P02HD	D
	0.075	0.095			33.0	5.60	2.50	MMSF3P02HD	S
		0.033	0.050		20.0	7.80	2.00	NTMD6P02	D
		0.014	0.020		48.0	10.00	2.50	NTMS10P02	S
		0.033	0.048		20.0	7.00	2.50	NTMS5P02	S
25	0.250	0.400			10.0	2.50	2.00	MMDF2P02E	D
30	0.035	0.050	35.000		37.9	7.00	2.50	MMSF7P03HD	S
	0.085	0.125			16.0	3.86	2.00	NTMD3P03	D
	0.085	0.115			16.0	3.86	2.34	NTMS3P03	S
SO-8FL CASE 488									
N-Channel									
30	0.0022	0.0034			47.0	35.00	6.30	NTMFS4108N	S
	0.0035	0.0048			37.0	30.00	6.10	NTMFS4119N	S
	0.0045	0.0055			33.0	31.00	6.90	NTMFS4120N	S
	0.0053	0.0070			24.0	29.00	6.60	NTMFS4121N	S
	0.0060	0.0085			23.0	23.00	5.80	NTMFS4122N	S
	0.0080	0.0110			11.0	12.30	2.30	NTMFS4701N	S
	0.0130	0.0170			7.5	10.20	2.30	NTMFS4707N	S
	0.0100	0.0140			10.0	11.00	2.20	NTMFS4744N	S
	0.0020	0.0030			39.0	191.00	125.00	NTMFS4833N	S
	0.0030	0.0040			32.0	130.00	86.20	NTMFS4834N	S
	0.0035	0.0050			22.0	104.00	62.50	NTMFS4835N	S
	0.0030	0.0060			20.0	90.00	55.60	NTMFS4836N	S
	0.0050	0.0075			14.2	74.00	47.20	NTMFS4837N	S
	0.0055	0.0095			13.0	66.00	41.70	NTMFS4839N	S
	0.0070	0.0114			11.5	57.00	41.70	NTMFS4841N	S
	0.00695	0.00108			10.7	10.00	2.14	NTMFS4821N	S
	0.00290	0.00440			25.6	5.80	2.27	NTMFS4845N	S
	0.00340	0.00510			21.8	20.30	2.25	NTMFS4846N	S
	0.00410	0.00620			19.2	18.00	2.21	NTMFS4847N	S
	0.00510	0.00790			15.0	16.10	2.17	NTMFS4849N	S
	0.00590	0.00870			13.5	15.00	2.16	NTMFS4851N	S

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		
DPAK (TO252) CASE 369X *									
N-Channel									
16	0.0058	0.0085			14.1	17.00	2.60	NTD3808N	S
	0.00875	0.01450			8.5	13.80	2.60	NTD3813N	S
	0.01390	0.00290			7.0	10.80	2.50	NTD3817N	S
24	0.0046	0.0062			23.6	32.00	110.00	NTD110N02	S
	0.0058	0.0090			30.0	80.00	75.00	NTD80N02	S
	0.0052				17.7	32.00	78.10	NTD85N02R	S
	0.0050	0.0080			21.0	32.00	86.00	NTD95N02R	S
25	0.0950	0.1300			1.8	14.00	20.80	NTD14N03R	S
	0.0450	0.0600			3.8	17.10	22.30	NTD23N03R	S
	0.0165	0.0230			5.8	32.00	50.00	NTD40N03R	S
	0.0140	0.0230			6.0	45.00	50.00	NTD50N03R	S
	0.0105	0.0125			9.5	32.00	58.00	NTD60N02R	S
	0.0084	0.0146			12.2	65.00	50.00	NTD65N03R	S
	0.0080	0.0130			13.2	32.00	62.50	NTD70N03R	S
	0.0060	0.0078			25.5	78.00	64.00	NTD78N03	S
	0.0036	0.0047			32.8	20.80	2.50	NTD4854N	S
	0.0430	0.0060			21.8	18.00	2.24	NTD4855N	S
	0.0047	0.0068			18.0	16.80	2.14	NTD4856N	S
	0.0057	0.0080			16.0	15.00	2.10	NTD4857N	S
	0.0062	0.0093			12.8	14.00	2.00	NTD4858N	S
	0.0075	0.0110			11.0	13.00	2.00	NTD4860N	S
	0.0093	0.0140			9.0	11.30	1.95	NTD4863N	S
	0.0109	0.0172			7.2	10.50	1.92	NTD4865N	S
30		0.0270			13.8	20.00	74.00	NTD20N03L27	S
	0.0100	0.0130			55.0	68.00	75.00	NTD4302	S
	0.0040	0.0055			30.0	117.00	93.75	NTD4804N	S
	0.0050	0.0074			20.5	88.00	66.00	NTD4805N	S
	0.0060	0.0094			15.0	76.00	60.00	NTD4806N	S
	0.0080	0.0124			11.3	63.00	54.60	NTD4808N	S
	0.0090	0.0140			10.7	58.00	52.00	NTD4809N	S
	0.0090	0.0125			12.5	58.00	52.00	NTD4809NH	S
	0.0100	0.0157			9.0	54.00	50.00	NTD4810N	S
	0.0100	0.0167			8.9	54.00	50.00	NTD4810NH	S
	0.0130	0.0240			6.9	40.00	35.30	NTD4813N	S
	0.0130	0.0259			7.1	40.00	35.30	NTD4813NH	S
	0.0150	0.0250			6.0	35.00	32.60	NTD4815N	S
	0.0150	0.0277			6.4	35.00	32.60	NTD4815NH	S
40	10.000	17.000			45.0	70.00	100.00	NTD5406N	S
	26.000	40.000			20.0	38.00	75.00	NTD5407N	S
	0.004	0.008			75.0	78.00	93.75	NTD5802N	S

MOSFET PRODUCTS

MOSFET SURFACE MOUNT									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		
DPAK (TO252) CASE 369X *									
N-Channel									
60	0.026				35.0	30.00	68.00	NTD5413N	S
	0.037				25.0	24.00	55.00	NTD5414N	S
	0.060				15.3	18.00	55.00	NTD18N06	S
		0.065			11.0	18.00	55.00	NTD18N06L	S
	0.046				21.2	20.00	60.00	NTD20N06	S
		0.048			16.6	20.00	60.00	NTD20N06L	S
	0.042				24.0	24.00	62.50	NTD24N06	S
		0.045			16.0	24.00	62.50	NTD24N06L	S
	0.094				10.9	12.00	48.00	NTD3055094	S
	0.150				7.1	9.00	28.80	NTD3055150	S
		0.104			7.4	12.00	48.00	NTD3055L104	S
		0.170			4.7	9.00	28.50	NTD3055L170	S
	0.062				33.0	32.00	93.75	NTD32N06	S
		0.028			23.0	32.00	93.75	NTD32N06L	S
100	0.165				14.0	12.00	53.60	NTD12N10	S
	0.146				11.3	12.00	56.60	NTD6600N	S
150	0.300				15.0	6.00	20.00	MTD6N15	S
200	0.700				13.7	6.00	50.00	MTD6N20E	S
P-Channel									
30		0.072			15.0	25.00	75.00	NTD25P03L	S
		0.072			15.0	25.00	75.00	NTD25P03L	S
60	0.450				12.0	5.00	40.00	MTD5P06V	S
		0.150			15.0	15.50	65.00	NTD20P06L	S
	0.180				15.0	12.00	55.00	NTD2955	S
D2PAK (TO263) Case 418B									
N-Channel									
24	0.0046	0.0062			23.6	125.00	113.60	NTB125N02R	S
	0.0105	0.0125			9.5	65.00	62.50	NTB65N02R	S
	0.0058	0.0090			29.0	90.00	85.00	NTB90N02	S
25	0.0450	0.0600			3.8	23.00	37.50	NTB23N03R	S
	0.0080	0.0130			13.2	75.00	74.40	NTB75N03R	S
28	0.0068				29.0	85.00	80.00	NTB85N03	S
	0.0065				57.0	75.00	125.00	NTB75N036	S
		0.0080			57.0	75.00	125.00	NTB75N03L09	S
40	4.5000	7.0000			125.0	136.00	167.00	NTB5404N	S
	5.8000	8.0000			88.0	116.00	150.00	NTB5405N	S

MOSFET PRODUCTS

MOSFET SURFACE MOUNT

V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Qg Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V		I _D (A)	P _D (W)		

D2PAK (TO263) Case 418B

N-Channel									
60	0.010				92.0	80.00	166.00	NTB5411N	S
	0.014				66.0	60.00	125.00	NTB5412N	S
	0.006				150.0	120.00	215.00	NTB5426N	S
	0.0900				12.0	15.00	48.40	NTB18N06	S
		0.1000			7.3	15.00	48.40	NTB18N06L	S
	0.0420				23.4	27.00	88.20	NTB30N06	S
		0.0460			16.0	30.00	88.20	NTB30N06L	S
	0.0260				33.0	45.00	125.00	NTB45N06	S
		0.0280			23.0	45.00	125.00	NTB45N06L	S
	0.0140				62.0	60.00	150.00	NTB60N06	S
		0.0160			43.2	60.00	150.00	NTB60N06L	S
	0.0095				92.0	75.00	214.00	NTB75N06	S
		0.0110			66.0	75.00	214.00	NTB75N06L	S
100	0.1650				14.0	13.00	64.70	NTB13N10	S
	0.0300				72.0	52.00	178.00	NTB52N10	S
150	0.0500				70.0	37.00	178.00	NTB35N15	S
200	0.0810				75.0	30.00	214.00	NTB30N20	S
P-Channel									
30			25.000			50.00	125.00	MTB50P03HDL	S
60			80.000			30.00	125.00	MTB30P06V	S
60	0.075				33.0	27.50	120.00	NTB25P06	S
60		0.140			13.0	18.50	88.00	NTB5605P	S
500			6000.0 00			2.00	2.50	MTB2P50E	S

MOSFET THROUGH HOLE

V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Qg Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		

TO-92 CASE 29

N-Channel									
60	5.000	6.000				0.20	0.35	2N7000	S
	5.000					0.50	0.35	BS170	S
	7.500					0.15	0.40	VN2222LL	S
200	14.000		28.000			0.25	0.35	BS107	S
	6.000					0.25	0.35	BS107A	S
			10.000			0.25	0.35	BS108	S
240	10.000					0.20	0.35	VN2410L	S

MOSFET PRODUCTS

MOSFET THROUGH HOLE									
V _{DSS} (V)	R _{DS(on)} MAX (Ω) @ V _{GS} =				Q _g Typ (nC) @ V _{GS} = 4.5 V(5.0 V)/10 V	Max Rating		Device	Config.
	10 V	4.5 V/ 5.0 V	2.5 V/ 2.7 V	1.8 V/ 1.65 V		I _D (A)	P _D (W)		
TO-220AB CASE 221A									
N-Channel									
24	0.0046	0.0062			23.6	125.00	113.60	NTP125N02R	S
	0.0105	0.0125			9.5	65.00	62.50	NTP65N02R	S
25	0.0080	0.0130			13.0	75.00	74.40	NTP75N03R	S
28	0.0068				29.0	85.00	80.00	NTP85N03	S
30	0.0065				57.0	75.00	125.00	NTP75N03	S
		0.0080			57.0	75.00	125.00	NTP75N03L09	S
60	0.0900				12.0	15.00	48.40	NTP18N06	S
		0.1000			7.3	15.00	48.40	NTP18N06L	S
	0.0460				21.2	27.00	88.20	NTP27N06	S
		0.0460			16.0	30.00	88.20	NTP30N06L	S
	0.0260				33.0	45.00	125.00	NTP45N06	S
		0.0280			23.0	45.00	125.00	NTP45N06L	S
	0.0140				62.0	60.00	150.00	NTP60N06	S
		0.0160			43.2	60.00	150.00	NTP60N06L	S
	0.0095				92.0	75.00	214.00	NTP75N06	S
	0.010				92.0	80.00	166.00	NTP5411N	S
	0.014				66.0	60.00	125.00	NTP5412N	S
	0.006				150.0	120.00	215.00	NTP5426N	S
100		0.2200			9.3	10.00	40.00	MTP10N10EL	S
	0.0300				72.0	52.00	214.00	NTP52N10	S
150	0.0500				70.0	37.00	178.00	NTP35N15	S
	0.1300					20.00	112.00	MTP20N15E	S
200	0.8100				75.0	30.00	214.00	NTP30N20	S
P-Channel									
30		0.025			74.0	50.00	125.00	MTP50P03HDL	S
60	0.120				38.0	23.00	90.00	MTP23P06V	S
	0.153				14.0	14.00	55.60	NTP2955	S
100	0.300				33.0	12.00	75.00	MTP12P10	S
500	6.000				19.0	2.00	75.00	MTP2P50E	S
TO-247 Case 340K									
N-Channel									
200	0.075				85.0	32.00	180.00	MTW32N20E	S
TO-264 Case 340G									
N-Channel									
100	0.010				200.0	123.00	313.00	NTY100N10	S

PROTECTED MOSFETS

Device	Polarity	$V_{(BR)DSS}$ Min (V)	I_D Typ (A)	$R_{DS(on)}$ Max (m Ω)	P_D Max (W)	Package
MLD1N06CL	N-Channel	60	–	750	40	DPAK-4
MLP1N06CL	N-Channel	60	–	750	40	TO-220
NID5001N	N-Channel	42	33	29	64	DPAK-4
NID5003N	N-Channel	42	20	51	1.3	DPAK-4
NID5004N	N-Channel	36	6.5	130	2.5	DPAK-4
NID6002N	N-Channel	60	6.5	210	2.5	DPAK-4
NID9N05CL	N-Channel	52	9	181	28.8	DPAK-4
NIF5002N	N-Channel	42	3	200	–	SOT-223
NIF5003N	N-Channel	42	14	68	1.25	SOT-223
NIF62514	N-Channel	42	–	100	1.73	SOT-223
NIF9N05CL	N-Channel	52	2.6	125	1.69	SOT-223
NILMS4501N	N-Channel	24	9.5	13	2.7	PLLP-4

Diodes

Diodes

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Tuning and Switching Diodes

TUNING DIODES – ABRUPT JUNCTION

Device	V _R Volts	C _T @ V _R = 4.0 V, 1.0 MHz			Cap Ratio Min	Q @ 4.0 V 50 MHz Typ	Package
		pF Min	pF Nominal	pF Max			
MV2105	30	13.5	15	16.5	2.5	400	 TO-226AC, TO-92 2-Lead Case 182-06
MMBV2105L	30	13.5	15	16.5	2.5	400	
MMBV2109L	30	29.7	33	36.3	2.5	200	
MMBV3102L	30	20	–	25	4.5	200	
							 TO-236AB, SOT-23 Case 318-08

Devices listed in **bold italic** are ON Semiconductor preferred devices.

TUNING DIODES – HYPER-ABRUPT JUNCTION

Device	V _R Volts	C _T (f = 1.0 MHz)			Cap Ratio			Q 3.0 V Min	Type	Package
		pF Min	pF Max	Volts	Min	Max	Volts			
MMBV105GL	30	1.5	2.8	25	4.0	6.5	3.0/25	200	Single	 TO-236AB, SOT-23 Case 318-08
MMBV609L	20	26	32	3.0	1.8	2.4	3/8	250	Dual Common Cathode	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

Tuning and Switching Diodes

SCHOTTKY DIODES

Device	V _R Volts	C _T @ V		V _F Volts Max	I _R @ V		Type	Package
		pF Max	Volts		nA Max	Volts		
<i>MBD301</i>	30	1.5	15	0.6	200	25	Single	 TO-226AC, TO-92 2-Lead Case 182-06
<i>MMSD701</i>	70	1.0	20	1.0	200	35	Single	
<i>BAT54</i>	30	10	1.0	0.4	2000	25	Single	
<i>MMSD301</i>	30	1.5	15	0.6	200	25	Single	 SOD-123 Case 425-04
<i>MMDL770</i>	70	1.0	20	1.0	200	35	Single	
<i>BAT54H</i>	30	10	1.0	0.4	2000	25	Single	
<i>MMDL301</i>	30	1.5	15	0.6	200	25	Single	 SOD-323 Case 477-02
NSR0240H	40	–	–	0.71	550	10	Single	
NSR0340H	40	–	–	0.59	1000	10	Single	
NSR1020MW2	20	29	5	0.44	40000	10	Single	
NSRLV20MW2	20	29	5	0.27	50000	10	Single	
<i>RB751V40</i>	30	2.5	1.0	0.37	500	30	Single	
<i>MMDL101</i>	7.0	1.0	0	0.6	250	3.0	Single	
<i>NSR0320MW2</i>	20	29	5.0	0.27	50000	15	Single	
<i>BAS70L</i>	70	2.0	0	0.75	100	50	Single	
<i>BAS70-04L</i>	70	2.0	0	0.75	100	50	Dual Series	
<i>MMBD701L</i>	70	1.0	20	1.0	200	35	Single	 TO-236AB, SOT-23 Case 318-08
<i>BAS40L</i>	40	5.0	1.0	0.5	1000	25	Single	
<i>BAS40-04L</i>	40	5.0	1.0	0.5	1000	25	Dual Series	
<i>BAS40-06L</i>	40	5.0	1.0	0.5	1000	25	Dual Common Anode	
BAT54CL	30	10	1.0	0.4	2000	25	Dual Common Cathode	
<i>BAT54L</i>	30	10	1.0	0.4	2000	25	Single	
<i>BAT54AL</i>	30	10	1.0	0.4	2000	25	Dual Common Anode	
<i>BAT54SL</i>	30	10	1.0	0.4	2000	25	Dual Series	
<i>MMBD301L</i>	30	1.5	15	0.6	200	25	Single	
MMBD452L	30	1.5	15	0.6	200	25	Dual Series	
<i>MMBD101L</i>	7.0	1.0	0	0.6	250	3.0	Single	
<i>MMBD352L</i>	7.0	1.0	0	0.6	250	3.0	Dual Series	
<i>MMBD353L</i>	7.0	1.0	0	0.6	250	3.0	Dual Series	
<i>MMBD354L</i>	7.0	1.0	0	0.6	250	3.0	Dual Common Cathode	
<i>MMBD355L</i>	7.0	1.0	0	0.6	250	3.0	Dual Common Anode	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

Tuning and Switching Diodes

SCHOTTKY DIODES (continued)

Device	V _R Volts	C _T @ V		V _F Volts Max	I _R @ V		Type	Package
		pF Max	Volts		nA Max	Volts		
MMBD770	70	1.0	20	1.0	200	35	Single	 SC-70, SOT-323 Case 419-04
BAT54AW	30	10	1.0	0.4	2000	25	Dual Common Anode	
BAT54CW	30	10	1.0	0.4	2000	25	Dual Common Cathode	
BAT54W	30	10	1.0	0.4	2000	25	Single	
BAT54SW	30	10	1.0	0.4	2000	25	Dual Series	
MMBD330	30	1.5	15	0.6	200	25	Single	
MMBD717L	20	2.5	1.0	0.37	1000	10	Dual Common Anode	
MMBD352W	7.0	1.0	0	0.6	250	3.0	Dual Series	
BAT54CT	30	10	1.0	0.4	2000	25	Dual Common Cathode	 SOT-416, SC-75, SC-90 Case 463-01
MBD770DW	70	1.0	0	0.5	200	35	Dual Isolated	 SC-88, SOT-363 Case 419B-02
MBD54DW	30	1.0	0	0.32	2000	25	Dual Isolated	
MBD330DW	30	1.5	0	0.4	200	25	Dual Isolated	
NSR15TW1T2	15	1.0	0	0.415	50	1.0	Triple	
NSR0320XV6	23	35	5.0	0.27	50000	15	Single	 SOT-563 Case 463A-01
BAT54CXV3	30	10	1.0	0.4	2000	25	Dual Common Cathode	 SC-89 Case 463C-03
RB751S40	40	2.5	1.0	0.37	500	30	Single	 SOD-523 Case 502-01
BAT54XV2	30	10	1.0	0.4	2000	25	Single	
RB520S30	30	–	–	0.5	1000	10	Single	
NSR0240V2	40	–	–	–	0.7	550	Single	
NSR0340V2	40	–	–	–	0.51	1000	Single	
NSR0520V2	20	–	–	–	0.48	30000	Single	
NSRLL30XV2	30	–	–	–	0.6	10000	Single	
RB521S30	30	–	–	0.6	30000	10	Single	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

Tuning and Switching Diodes

SCHOTTKY DIODES (continued)

Device	V _R Volts	C _T @ V		V _F Max	I _R @ V		Type	Package
		pF Max	Volts	Volts	nA Max	Volts		
NSR0230M2	30	–	–	0.325	10000	10	Single	 SOT-723 Case 631AA-01
NSR30CM3	30	10	1.0	0.8	2.0	25	Dual Common Cathode	

Device	V _R Volts	C _T @ V		V _F Max	I _R @ V		Type	Package
		pF Max	Volts	Volts Max	nA Max	Volts		
NSR0130P2	30	–	–	0.385	350	10	Single	 SOD-923 Case 514AA-01
NSR0140P2	40	2.5	1.0	0.350	500	30	Single	
NSR0170P2	70	–	–	0.64	90	50	Single	
NSR0240P2	40	–	–	0.5	5000	40	Single	
NSR0340P2	40	–	–	0.56	5000	10	Single	
NSR0530P2	30	–	–	0.46	10000	10	Single	
NSR0620P2	20	–	–	0.52	10000	10	Single	
NSR0230P2	20	–	–	0.325	10000	10	Single	

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

PIN SWITCHING DIODES

Device	V _R Volts Min	C _T @ V		Resistance	I _R μA Max	Type	Package
		pF Max	Volts	Ω Max			
MMBV3700L	200	1.0	20	1.0	0.1	Single	 TO-236AB, SOT-23 Case 318-08
<i>MMBV3401L</i>	35	1.0	20	0.7	0.1	Single	
<i>MMVL3401</i>	35	1.0	20	0.7	0.1	Single	 SOD-323 Case 477-02

Devices listed in ***bold italic*** are ON Semiconductor preferred devices.

Switching Diodes

GENERAL-PURPOSE SIGNAL AND SWITCHING DIODES

Device	V _R Min Volts	I _R Max μA	V _F		C _T Max pF	t _{rr} Max ns	Type	Package
			Min Volts	Max Volts				
BAS21L	250	0.1	–	1.0	5.0	50	Single	 TO-236AB, SOT-23 Case 318-08
BAS21SL	250	0.1	–	1.0	5.0	50	Dual Series	
MMBD914L	100	5.0	–	1.0	4.0	4.0	Single	
BAS16L	75	1.0	–	1.0	2.0	6.0	Single	
MMBD6050L	70	0.1	0.85	1.1	2.5	4.0	Single	
BAL99L	70	2.5	–	1.0	1.5	6.0	Single	
BAS116L	75	0.005	–	0.9	2.0	3000	Single	
MMBD7000L	100	1.0	0.75	1.1	1.5	4.0	Dual Series	
MMBD2836L	75	0.1	–	1.0	4.0	4.0	Dual Common Anode	
MMBD2838L	75	0.1	–	1.0	4.0	4.0	Dual Common Cathode	
BAV70L	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
BAV99L	70	2.5	–	1.0	1.5	4.0	Dual Series	
BAW56L	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
MMBD6100L	70	0.1	0.85	1.1	2.5	4.0	Dual Common Cathode	
BAV74L	50	0.1	–	1.0	2.0	4.0	Dual Common Cathode	
MMBD2835L	35	0.1	–	1.0	4.0	4.0	Dual Common Anode	
MMBD2837L	35	0.1	–	1.0	4.0	4.0	Dual Common Cathode	
BAV199L	70	0.005	–	0.9	2.0	3000	Dual Series	
BAS20L	200	0.1	–	1.0	5.0	50	Single	
BAS19L	120	0.1	–	1.0	5.0	50	Single	
M1MA151K	40	0.1	–	1.2	2.0	3.0	Single	 SC-59 Case 318D-04
M1MA152K	80	0.1	–	1.2	2.0	3.0	Single	
M1MA151WA	40	0.1	–	1.2	15	10	Dual Common Anode	
M1MA151WK	40	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
M1MA152WA	80	0.1	–	1.2	15	10	Dual Common Anode	
M1MA152WK	80	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
BAS16W	75	1.0	–	1.25	2.0	6.0	Single	 SC-70, SOT-323 Case 419-04
M1MA141K	40	0.1	–	1.2	2.0	3.0	Single	
M1MA142WK	80	0.1	–	1.2	2.0	3.0	Dual Common Cathode	
M1MA142WA	80	0.1	–	1.2	15	10	Dual Common Anode	
BAW56W	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
BAV70W	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
BAV99W	70	2.5	–	1.0	1.5	6.0	Dual Series	
BAV99RW	70	2.5	–	1.0	1.5	6.0	Dual Series	
M1MA141WA	40	0.1	–	1.2	15	10	Dual Common Anode	
MMSD914	100	5.0	–	1.0	4.0	4.0	Single	
MMSD103	250	100	–	1.0	5.0	50	Single	 SOD-123 Case 425-04
MMSD4148	100	5.0	–	1.0	4.0	4.0	Single	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

Switching Diodes

GENERAL-PURPOSE SIGNAL AND SWITCHING DIODES

Device	V _R Min Volts	I _R Max μA	V _F		C _T Max pF	t _{rr} Max ns	Type	Package
			Min Volts	Max Volts				
BAS16H	75	1.0	–	1.0	2.0	6.0	Single	 SOD-323 Case 477-02
BAS20H	200	0.1			5.0	50	Single	
BAS21AH	250	0.04	–	1.0	5.0	50	Single	
BAS21H	250	0.1	–	1.0	5.0	50	Single	
MMDL914	100	5.0	–	1.0	4.0	4.0	Single	
MMDL6050	70	0.1	0.85	1.1	2.5	4.0	Single	
BAS16T	75	1.0	–	1.0	2.0	6.0	Single	 SOT-416, SC-75, SC-90 Case 463-01
DA121T	80	1.0			2.0	6.0	Single	
DAP222	80	0.1	–	1.2	3.5	4.0	Dual Common Anode	
BAW56T	70	2.5	–	1.0	2.0	6.0	Dual Common Anode	
DAN222	80	0.1	–	1.2	3.5	4.0	Dual Common Cathode	
BAV70T	70	5.0	–	1.0	1.5	6.0	Dual Common Cathode	
HN2D02FUTW1	85	0.1	–	1.2	2.0	3.0	Triple Isolated	 SC-88 Case 419B-02
BAS21DW5	250	0.1	–	1.0	5.0	50	Dual Isolated	 SC-88A Case 419A-02
1SS400	100	0.1	–	1.2	3.0	4.0	Single	 SOD-523 Case 502-01
BAS16XV2	75	1.0	–	1.0	2.0	6.0	Single	
NSD914XV2	100	–	–	1.0	4.0	4.0	Single	
NSDEMP11XV6	70	0.01	–	1.2	3.5	4.0	Two Dual Common Anode	6  1 SOT-563 Case 463A-01
BAS16DXV6	75	0.001	–	1.25	2.0	6.0	Dual Isolated	
DAN222M3	80	0.1	–	1.2	3.5	4.0	Dual Common Cathode	 SOT-723 Case 631AA-01
DAP222M3	80	0.1	–	1.2	3.5	4.0	Dual Common Anode	

Devices listed in **bold italic** are ON Semiconductor preferred devices.

1. Devices in **bold**, samples starting Oct. 2002, production starting Dec. 2002.
2. Remainder of devices, 4 to 8 weeks after receipt of request based on note 1 timetable.

Zener Diodes – Regulation in Axial Leads

Table 1. AXIAL LEADED – 3, 5 WATT

Nominal Zener Breakdown Voltage	3 Watt	5 Watt
	Cathode = Polarity Band	Cathode = Polarity Band
Volts	 Plastic Surmetic 30 Case 59-10 (DO-41)	 Plastic Surmetic 40 Case 17
3.3	1N5913B	1N5333B
3.6		1N5334B
3.9		1N5335B
4.3		1N5336B
4.7	1N5917B	1N5337B
5.1		1N5338B
5.6	1N5919B	1N5339B
6.0		1N5340B
6.2	1N5920B	1N5341B
6.8	1N5921B	1N5342B
7.5		1N5343B
8.2	1N5923B	1N5344B
8.7		1N5345
9.1	1N5924B	1N5346B
10	1N5925B	1N5347B
11		1N5348B
12	1N5927B	1N5349B
13		1N5350B
14		1N5351B
15	1N5929B	1N5352B
16		1N5353B
17		1N5354B
18	1N5931B	1N5355B
19		1N5356B
20	1N5932B	1N5357B
22		1N5358B
24	1N5934B	1N5359B

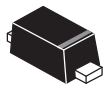
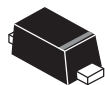
Zener Diodes – Regulation in Axial Leads (continued)

Table 1. AXIAL LEADED – 3, 5 WATT (continued)

Nominal Zener Breakdown Voltage	3 Watt Cathode = Polarity Band	5 Watt Cathode = Polarity Band
Volts	 Plastic Surmetic 30 Case 59-10 (DO-41)	 Plastic Surmetic 40 Case 17
25		1N5360B
27	1N5935B	1N5361B
28		1N5362B
30		1N5363B
33	1N5937B	1N5364B
36	1N5938B	1N5365B
39		1N5366B
43	1N5940B	1N5367B
47	1N5941B	1N5368B
51	1N5942B	1N5369B
56		1N5370B
60		1N5371B
62		1N5372B
68		1N5373B
75	1N5946B	1N5374B
82		1N5375B
87		
91	1N5948B	1N5377B
100		1N5378B
110		
120		1N5380B
130		1N5381B
140		
150	1N5953B	1N5383B
160		1N5384B
170		
180	1N5955B	1N5386B
190		1N5387
200	1N5956B	1N5388B

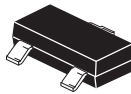
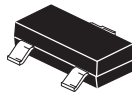
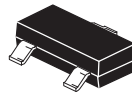
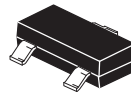
Zener Diodes – Regulation in Surface Mount

Table 2. SURFACE MOUNT PACKAGES – 200 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOD-923	Tight Tolerance SOD-923	Standard Tolerance SOD-523	Tight Tolerance SOD-523	Standard Tolerance SOD-323	Tight Tolerance SOD-323
Volts	 Case 514AB	 Case 514AB	 Case 502	 Case 502	 Case 477 Style 1	 Case 477 Style 1
2.4	NZ9F2V4	NZ9F2V4S	MM5Z2V4	MM5Z2V4S	MM3Z2V4	
2.7	NZ9F2V7	NZ9F2V7S	MM5Z2V7		MM3Z2V7	
3.0	NZ9F3V0	NZ9F3V0S	MM5Z3V0		MM3Z3V0	
3.3	NZ9F3V3	NZ9F3V3S	MM5Z3V3		MM3Z3V3	MM3Z3V3S
3.6	NZ9F3V6	NZ9F3V6S	MM5Z3V6		MM3Z3V6	
3.9	NZ9F3V9	NZ9F3V9S			MM3Z3V9	MM3Z3V9S
4.3	NZ9F4V3	NZ9F4V3S			MM3Z4V3	MM3Z4V3S
4.7	NZ9F4V7	NZ9F4V7S	MM5Z4V7	MM5Z4V7S	MM3Z4V7	MM3Z4V7S
5.1	NZ9F5V1	NZ9F5V1S	MM5Z5V1	MM5Z5V1S	MM3Z5V1	MM3Z5V1S
5.6	NZ9F5V6	NZ9F5V6S	MM5Z5V6	MM5Z5V6S	MM3Z5V6	MM3Z5V6S
6.2	NZ9F6V2	NZ9F6V2S	MM5Z6V2	MM5Z6V2S	MM3Z6V2	MM3Z6V2S
6.8	NZ9F6V8	NZ9F6V8S	MM5Z6V8	MM5Z6V8S	MM3Z6V8	MM3Z6V8S
7.5	NZ9F7V5	NZ9F7V5S	MM5Z7V5		MM3Z7V5	MM3Z7V5S
8.2	NZ9F8V2	NZ9F8V2S	MM5Z8V2	MM5Z8V2S	MM3Z8V2	MM3Z8V2S
9.1	NZ9F9V1	NZ9F9V1S	MM5Z9V1	MM5Z9V1S	MM3Z9V1	MM3Z9V1S
10	NZ9F10V	NZ9F10VS	MM5Z10V		MM3Z10V	MM3Z10VS
11	NZ9F11V	NZ9F11VS			MM3Z11V	
12	NZ9F12V	NZ9F12VS	MM5Z12V		MM3Z12V	MM3Z12VS
13	NZ9F13V	NZ9F13VS			MM3Z13V	
15	NZ9F15V	NZ9F15VS	MM5Z15V		MM3Z15V	MM3Z15VS
16	NZ9F16V	NZ9F16VS	MM5Z16V		MM3Z16V	MM3Z16VS
18	NZ9F18V	NS9F18VS	MM5Z18V		MM3Z18V	MM3Z18VS
20	NZ9F20V		MM5Z20V		MM3Z20V	
22	NZ9F22V				MM3Z22V	MM3Z22VS
24	NZ9F24V		MM5Z24V		MM3Z24V	
27			MM5Z27V		MM3Z27V	MM3Z27VS
30			MM5Z30V			
36			MM5Z36V		MM3Z36V	MM3Z33VS
39					MM3Z39V	
43					MM3Z43V	

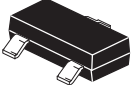
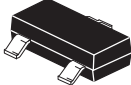
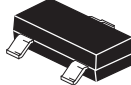
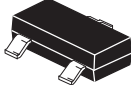
Zener Diodes – Regulation in Surface Mount

Table 3. SURFACE MOUNT PACKAGES – 225 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOT-23	Tight Tolerance SOT-23	Standard Tolerance SOT-23	Energy Rated SOT-23
Volts	 Case 318	 Case 318	 Case 318	 Case 318
2.4	BZX84C2V4L		MMBZ5221BL	
2.5			MMBZ5222BL	
2.7	BZX84C2V7L		MMBZ5223BL	
3.0	BZX84C3V0L		MMBZ5225BL	
3.3	BZX84C3V3L		MMBZ5226BL	
3.6	BZX84C3V6L		MMBZ5227BL	
3.9	BZX84C3V9L		MMBZ5228BL	
4.3	BZX84C4V3L		MMBZ5229BL	
4.7	BZX84C4V7L		MMBZ5230BL	
5.1	BZX84C5V1L	BZX84B5V1L	MMBZ5231BL	MMBZ5231EL
5.6	BZX84C5V6L	BZX84B5V6L	MMBZ5232BL	MMBZ5232EL
6.0			MMBZ5233BL	
6.2	BZX84C6V2L	BZX84B6V2L	MMBZ5234BL	MMBZ5234EL
6.8	BZX84C6V8L	BZX84B6V8L	MMBZ5235BL	
7.5	BZX84C7V5L	BZX84B7V5L	MMBZ5236BL	
8.2	BZX84C8V2L	BZX84B8V2L	MMBZ5237BL	MMBZ5237EL
8.7			MMBZ5238BL	
9.1	BZX84C9V1L	BZX84B9V1L	MMBZ5239BL	MMBZ5239EL
10	BZX84C10L		MMBZ5240BL	MMBZ5240EL
11	BZX84C11L		MMBZ5241BL	
12	BZX84C12L	BZX84B12L	MMBZ5242BL	MMBZ5242EL
13	BZX84C13L		MMBZ5243BL	MMBZ5243EL
14			MMBZ5244BL	
15	BZX84C15L	BZX84B15L	MMBZ5245BL	MMBZ5245EL
16	BZX84C16L	BZX84B16L	MMBZ5246BL	MMBZ5246EL
17			MMBZ5247BL	
18	BZX84C18L	BZX84B18L	MMBZ5248BL	MMBZ5248EL
19			MMBZ5249BL	
20	BZX84C20L		MMBZ5250BL	MMBZ5250EL
22	BZX84C22L	BZX84B22L	MMBZ5251BL	
24	BZX84C24L	BZX84B24L	MMBZ5252BL	MMBZ5252EL
25			MMBZ5253BL	MMBZ5253EL
27	BZX84C27L		MMBZ5254BL	
28			MMBZ5255BL	
30	BZX84C30L		MMBZ5256BL	
33	BZX84C33L		MMBZ5257BL	MMBZ5257EL
36	BZX84C36L		MMBZ5258BL	

Zener Diodes – Regulation in Surface Mount (continued)

Table 3. SURFACE MOUNT PACKAGES – 225 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOT-23	Tight Tolerance SOT-23	Standard Tolerance SOT-23	Energy Rated SOT-23
Volts	 Case 318	 Case 318	 Case 318	 Case 318
39	BZX84C39L		MMBZ5259BL	
43	BZX84C43L		MMBZ5260BL	
47	BZX84C47L		MMBZ5261BL	MMBZ5261EL
51	BZX84C51L			
56	BZX84C56L		MMBZ5263BL	
60			MMBZ5264BL	
62	BZX84C62L			
68	BZX84C68L			
75	BZX84C75L			
82			MMBZ5268BL	
91			MMBZ5270BL	

Zener Diodes – Regulation in Surface Mount (continued)

Table 4. SURFACE MOUNT PACKAGES – 500 mW

Nominal Zener Breakdown Voltage	Standard Tolerance SOD-123	Standard Tolerance SOD-123	Standard Tolerance SOD-123	Energy Rated SOD-123
Volts	 Case 425	 Case 425	 Case 425	 Case 425
1.8		MMSZ4678		
2.0		MMSZ4679		
2.2		MMSZ4680		
2.4	MMSZ2V4	MMSZ4681	MMSZ5221B	MMSZ5221E
2.5			MMSZ5222B	
2.7	MMSZ2V7	MMSZ4682	MMSZ5223B	MMSZ5223E
3.0	MMSZ3V0	MMSZ4683	MMSZ5225B	
3.3	MMSZ3V3	MMSZ4684	MMSZ5226B	MMSZ5226E
3.6	MMSZ3V6	MMSZ4685	MMSZ5227B	
3.9	MMSZ3V9	MMSZ4686	MMSZ5228B	
4.3	MMSZ4V3	MMSZ4687	MMSZ5229B	
4.7	MMSZ4V7	MMSZ4688	MMSZ5230B	
5.1	MMSZ5V1	MMSZ4689	MMSZ5231B	
5.6	MMSZ5V6	MMSZ4690	MMSZ5232B	
6.0			MMSZ5233B	
6.2	MMSZ6V2	MMSZ4691	MMSZ5234B	
6.8	MMSZ6V8	MMSZ4692	MMSZ5235B	MMSZ5235E
7.5	MMSZ7V5	MMSZ4693	MMSZ5236B	
8.2	MMSZ8V2	MMSZ4694	MMSZ5237B	MMSZ5237E
8.7			MMSZ5238B	
9.1	MMSZ9V1	MMSZ4696	MMSZ5239B	
10	MMSZ10	MMSZ4697	MMSZ5240B	MMSZ5240E
11	MMSZ11	MMSZ4698	MMSZ5241B	
12	MMSZ12	MMSZ4699	MMSZ5242B	MMSZ5242E
13	MMSZ13	MMSZ4700	MMSZ5243B	
14		MMSZ4701	MMSZ5244B	MMSZ5244E
15	MMSZ15	MMSZ4702	MMSZ5245B	MMSZ5245E
16	MMSZ16	MMSZ4703	MMSZ5246B	MMSZ5246E
17		MMSZ4704	MMSZ5247B	
18	MMSZ18	MMSZ4705	MMSZ5248B	MMSZ5248E
19		MMSZ4706	MMSZ5249B	
20	MMSZ20	MMSZ4707	MMSZ5250B	MMSZ5250E
22	MMSZ22	MMSZ4708	MMSZ5251B	MMSZ5251E
24	MMSZ24	MMSZ4709	MMSZ5252B	MMSZ5252E

Zener Diodes – Regulation in Surface Mount (continued)

Table 4. SURFACE MOUNT PACKAGES – 500 mW (continued)

Nominal Zener Breakdown Voltage	Standard Tolerance SOD-123	Standard Tolerance SOD-123	Standard Tolerance SOD-123	Energy Rated SOD-123
Volts	 Case 425	 Case 425	 Case 425	 Case 425
25		MMSZ4710	MMSZ5253B	
27	MMSZ27	MMSZ4711	MMSZ5254B	MMSZ5254E
28	MMSZ30		MMSZ5255B	
30		MMSZ4713	MMSZ5256B	MMSZ5256E
33	MMSZ33	MMSZ4714	MMSZ5257B	MMSZ5257E
36	MMSZ36	MMSZ4715	MMSZ5258B	
39	MMSZ39		MMSZ5259B	MMSZ5259E
43	MMSZ43	MMSZ4717	MMSZ5260B	
47	MMSZ47		MMSZ5261B	
51	MMSZ51		MMSZ5262B	
56	MMSZ56		MMSZ5263B	
60			MMSZ5264B	
62			MMSZ5265B	
68			MMSZ5266B	
75			MMSZ5267B	
82			MMSZ5268B	
87				
91			MMSZ5270B	
100				
110			MMSZ5272B	

Zener Diodes – Regulation in Surface Mount (continued)

Table 5. SURFACE MOUNT PACKAGES – 1.5, 3 WATT

Nominal Zener Breakdown Voltage	1.5 Watt	3 Watt
	SMA	SMB
Volts	 Plastic Case 403B Cathode = Notch	 Plastic Case 403A
3.3	1SMA5913B	1SMB5913B
3.6	1SMA5914B	1SMB5914B
3.9	1SMA5915B	1SMB5915B
4.3	1SMA5916B	1SMB5916B
4.7	1SMA5917B	1SMB5917B
5.1	1SMA5918B	1SMB5918B
5.6	1SMA5919B	1SMB5919B
6.2	1SMA5920B	1SMB5920B
6.8	1SMA5921B	1SMB5921B
7.5	1SMA5922B	1SMB5922B
8.2	1SMA5923B	1SMB5923B
9.1	1SMA5924B	1SMB5924B
10	1SMA5925B	1SMB5925B
11		1SMB5926B
12	1SMA5927B	1SMB5927B
13	1SMA5928B	1SMB5928B
15	1SMA5929B	1SMB5929B
16	1SMA5930B	1SMB5930B
18	1SMA5931B	1SMB5931B
20	1SMA5932B	1SMB5932B
22	1SMA5933B	1SMB5933B
24	1SMA5934B	1SMB5934B
27	1SMA5935B	1SMB5935B
30	1SMA5936B	1SMB5936B
33	1SMA5937B	1SMB5937B
36	1SMA5938B	1SMB5938B
39	1SMA5939B	1SMB5939B
43	1SMA5940B	1SMB5940B
47	1SMA5941B	1SMB5941B
51	1SMA5942B	1SMB5942B
56	1SMA5943B	1SMB5943B
62		1SMB5944B
68	1SMA5945B	1SMB5945B
75		1SMB5946B

Zener Diodes – Regulation in Surface Mount (continued)

Table 5. SURFACE MOUNT PACKAGES – 1.5, 3 WATT (continued)

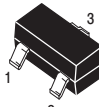
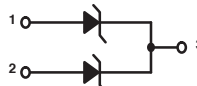
Nominal Zener Breakdown Voltage	1.5 Watt	3 Watt
Volts	SMA  Plastic Case 403B Cathode = Notch	SMB  Plastic Case 403A
82		1SMB5947B
91		1SMB5948B
100		1SMB5949B
120		1SMB5951B
130		1SMB5952B
150		1SMB5953B
160		1SMB5954B
180		1SMB5955B
200		1SMB5956B

Dual Zeners – Duals in Surface Mount

MMBZ15VDLT1 – Common Cathode Series

Table 6. SOT-23 DUAL COMMON CATHODE ZENER; 40 WATTS PEAK POWER (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

BIDIRECTIONAL (Circuit tied to Pins 1 and 2)

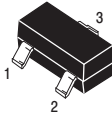
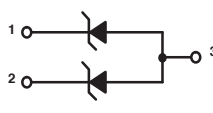
Device	Breakdown Voltage				Reverse Voltage Working Peak V _{RWM} (V)	Reverse Leakage Current I _R (nA)	Reverse Surge Current I _{PP} (A)	Reverse Voltage @ I _{PP} (Clamping Voltage) V _C (V)	Temperature Coefficient of V _{BR} (mV/°C)
	V _{BR} (Note 1) (V)			@ I _T (mA)					
	Min	Nom	Max						
	CASE 318-08 TO-236AB LOW PROFILE SOT-23								
MMBZ15VDL	14.3	15	15.8	1.0	12.8	100	1.9	21.2	12
MMBZ27VCL	25.65	27	28.35	1.0	22	50	1.0	38	26

1. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

Dual Zeners – Duals in Surface Mount (continued)

MMBZ5V6ALT1 – Common Anode Series

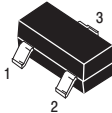
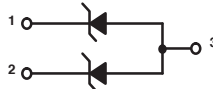
Table 7. SOT-23 DUAL COMMON ANODE ZENER; 24 WATTS PEAK POWER (10 x 1000 μ s)**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted)**UNIDIRECTIONAL** (Circuit tied to Pins 1 and 3 or Pins 2 and 3)($V_F = 0.9\text{ V Max}$ @ $I_F = 10\text{ mA}$)

Device	Breakdown Voltage				Max Reverse Leakage Current		Max Zener Impedance (Note 3)			Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Max Temp Coefficient of V_{BR} (mV/°C)
	V_{BR} (Note 2) (V)			@ I_T (mA)	I_R @ V_R (μ A) (V)	Z_{ZT} @ I_{ZT} (Ω) (mA)	Z_{ZK} @ I_{ZK} (Ω) (mA)					
	Min	Nom	Max									
 CASE 318-08 STYLE 12 LOW PROFILE SOT-23 PLASTIC 												
MMBZ5V6AL	5.32	5.6	5.88	20	5.0	3.0	11	1600	0.25	3.0	8.0	1.26
MMBZ6V2AL	5.89	6.2	6.51	1.0	0.5	3.0	–	–	–	2.76	8.7	2.80
MMBZ6V8AL	6.46	6.8	7.14	1.0	0.5	4.5	–	–	–	2.5	9.6	3.40
MMBZ9V1AL	8.65	9.1	9.56	1.0	0.3	6.0	–	–	–	1.7	14	7.50

2. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .3. Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the AC current supplied. The specified limits are $I_{Z(AC)} = 0.1 I_{Z(DC)}$, with AC frequency = 1 kHz.

MMBZ5V6ALT1 – Common Anode Series

Table 8. SOT-23 DUAL COMMON ANODE ZENER; 40 WATTS PEAK POWER (10 x 1000 μ s)**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted)**UNIDIRECTIONAL** (Circuit tied to Pins 1 and 3 or Pins 2 and 3)($V_F = 0.9\text{ V Max}$ @ $I_F = 10\text{ mA}$)

Device	Breakdown Voltage				Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (nA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Maximum Temperature Coefficient of V_{BR} (mV/°C)
	V_{BR} (Note 4) (V)			@ I_T (mA)					
	Min	Nom	Max						
 CASE 318-08 STYLE 12 LOW PROFILE SOT-23 PLASTIC 									
MMBZ12VAL	11.40	12	12.60	1.0	8.5	200	2.35	17	7.50
MMBZ15VAL	14.25	15	15.75	1.0	12.0	50	1.9	21	12.30
MMBZ18VAL	17.10	18	18.90	1.0	14.5	50	1.6	25	15.30
MMBZ20VAL	19.00	20	21.00	1.0	17.0	50	1.4	28	17.20
MMBZ27VAL	25.65	27	28.35	1.0	22.0	50	1.0	40	24.30
MMBZ33VAL	31.35	33	34.65	1.0	26.0	50	0.87	46	30.40

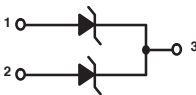
4. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

Dual Zeners – Duals in Surface Mount (continued)

MMBZ27VCW – Common Cathode Series

Table 9. SC-70 DUAL COMMON CATHODE ZENER; 40 WATTS PEAK POWER (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

BIDIRECTIONAL (Circuit tied to Pins 1 and 2)

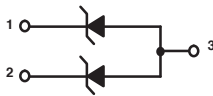
Device	Breakdown Voltage				Reverse Voltage Working Peak V_{RWM} (V)	Reverse Leakage Current I_R (nA)	Reverse Surge Current I_{PP} (A)	Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Temperature Coefficient of V_{BR} (mV/°C)
	V_{BR} (Note 1) (V)			@ I_T (mA)					
	Min	Nom	Max						
 CASE 419-04 SC-70 									
MMBZ27VCL	25.65	27	28.35	1.0	22	50	1.0	38	26

1. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

MMBZ27VAW – Common Anode Series

Table 10. SC-70 DUAL COMMON ANODE ZENER; 40 WATTS PEAK POWER (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

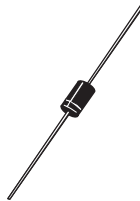
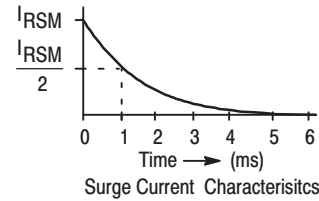
BIDIRECTIONAL (Circuit Tied to Pins 1 and 2)

Device	Breakdown Voltage				Reverse Leakage Current		Reverse Surge Current I _{pp} (A)	Reverse Voltage @ I _{pp} (Clamping Voltage) V _C (V)	Temp Coefficient of V _{BR} (mV/°C)
	V _{BR} (Note 2) (V)			@ I _T (mA)	I _R @ V _R (μA) (V)				
	Min	Nom	Max						
 CASE 419-04 SC-70 									
MMBZ27VAW	25.65	27	28.35	1.0	50	22	1.0	40	24.3

2. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS – in Axial Leads

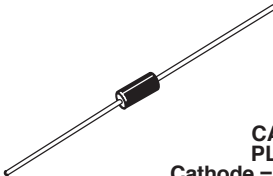
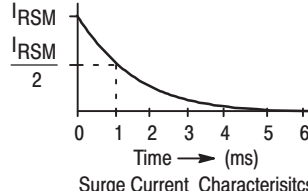
Table 1. Peak Power Dissipation, 500 Watts @ 1 ms Surge (10 x 1000 μ s) Case 59 (MiniMOSORB™)

 CASE 59 (MiniMOSORB™) PLASTIC Cathode = Polarity Band					 Surge Current Characteristics		
ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) $V_F = 3.5\text{ V Max}$, $I_F = 35\text{ A Pulse}$							
Working Peak Reverse Voltage V_{RWM} (Volts) (Note 1)	Device	Breakdown Voltage			Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{RSM} (Amps) (Note 3)	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{RSM} (Volts)
		V_{BR} (Volts)		@ I_T Pulse (mA)			
		Min (Note 2)	Max				
5	SA5.0A	6.4	7	10	600	54.3	9.2
6	SA6.0A	6.67	7.37	10	600	48.5	10.3
7	SA7.0A	7.78	8.6	10	150	41.7	12
10	SA10A	11.1	12.3	1	1	29.4	17
12	SA12A	13.3	14.7	1	1	25.1	19.9
13	SA13A	14.4	15.9	1	1	23.2	21.5
15	SA15A	16.7	18.5	1	1	20.6	24.4
16	SA16A	17.8	19.7	1	1	19.2	26
17	SA17A	18.9	20.9	1	1	18.1	27.6
18	SA18A	20	22.1	1	1	17.2	29.2
20	SA20A	22.2	24.5	1	1	15.4	32.4
24	SA24A	26.7	29.5	1	1	12.8	38.9
26	SA26A	28.9	31.9	1	1	11.9	42.1
28	SA28A	31.1	34.4	1	1	11	45.4
30	SA30A	33.3	36.8	1	1	10.3	48.4
33	SA33A	36.7	40.6	1	1	9.4	53.3
36	SA36A	40	44.2	1	1	8.6	58.1

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μs exponential decay surge waveform.

TVS – in Axial Leads (continued)

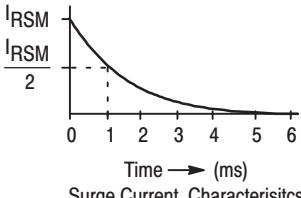
Table 1. Peak Power Dissipation, 600 Watts @ 1 ms Surge (10 x 1000 μ s) Case 17 – SURMETIC® 40
(continued)

		CASE 17 PLASTIC Cathode = Polarity Band				
ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) $V_F = 3.5\text{ V Max}$, $I_F = 50\text{ A Pulse}$ (except bidirectional devices).						
Breakdown Voltage (Note 2)		Device	Working Peak Reverse Voltage V_{RWM} (Volts) (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{RSM} (Amps) (Note 3)	Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_{RSM} (Volts)
V_{BR} (Volts)	@ I_T Pulse (mA)					
Nom						
6.8	10	P6KE6.8A	5.8	1000	57	10.5
7.5	10	P6KE7.5A	6.4	500	53	11.3
10	1	P6KE10A	8.55	10	41	14.5
12	1	P6KE12A	10.2	5	36	16.7
13	1	P6KE13A	11.1	5	33	18.2
15	1	P6KE15A	12.8	5	28	21.2
16	1	P6KE16A	13.6	5	27	22.5
18	1	P6KE18A	15.3	5	24	25.2
20	1	P6KE20A	17.1	5	22	27.7
22	1	P6KE22A	18.8	5	20	30.6
24	1	P6KE24A	20.5	5	18	33.2
27	1	P6KE27A	23.1	5	16	37.5
30	1	P6KE30A	25.6	5	14.4	41.4
33	1	P6KE33A	28.2	5	13.2	45.7
36	1	P6KE36A	30.8	5	12	49.9
39	1	P6KE39A	33.3	5	11.2	53.9
43	1	P6KE43A	36.8	5	10.1	59.3
47	1	P6KE47A	40.2	5	9.3	64.8
51	1	P6KE51A	43.6	5	8.6	70.1
56	1	P6KE56A	47.8	5	7.8	77
62	1	P6KE62A	53	5	7.1	85
68	1	P6KE68A	58.1	5	6.5	92
75	1	P6KE75A	64.1	5	5.8	103
82	1	P6KE82A	70.1	5	5.3	113
100	1	P6KE100A	85.5	5	4.4	137
150	1	P6KE150A	128	5	2.9	207
160	1	P6KE160A	136	5	2.7	219
180	1	P6KE180A	154	5	2.4	246
200	1	P6KE200A	171	5	2.2	274

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μs exponential decay surge waveform.

TVS – in Axial Leads (continued)

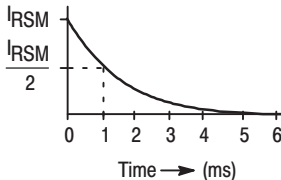
Table 2. Peak Power Dissipation, 1500 Watts @ 1 ms Surge (10 x 1000 μ s) Case 41A – MOSORB

 CASE 41A PLASTIC Cathode = Polarity Band		 Surge Current Characteristics					
ELECTRICAL CHARACTERISTICS (T _A = 25°C unless otherwise noted) V _F = 3.5 V Max, I _F = 100 A Pulse							
Breakdown Voltage (Note 2)		JEDEC Device	Device	Working Peak Reverse Voltage V _{RWM} (Volts) (Note 1)	Maximum Reverse Leakage @ V _{RWM} I _R (μA)	Maximum Reverse Surge Current I _{RSM} (Amps) (Note 3)	Maximum Reverse Voltage @ I _{RSM} (Clamping Voltage) V _{RSM} (Volts)
V _{BR} Volts	@ I _T Pulse (mA)						
Nom							
6.8	10	1N6267A	1.5KE6.8A	5.8	1000	143	10.5
7.5	10		1.5KE7.5A	6.4	500	132	11.3
8.2	10		1.5KE8.2A	7.02	200	124	12.1
10	1	1N6271A	1.5KE10A	8.55	10	103	14.5
11	1		1.5KE11A	9.4	5	96	15.6
12	1		1.5KE12A	10.2	5	90	16.7
13	1	1N6274A	1.5KE13A	11.1	5	82	18.2
15	1	1N6275A	1.5KE15A	12.8	5	71	21.2
16	1	1N6276A	1.5KE16A	13.6	5	67	22.5
18	1	1N6277A	1.5KE18A	15.3	5	59.5	25.2
20	1	1N6278A	1.5KE20A	17.1	5	54	27.7
22	1	1N6279A		18.8	5	49	30.6
24	1	1N6280A	1.5KE24A	20.5	5	45	33.2
27	1	1N6281A	1.5KE27A	23.1	5	40	37.5
30	1	1N6282A	1.5KE30A	25.6	5	36	41.4
33	1	1N6283A	1.5KE33A	28.2	5	33	45.7
36	1	1N6284A	1.5KE36A	30.8	5	30	49.9
39	1	1N6285A	1.5KE39A	33.3	5	28	53.9
43	1	1N6286A	1.5KE43A	36.8	5	25.3	59.3
47	1	1N6287A	1.5KE47A	40.2	5	23.2	64.8
51	1	1N6288A	1.5KE51A	43.6	5	21.4	70.1
56	1	1N6289A	1.5KE56A	47.8	5	19.5	77
62	1	1N6290A	1.5KE62A	53	5	17.7	85
68	1	1N6291A	1.5KE68A	58.1	5	16.3	92
75	1	1N6292A	1.5KE75A	64.1	5	14.6	103
82	1		1.5KE82A	70.1	5	13.3	113
91	1	1N6294A	1.5KE91A	77.8	5	12	125
100	1	1N6295A		85.5	5	11	137

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μs exponential decay surge waveform.

TVS – in Surface Mount

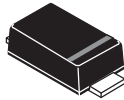
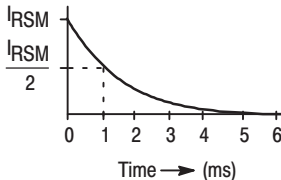
Table 3. 1PMT Series Unidirectional Overvoltage Transient Suppressors, 200 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_L = 30^\circ\text{C}$ unless otherwise noted) ($V_F = 1.25$ Volts @ 200 mA)

Device	Marking	V _{RWM} (V)	V _{BR} @ I _T (V) (Note 2)			I _T	I _R @ V _{RWM}	V _C @ I _{PP}	I _{PP} (A)
		(Note 1)	Min	Nom	Max	(mA)	(μA)	(V)	(Note 3)
 POWERMITE® CASE 457 PLASTIC  Time → (ms) Surge Current Characteristics									
1PMT5.0A	MKE	5.0	6.4	6.7	7.0	10	800	9.2	19
1PMT7.0A	MKM	7.0	7.78	8.2	8.6	10	500	12	14.6
1PMT12A	MLE	12	13.3	14	14.7	1.0	5.0	19.9	8.8
1PMT16A	MLP	16	17.8	18.75	19.7	1.0	5.0	26	7.0
1PMT22A	MLX	22	24.4	25.6	26.9	1.0	5.0	35.5	4.9
1PMT26A	MME	26	28.9	30.4	31.9	1.0	5.0	42.1	4.2
1PMT33A	MMM	33	36.7	38.7	40.6	1.0	5.0	53.3	3.3

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.

TVS – in Surface Mount (continued)

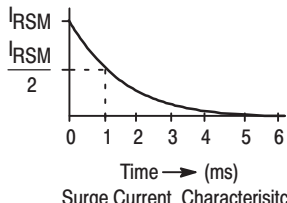
Table 4. SMF Series Unidirectional Overvoltage Transient Suppressors, 200 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_L = 30^\circ\text{C}$ unless otherwise noted) ($V_F = 1.25$ Volts @ 200 mA)

Device	Marking	V _{RWM} (V)	V _{BR} @ I _T (V) (Note 2)			I _T	I _R @ V _{RWM}	V _C @ I _{PP}	I _{PP} (A)
		(Note 1)	Min	Nom	Max	(mA)	(μA)	(V)	(Note 3)
 SOD-123FL CASE 498 PLASTIC  Time → (ms) Surge Current Characteristics									
SMF5.0A	KE	5.0	6.4	6.7	7.0	10	400	9.2	16.3
SMF6.0A	KG	6.0	6.67	7.02	7.37	10	400	10.3	14.6
SMF7.0A	KM	7.0	7.78	8.2	8.6	10	100	12	12.5
SMF7.5A	KP	7.5	8.33	8.77	9.21	1.0	50	12.9	11.6
SMF8.0A	KR	8.0	8.89	9.36	9.83	1.0	25	13.6	11
SMF9.0A	KV	9.0	10	10.55	11.1	1.0	5.0	15.4	9.7
SMF10A	KX	10	11.1	11.7	12.3	1.0	2.5	17	8.8
SMF11A	KZ	11	12.2	12.85	13.5	1.0	2.5	18.2	8.2
SMF12A	LE	12	13.3	14	14.7	1.0	2.5	19.9	7.5
SMF13A	LG	13	14.4	15.15	15.9	1.0	1.0	21.5	7.0
SMF14A	LK	14	15.6	16.4	17.2	1.0	1.0	23.2	6.5
SMF15A	LM	15	16.7	17.6	18.5	1.0	1.0	24.4	6.1
SMF18A	LT	18	20	21	22.1	1.0	1.0	29.2	5.1
SMF20A	LV	20	22.2	23.35	24.5	1.0	1.0	32.4	4.6
SMF22A	LX	22	24.4	25.6	26.9	1.0	1.0	35.5	4.2
SMF24A	LZ	24	26.7	28.1	29.5	1.0	1.0	38.9	3.9
SMF26A	ME	26	28.9	30.4	31.9	1.0	1.0	42.1	3.6
SMF28A	MG	28	31.1	32.8	34.4	1.0	1.0	45.4	3.3
SMF30A	MK	30	33.3	35.1	36.8	1.0	1.0	48.4	3.1
SMF33A	MM	33	36.7	38.7	40.6	1.0	1.0	53.3	2.8
SMF36A	MP	36	40	42.1	44.2	1.0	1.0	58.1	2.6

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform. TVS – in Surface Mount (continued)

TVS – in Surface Mount (continued)

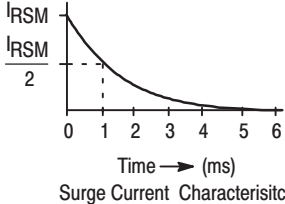
Table 5. 1SMA Series Unidirectional Overvoltage Transient Suppressors; 400 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5$ Volts @ $I_F = 40$ A for all types) (Note 4)

Device	Working Peak Reverse Voltage V_{RWM} (Volts) (Note 1)	Breakdown Voltage		Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_C (Volts)	Maximum Reverse Surge Current I_{PP} (Amps) (Note 3)	Maximum Reverse Leakage @ V_{RWM} I_R (μ A)	Device Marking
		V_{BR} Volts (Min) (Note 2)	I_T mA				
 SMA CASE 403B PLASTIC  Surge Current Characteristics							
1SMA5.0A	5.0	6.4	10	9.2	43.5	400	QE
1SMA6.0A	6.0	6.67	10	10.3	38.8	400	QG
1SMA6.5A	6.5	7.22	10	11.2	35.7	250	QK
1SMA8.0A	8.0	8.89	1	13.6	29.4	25	QR
1SMA8.5A	8.5	9.44	1	14.4	27.8	5.0	QT
1SMA9.0A	9.0	10	1	15.4	26.0	2.5	QV
1SMA10A	10	11.1	1	17.0	23.5	2.5	QX
1SMA11A	11	12.2	1	18.2	22.0	2.5	QZ
1SMA12A	12	13.3	1	19.9	20.1	2.5	RE
1SMA13A	13	14.4	1	21.5	18.6	2.5	RG
1SMA15A	15	16.7	1	24.4	16.4	2.5	RM
1SMA16A	16	17.8	1	26.0	15.4	2.5	RP
1SMA17A	17	18.9	1	27.6	14.5	2.5	RR
1SMA18A	18	20	1	29.2	13.7	2.5	RT
1SMA20A	20	22.2	1	32.4	12.3	2.5	RV
1SMA22A	22	24.4	1	35.5	11.3	2.5	RX
1SMA24A	24	26.7	1	38.9	10.3	2.5	RZ
1SMA26A	26	28.9	1	42.1	9.5	2.5	SE
1SMA28A	28	31.1	1	45.4	8.8	2.5	SG
1SMA30A	30	33.3	1	48.4	8.3	2.5	SK
1SMA33A	33	36.7	1	53.3	7.5	2.5	SM
1SMA36A	36	40	1	58.1	6.9	2.5	SP
1SMA40A	40	44.4	1	64.5	6.2	2.5	SR
1SMA43A	43	47.8	1	69.4	5.8	2.5	ST
1SMA45A	45	50	1	72.2	5.5	2.5	SV
1SMA48A	48	53.3	1	77.4	5.2	2.5	SX
1SMA54A	54	60	1	87.1	4.6	2.5	TE
1SMA58A	58	64.4	1	93.6	4.8	2.5	TG
1SMA70A	70	77.8	1	113.0	3.5	2.5	TP

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute).

TVS – in Surface Mount (continued)

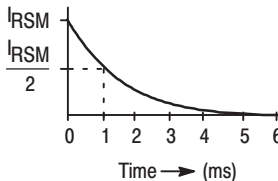
Table 6. 1SMA Series Bidirectional Zener Overvoltage Transient Suppressors; 400 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Working Peak Reverse Voltage V_{RWM} (Volts) (Note 1)	Breakdown Voltage		Maximum Reverse Voltage @ I_{RSM} (Clamping Voltage) V_C (Volts)	Maximum Reverse Surge Current I_{PP} (Amps) (Note 3)	Maximum Reverse Leakage @ V_{RWM} I_R (μ A)	Device Marking
		V_{BR} Volts (Min) (Note 2)	I_T mA				
 SMA CASE 403B PLASTIC  Time $\rightarrow$ (ms) Surge Current Characterisitics							
1SMA10CA	10	11.1	1	17.0	23.5	2.5	QXC
1SMA12CA	12	13.3	1	19.9	20.1 ¹	2.5	REC
1SMA13CA	13	14.4	1	21.5	18.6	2.5	RGC
1SMA15CA	15	16.7	1	24.4	16.4	2.5	RMC
1SMA16CA	16	17.8	1	26.0	15.4	2.5	RPC
1SMA18CA	18	20	1	29.2	13.7	2.5	RTC
1SMA20CA	20	22.2	1	32.4	12.3	2.5	RVC
1SMA24CA	24	26.7	1	38.9	10.3	2.5	RZC
1SMA26CA	26	28.9	1	42.1	9.5	2.5	SEC
1SMA28CA	28	31.1	1	45.4	8.8	2.5	SGC
1SMA30CA	30	33.3	1	48.4	8.3	2.5	SKC
1SMA33CA	33	36.7	1	53.3	7.5	2.5	SMC
1SMA36CA	36	40	1	58.1	6.9	2.5	SPC
1SMA40CA	40	44.4	1	64.5	6.2	2.5	SRC
1SMA48CA	48	53.3	1	77.4	5.2	2.5	SXC
1SMA58CA	58	64.4	1	93.6	4.3	2.5	TGC
1SMA60CA	60	66.7	1	96.8	4.1	2.5	TKC
1SMA70CA	70	77.8	1	113.0	3.5	2.5	TPC
1SMA78CA	78	86.7	1	126.0	3.2	2.5	TSC

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.

TVS – in Surface Mount (continued)

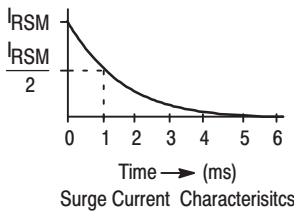
Table 7. 1SMB Series Unidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5\text{ V Max @ } I_F = 30\text{ A}$) (Note 4)

Device	Working Peak Reverse Voltage V _{RWM} Volts (Note 1)	Breakdown Voltage V _{BR} @ I _T		Maximum Clamping Voltage V _C @ I _{pp} Volts	Peak Pulse Current I _{pp} Amps (Note 3)	Maximum Reverse Leakage @ V _R I _R μA	Device Marking
		Volts (Min) (Note 2)	mA				
 SMB CASE 403A PLASTIC  Time → (ms) Surge Current Characteristics							
1SMB5.0A	5.0	6.40	10	9.2	65.2	800	KE
1SMB6.0A	6.0	6.67	10	10.3	58.3	800	KG
1SMB6.5A	6.5	7.22	10	11.2	53.6	500	KK
1SMB7.0A	7.0	7.78	10	12.0	50.0	200	KM
1SMB7.5A	7.5	8.33	1.0	12.9	46.5	100	KP
1SMB8.0A	8.0	8.89	1.0	13.6	44.1	50	KR
1SMB8.5A	8.5	9.44	1.0	14.4	41.7	10	KT
1SMB9.0A	9.0	10.0	1.0	15.4	39.0	5.0	KV
1SMB10A	10	11.1	1.0	17.0	35.3	5.0	KX
1SMB11A	11	12.2	1.0	18.2	33.0	5.0	KZ
1SMB12A	12	13.3	1.0	19.9	30.2	5.0	LE
1SMB13A	13	14.4	1.0	21.5	27.9	5.0	LG
1SMB14A	14	15.6	1.0	23.2	25.8	5.0	LK
1SMB15A	15	16.7	1.0	24.4	24.0	5.0	LM
1SMB16A	16	17.8	1.0	26.0	23.1	5.0	LP
1SMB17A	17	18.9	1.0	27.6	21.7	5.0	LR
1SMB18A	18	20.0	1.0	29.2	20.5	5.0	LT
1SMB20A	20	22.2	1.0	32.4	18.5	5.0	LV
1SMB22A	22	24.4	1.0	35.5	16.9	5.0	LX
1SMB24A	24	26.7	1.0	38.9	15.4	5.0	LZ
1SMB26A	26	28.9	1.0	42.1	14.2	5.0	ME
1SMB28A	28	31.1	1.0	45.4	13.2	5.0	MG
1SMB30A	30	33.3	1.0	48.4	12.4	5.0	MK
1SMB33A	33	36.7	1.0	53.3	11.3	5.0	MM
1SMB36A	36	40.0	1.0	58.1	10.3	5.0	MP
1SMB40A	40	44.4	1.0	64.5	9.3	5.0	MR
1SMB43A	43	47.8	1.0	69.4	8.6	5.0	MT
1SMB45A	45	50.0	1.0	72.7	8.3	5.0	MV
1SMB48A	48	53.3	1.0	77.4	7.7	5.0	MX
1SMB51A	51	56.7	1.0	82.4	7.3	5.0	MZ
1SMB54A	54	60.0	1.0	87.1	6.9	5.0	NE
1SMB58A	58	64.4	1.0	93.6	6.4	5.0	NG
1SMB60A	60	66.7	1.0	96.8	6.2	5.0	NK
1SMB64A	64	71.1	1.0	103	5.8	5.0	NM
1SMB70A	70	77.8	1.0	113	5.3	5.0	NP
1SMB75A	75	83.3	1.0	121	4.9	5.0	NR
1SMB85A	85	94.4	1.0	137	4.4	5.0	NV
1SMB90A	90	100	1.0	146	4.1	5.0	NX
1SMB100A	100	111	1.0	162	3.7	5.0	NZ

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute).

TVS – in Surface Mount (continued)

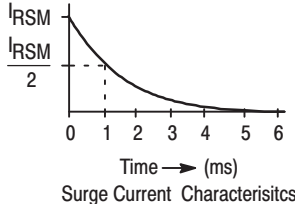
Table 7. 1SMB Series Unidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1ms Surge (10 x 1000 μ s) (continued)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5\text{ V Max @ } I_F = 30\text{ A}$) (Note 4)

Device	Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Breakdown Voltage		Maximum Clamping Voltage V_C @ I_{pp} Volts	Peak Pulse Current I_{pp} Amps (Note 3)	Maximum Reverse Leakage @ V_R I_R μA	Device Marking
		V_{BR} @ I_T					
		Volts (Min) (Note 2)	mA				
 SMB CASE 403A PLASTIC  Time $\rightarrow$ (ms) Surge Current Characteristics							
1SMB110A	110	122	1.0	177	3.4	5.0	PE
1SMB120A	120	133	1.0	193	3.1	5.0	PG
1SMB130A	130	144	1.0	209	2.9	5.0	PK
1SMB150A	150	167	1.0	243	2.5	5.0	PM
1SMB160A	160	178	1.0	259	2.3	5.0	PP
1SMB170A	170	189	1.0	275	2.2	5.0	PR

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute).

TVS – in Surface Mount (continued)

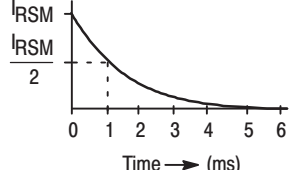
Table 8. 1SMB Series Bidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1ms Surge
(10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted).

Device	Working Peak Reverse Voltage V _{RWM} Volts (Note 1)	Breakdown Voltage		Maximum Clamping Voltage V _C @ I _{pp} Volts	Peak Pulse Current I _{pp} Amps (Note 3)	Maximum Reverse Leakage @ V _R I _R μA	Device Marking
		V _{BR} @ I _T					
 SMB CASE 403A PLASTIC  Surge Current Characteristics							
1SMB10CA	10	11.1	1.0	17.0	35.3	5.0	KXC
1SMB11CA	11	12.2	1.0	18.2	33.0	5.0	KZC
1SMB12CA	12	13.3	1.0	19.9	30.2	5.0	LEC
1SMB13CA	13	14.4	1.0	21.5	27.9	5.0	LGC
1SMB14CA	14	15.6	1.0	23.2	25.8	5.0	LKC
1SMB15CA	15	16.7	1.0	24.4	24.0	5.0	LMC
1SMB16CA	16	17.8	1.0	26.0	23.1	5.0	LPC
1SMB17CA	17	18.9	1.0	27.6	21.7	5.0	LRC
1SMB18CA	18	20.0	1.0	29.2	20.5	5.0	LTC
1SMB20CA	20	22.2	1.0	32.4	18.5	5.0	LVC
1SMB22CA	22	24.4	1.0	35.5	16.9	5.0	LXC
1SMB24CA	24	26.7	1.0	38.9	15.4	5.0	LZC
1SMB26CA	26	28.9	1.0	42.1	14.2	5.0	MEC
1SMB28CA	28	31.1	1.0	45.4	13.2	5.0	MGC
1SMB30CA	30	33.3	1.0	48.4	12.4	5.0	MKC
1SMB33CA	33	36.7	1.0	53.3	11.3	5.0	MMC
1SMB36CA	36	40.0	1.0	58.1	10.3	5.0	MPC
1SMB40CA	40	44.4	1.0	64.5	9.3	5.0	MRC
1SMB43CA	43	47.8	1.0	69.4	8.6	5.0	MTC
1SMB45CA	45	50.0	1.0	72.7	8.3	5.0	MVC
1SMB48CA	48	53.3	1.0	77.4	7.7	5.0	MXC
1SMB51CA	51	56.7	1.0	82.4	7.3	5.0	MZC
1SMB54CA	54	60.0	1.0	87.1	6.9	5.0	NEC
1SMB58CA	58	64.4	1.0	93.6	6.4	5.0	NGC
1SMB60CA	60	66.7	1.0	96.8	6.2	5.0	NKC
1SMB64CA	64	71.1	1.0	103	5.8	5.0	NMC
1SMB75CA	75	83.3	1.0	121	4.9	5.0	NRC

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.

TVS – in Surface Mount (continued)

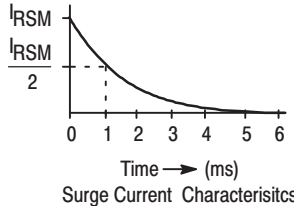
Table 9. P6SMB Series Unidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5\text{ V Max}$, $I_F = 50\text{ A}$ for all types) (Note 4)

Device	Breakdown Voltage				Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts	Temperature Coefficient of V_{BR} $\%/^{\circ}C$	Device Marking
	V_{BR} @ I_T Volts (Note 2)									
	Min	Nom	Max	mA						
 SMB CASE 403A PLASTIC  Surge Current Characterisitcs										
P6SMB6.8A P6SMB7.5A P6SMB8.2A P6SMB9.1A	6.45 7.13 7.79 8.65	6.8 7.5 8.2 9.1	7.14 7.88 8.61 9.55	10 10 10 1	5.8 6.4 7.02 7.78	1000 500 200 50	57 53 50 45	10.5 11.3 12.1 13.4	0.057 0.061 0.065 0.068	6V8A 7V5A 8V2A 9V1A
P6SMB10A P6SMB12A P6SMB13A	9.5 11.4 12.4	10 12 13	10.5 12.6 13.7	1 1 1	8.55 10.2 11.1	10 5 5	41 36 33	14.5 16.7 18.2	0.073 0.078 0.081	10A 12A 13A
P6SMB15A P6SMB16A P6SMB18A P6SMB20A	14.3 15.2 17.1 19	15 16 18 20	15.8 16.8 18.9 21	1 1 1 1	12.8 13.6 15.3 17.1	5 5 5 5	28 27 24 22	21.2 22.5 25.2 27.7	0.084 0.086 0.088 0.09	15A 16A 18A 20A
P6SMB22A P6SMB24A P6SMB27A P6SMB30A	20.9 22.8 25.7 28.5	22 24 27 30	23.1 25.2 28.4 31.5	1 1 1 1	18.8 20.5 23.1 25.6	5 5 5 5	20 18 16 14.4	30.6 33.2 37.5 41.4	0.092 0.094 0.096 0.097	22A 24A 27A 30A
P6SMB33A P6SMB36A P6SMB39A P6SMB43A	31.4 34.2 37.1 40.9	33 36 39 43	34.7 37.8 41 45.2	1 1 1 1	28.2 30.8 33.3 36.8	5 5 5 5	13.2 12 11.2 10.1	45.7 49.9 53.9 59.3	0.098 0.099 0.1 0.101	33A 36A 39A 43A
P6SMB47A P6SMB51A P6SMB56A P6SMB62A	44.7 48.5 53.2 58.9	47 51 56 62	49.4 53.6 58.8 65.1	1 1 1 1	40.2 43.6 47.8 53	5 5 5 5	9.3 8.6 7.8 7.1	64.8 70.1 77 85	0.101 0.102 0.103 0.104	47A 51A 56A 62A
P6SMB68A P6SMB75A P6SMB82A P6SMB91A	64.6 71.3 77.9 86.5	68 75 82 91	71.4 78.8 86.1 95.5	1 1 1 1	58.1 64.1 70.1 77.8	5 5 5 5	6.5 5.8 5.3 4.8	92 103 113 125	0.104 0.105 0.105 0.106	68A 75A 82A 91A
P6SMB100A P6SMB120A P6SMB130A	95 114 124	100 120 130	105 126 137	1 1 1	85.5 102 111	5 5 5	4.4 3.6 3.3	137 165 179	0.106 0.107 0.107	100A 120A 130A
P6SMB150A P6SMB160A P6SMB180A P6SMB200A	143 152 171 190	150 160 180 200	158 168 189 210	1 1 1 1	128 136 154 171	5 5 5 5	2.9 2.7 2.4 2.2	207 219 246 274	0.108 0.108 0.108 0.108	150A 160A 180A 200A

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute).

TVS – in Surface Mount (continued)

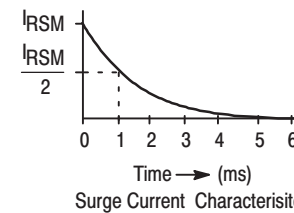
Table 10. P6SMB Series Bidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Breakdown Voltage				Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts	Temperature Coefficient of V_{BR} $\%/^{\circ}C$	Device Marking
	V_{BR} @ I_T Volts (Note 2)									
	Min	Nom	Max	mA						
 SMB CASE 403A PLASTIC  Surge Current Characteristics										
P6SMB11CA	10.5	11	11.6	1	9.4	5	38	15.6	0.075	11C
P6SMB12CA	11.4	12	12.6	1	10.2	5	36	16.7	0.078	12C
P6SMB15CA	14.3	15	15.8	1	12.8	5	28	21.2	0.084	15C
P6SMB16CA	15.2	16	16.8	1	13.6	5	27	22.5	0.086	16C
P6SMB18CA	17.1	18	18.9	1	15.3	5	24	25.2	0.088	18C
P6SMB20CA	19	20	21	1	17.1	5	22	27.7	0.09	20C
P6SMB22CA	20.9	22	23.1	1	18.8	5	20	30.6	0.092	22C
P6SMB24CA	22.8	24	25.2	1	20.5	5	18	33.2	0.094	24C
P6SMB27CA	25.7	27	28.4	1	23.1	5	16	37.5	0.096	27C
P6SMB30CA	28.5	30	31.5	1	25.6	5	14.4	41.4	0.097	30C
P6SMB33CA	31.4	33	34.7	1	28.2	5	13.2	45.7	0.098	33C
P6SMB36CA	34.2	36	37.8	1	30.8	5	12	49.9	0.099	36C
P6SMB39CA	37.1	39	41	1	33.3	5	11.2	53.9	0.1	39C
P6SMB43CA	40.9	43	45.2	1	36.8	5	10.1	59.3	0.101	43C
P6SMB47CA	44.7	47	49.4	1	40.2	5	9.3	64.8	0.101	47C
P6SMB51CA	48.5	51	53.6	1	43.6	5	8.6	70.1	0.102	51C
P6SMB56CA	53.2	56	58.8	1	47.8	5	7.8	77	0.103	56C
P6SMB62CA	58.9	62	65.1	1	53	5	7.1	85	0.104	62C
P6SMB68CA	64.6	68	71.4	1	58.1	5	6.5	92	0.104	68C
P6SMB82CA	77.9	82	86.1	1	70.1	5	5.3	113	0.105	82C

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.

TVS – in Surface Mount (continued)

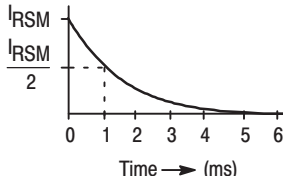
Table 11. SMBJ12AON Series Bidirectional Overvoltage Transient Suppressors; 600 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Device	Breakdown Voltage				Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μ A	Maximum Reverse Surge Current I_{PP} Amps (Note 3)	Maximum Reverse Voltage @ I_{PP} (Clamping Voltage) V_C Volts
	V_{BR} @ I_T Volts (Note 2)							
	Min	Nom	Max	mA				
 SMB CASE 403A PLASTIC  Time $\rightarrow$ (ms) Surge Current Characteristics								
SMBJ12AON	13.2	13.75	14.3	1	12	5	17.5	15.6

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μ s exponential decay surge waveform.

TVS – in Surface Mount (continued)

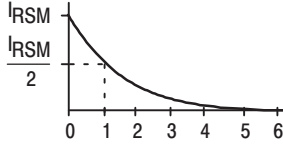
Table 12. 1SMC Series Unidirectional Overvoltage Transient Suppressors; 1500 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5\text{ V Max @ } I_F = 100\text{ A}$) (Note 4)

Device	Working Peak Reverse Voltage V_R Volts (Note 1)	Breakdown Voltage		Maximum Clamping Voltage V_C @ I_{PP} Volts	Peak Pulse Current I_{PP} Amps (Note 3)	Maximum Reverse Leakage @ V_R I_R μA	Device Marking
		V_{BR} @ I_T					
		Volts (Min) (Note 2)	mA				
 SMC CASE 403B PLASTIC  Surge Current Characteristics							
1SMC5.0A	5.0	6.40	10	9.2	163.0	1000	GDE
1SMC6.0A	6.0	6.67	10	10.3	145.6	1000	GDG
1SMC6.5A	6.5	7.22	10	11.2	133.9	500	GDK
1SMC7.0A	7.0	7.78	10	12.0	125.0	200	GDM
1SMC7.5A	7.5	8.33	1.0	12.9	116.3	100	GDP
1SMC8.0A	8.0	8.89	1.0	13.6	110.3	50	GDR
1SMC9.0A	9.0	10.0	1.0	15.4	97.4	10	GDV
1SMC10A	10	11.1	1.0	17.0	88.2	5.0	GDX
1SMC12A	12	13.3	1.0	19.9	75.3	5.0	GEE
1SMC13A	13	14.4	1.0	21.5	69.7	5.0	GEG
1SMC14A	14	15.6	1.0	23.2	64.7	5.0	GEK
1SMC15A	15	16.7	1.0	24.4	61.5	5.0	GEM
1SMC16A	16	17.8	1.0	26.0	57.7	5.0	GEP
1SMC17A	17	18.9	1.0	27.6	53.3	5.0	GER
1SMC18A	18	20.0	1.0	29.2	51.4	5.0	GET
1SMC20A	20	22.2	1.0	32.4	46.3	5.0	GEV
1SMC22A	22	24.4	1.0	35.5	42.2	5.0	GEX
1SMC24A	24	26.7	1.0	38.9	38.6	5.0	GEZ
1SMC26A	26	28.9	1.0	42.1	35.6	5.0	GFE
1SMC28A	28	31.1	1.0	45.4	33.0	5.0	GFG
1SMC30A	30	33.3	1.0	48.4	31.0	5.0	GFK
1SMC33A	33	36.7	1.0	53.3	28.1	5.0	GFM
1SMC36A	36	40.0	1.0	58.1	25.8	5.0	GFP
1SMC40A	40	44.4	1.0	64.5	23.2	5.0	GFR
1SMC43A	43	47.8	1.0	69.4	21.6	5.0	GFT
1SMC48A	48	53.3	1.0	77.4	19.4	5.0	GFX
1SMC51A	51	56.7	1.0	82.4	18.2	5.0	GFZ
1SMC54A	54	60.0	1.0	87.1	17.2	5.0	GGE
1SMC58A	58	64.4	1.0	93.6	16.0	5.0	GGG
1SMC60A	60	66.7	1.0	96.8	15.5	5.0	GGK
1SMC64A	64	71.1	1.0	103	14.6	5.0	GGM
1SMC70A	70	77.8	1.0	113	13.3	5.0	GGP
1SMC75A	75	83.3	1.0	121	12.4	5.0	GGR
1SMC78A	78	86.7	1.0	126	11.4	5.0	GGT

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. $10 \times 1000\ \mu\text{s}$ exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, $PW = 8.3\text{ ms}$, duty cycle = 4 pulses per minute).

TVS – in Surface Mount (continued)

Table 13. 1.5 SMC Series Unidirectional Overvoltage Transient Suppressors; 1500 Watts Peak Power @ 1 ms Surge (10 x 1000 μ s)ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) ($V_F = 3.5\text{ V Max}$, $I_F = 100\text{ A}$ for all types) (Note 4)

Device	Breakdown Voltage				Working Peak Reverse Voltage V_{RWM} Volts (Note 1)	Maximum Reverse Leakage @ V_{RWM} I_R μA	Maximum Reverse Surge Current I_{pp} Amps (Note 3)	Maximum Reverse Voltage @ I_{pp} (Clamping Voltage) V_C Volts	Temperature Coefficient of V_{BR} %/°C	Device Marking
	V_{BR} @ I_T Volts (Note 2)									
	Min	Nom	Max	mA						
 SMC CASE 403 PLASTIC  Time → (ms) Surge Current Characteristics										
1.5SMC6.8A 1.5SMC7.5A	6.45 7.13	6.8 7.5	7.14 7.88	10 10	5.8 6.4	1000 500	143 132	10.5 11.3	0.057 0.061	6V8A 7V5A
1.5SMC10A 1.5SMC12A 1.5SMC13A	9.5 11.4 12.4	10 12 13	10.5 12.6 13.7	1 1 1	8.55 10.2 11.1	10 5 5	103 90 82	14.5 16.7 18.2	0.073 0.078 0.081	10A 12A 13A
1.5SMC15A 1.5SMC16A 1.5SMC18A 1.5SMC20A	14.3 15.2 17.1 19	15 16 18 20	15.8 16.8 18.9 21	1 1 1 1	12.8 13.6 15.3 17.1	5 5 5 5	71 67 59.5 54	21.2 22.5 25.2 27.7	0.084 0.086 0.088 0.09	15A 16A 18A 20A
1.5SMC22A 1.5SMC24A 1.5SMC27A 1.5SMC30A	20.9 22.8 25.7 28.5	22 24 27 30	23.1 25.2 28.4 31.5	1 1 1 1	18.8 20.5 23.1 25.6	5 5 5 5	49 45 40 36	30.6 33.2 37.5 41.4	0.092 0.094 0.096 0.097	22A 24A 27A 30A
1.5SMC33A 1.5SMC36A 1.5SMC39A 1.5SMC43A	31.4 34.2 37.1 40.9	33 36 39 43	34.7 37.8 41 45.2	1 1 1 1	28.2 30.8 33.3 36.8	5 5 5 5	33 30 28 25.3	45.7 49.9 53.9 59.3	0.098 0.099 0.1 0.101	33A 36A 39A 43A
1.5SMC47A 1.5SMC51A 1.5SMC56A 1.5SMC62A	44.7 48.5 53.2 58.9	47 51 56 62	49.4 53.6 58.8 65.1	1 1 1 1	40.2 43.6 47.8 53	5 5 5 5	23.2 21.4 19.5 17.7	64.8 70.1 77 85	0.101 0.102 0.103 0.104	47A 51A 56A 62A
1.5SMC68A 1.5SMC75A 1.5SMC82A 1.5SMC91A	64.6 71.3 77.9 86.5	68 75 82 91	71.4 78.8 86.1 95.5	1 1 1 1	58.1 64.1 70.1 77.8	5 5 5 5	16.3 14.6 13.3 12	92 103 113 125	0.104 0.105 0.105 0.106	68A 75A 82A 91A

1. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
2. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C .
3. 10 x 1000 μs exponential decay surge waveform.
4. 1/2 sine wave (or equivalent square pulse, PW = 8.3 ms, duty cycle = 4 pulses per minute).

TVS/ESD Protection – One Line

SD05 Series

Table 14. Single Line TVS/ESD in SOD-323; 350 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage				Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (Note 5) (V)			@ I_T (mA)					
	Min	Nom	Max						
CASE 477 STYLE 1 SOD-323									
SD05	6.2	6.75	7.3	1.0	5.0	10	24	14.5	350
SD12	13.3	14.5	15.75	1.0	12	1.0	15	25	150

5. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

SD12C

Table 15. Single Line TVS/ESD in SOD-323; 350 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
BIDIRECTIONAL

Device	Breakdown Voltage			@ I _T (mA)	Reverse Voltage Working Peak V _{RWM} (Volts)	Max Reverse Leakage Current I _R (μA)	Max Reverse Surge Current I _{PP} (A)	Max Reverse Voltage @ I _{PP} (Clamping Voltage) V _C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V _{BR} (Note 6) (V)								
	Min	Nom	Max						
² CASE 477 STYLE 1 SOD-323 									
SD12C	13.3	—	—	1.0	12	1.0	15	24	64

6. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS/ESD Protection – One Line (continued)

ESD5Z Series

Table 16. Single Line TVS/ESD in SOD–523; 200 Watts Peak Power (8 x 20 μ s); Meets IEC61000–4–2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage			@ I _T (mA)	Reverse Voltage Working Peak V _{RWM} (Volts)	Max Reverse Leakage Current I _R (μA)	Max Reverse Surge Current I _{PP} (A)	Max Reverse Voltage @ I _{PP} (Clamping Voltage) V _C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V _{BR} (Note 7) (V)								
	Min	Nom	Max						
² 1 CASE 502 SOD–523  1 2									
ESD5Z2.5	4.0	–	–	1.0	2.5	6.0	11	10.9	145
ESD5Z3.3	5.0	–	–	1.0	3.3	0.05	11.2	14.1	105
ESD5Z5.0	6.2	–	–	1.0	5.0	0.05	9.4	18.6	80
ESD5Z6.0	6.8	–	–	1.0	6.0	0.01	8.8	20.5	70
ESD5Z7.0	7.5	–	–	1.0	7.0	0.01	8.8	22.7	65
ESD5Z12	14.1	–	–	1.0	12	0.01	9.6	25	55

7. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

ESD5B

Table 17. Single Line TVS/ESD in SOD–523; Meets IEC61000–4–2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
BIDIRECTIONAL

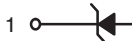
Device	Breakdown Voltage			Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 8)		@ I_T (mA)					
	Min	Max						
² 1 CASE 502 SOD-523  1 2								
ESD5B5.0S	5.8	–	1.0	5.0	1.0	–	–	32

8. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS/ESD Protection – One Line (continued)

ESD9X Series

Table 18. Single Line TVS/ESD in SOD-923; 100 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 9)	@ I_T (mA)					
	Min						
CASE 514AA SOD-923 							
ESD9X3.3S	5.0	1.0	3.3	2.5	9.8	10.4	80
ESD9X5.0S	6.2	1.0	5.0	1.0	8.7	12.3	65
ESD9X12S	13.5	1.0	12	1.0	5.9	23.7	30

9. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

ESD9B Series

Table 19. Single Line TVS/ESD in SOD-923; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
BIIDIRECTIONAL

Device	Breakdown Voltage			Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ $I_{PP} = 1\text{ A}$	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 9)		@ I_T (mA)				
	Min	Max					
 CASE 514AB SOD-923							
ESD9B3.3	5.0	7.0	1.0	3.3	1.0	10.5	15
ESD9B5.0	5.8	7.8	1.0	5.0	1.0	12.5	15

10. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS/ESD Protection – One Line (continued)

ESD9C Series

Table 20. Single Line TVS/ESD in SOD-923; Meets IEC61000-4-2, Level 4

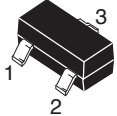
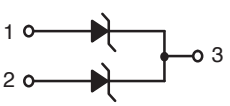
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 9)	@ I_T (mA)			
	Min				
CASE 514AB SOD-923 					
ESD9C3.3	5.0	1.0	3.3	1.0	12.8
ESD9C5.0	11.0	1.0	5.0	0.5	6.0

11. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

NUP1105L – LIN Bus Protector

Table 21. Single Line TVS/ESD in SOT-23; 350 Watts Peak Power ($8 \times 20 \mu\text{s}$); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
BIDIRECTIONAL

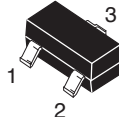
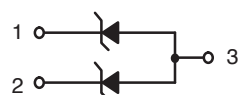
Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I _{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec) (Note 12)
		V _{BR} (V)		@ I _T	I _R	V _{RWM}					
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I _{PP} (A)	V _C (V)	
 CASE 318 STYLE 27 SOT-23 											
NUP1105L	25.7	—	28.4	1.0	0.1	24	—	30	8.0	44	350

12. Surge waveform $8 \times 20 \mu\text{sec}$.

TVS/ESD Protection – Two Line

SM05 – Common Anode Series

Table 22. Two Line TVS/ESD in SOT-23; 300 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

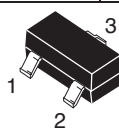
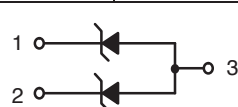
Device	Breakdown Voltage				Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Max Reverse Surge Current I_{PP} (A)	Max Reverse Voltage @ I_{PP} (Clamping Voltage) V_C (V)	Typical Capacitance (pF) Pin 1 to 3 @ 0 Volts
	V_{BR} (Note 13) (V)			@ I_T (mA)					
	Min	Nom	Max						
 CASE 318 STYLE 12 LOW PROFILE SOT-23 PLASTIC 									
SM05	6.2	6.75	7.3	1.0	5.0	10	17	9.8	225
SM12	13.3	14.5	15.75	1.0	12	1.0	12	19	95

13. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

MA3075WAL

Table 23. Two Line TVS/ESD in SOT-23; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

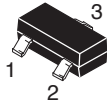
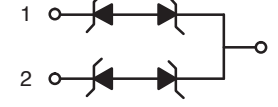
Device	Breakdown Voltage				Max Reverse Leakage Current I_R (μA @ 5 V)	Maximum Temperature Coefficient of V_{BR} (mV/ $^{\circ}C$)
	V_{BR} (Note 14) (V)			@ I_T (mA)		
	Min	Nom	Max			
	CASE 318 STYLE 12 LOW PROFILE SOT-23 PLASTIC					
MA3075WAL	7.2	7.5	7.9	5.0	1.0	5.3

14. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS/ESD Protection – Two Line (continued)

NUP2105L – CAN Bus Protector

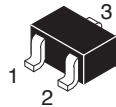
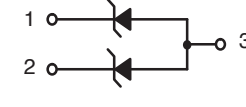
Table 24. Two Line TVS/ESD in SOT-23; 350 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
BIDIRECTIONAL

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μ sec) (Note 15)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μ A)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
 CASE 318 SOT-23 											
NUP2105L	26.2	–	32	1.0	0.1	24	30	–	8.0	44	350

15. Surge waveform 8 x 20 μ sec.

DF3A6.8FU

Table 25. Two Line TVS/ESD in SC-70; 150 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage				Max Reverse Leakage Current		Max Reverse Surge Current I _{PP} (A)	Max Reverse Voltage @ I _{PP} (Clamping Voltage) V _C (V)
	V _{BR} (Note 16) (V)			@ I _T (mA)	I _R @ V _R (μA) (V)			
	Min	Nom	Max					
	CASE 419 SC-70 (SOT-323)							
DF3A6.8FU	6.4	6.8	7.2	5.0	0.5	5.0	2.0	9.6

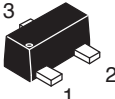
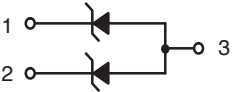
16. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS/ESD Protection – Two Line (continued)

NZL5V6AXV Series

Table 26. Two Line ESD Protection in SC-89; Meets IEC61000-4-2, Level 4

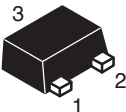
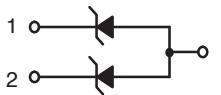
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage				Max Reverse Leakage Current	
	V _{BR} (Note 17) (V)			@ I _T (mA)	I _R @ V _R (μ A) (V)	
	Min	Nom	Max			
 CASE 463C SC-89 						
NZL5V6AXV3	5.32	5.6	5.88	5.0	5.0	3.0
NZL6V8AXV3	6.46	6.8	7.14	5.0	1.0	4.5
NZL7V5AXV3	7.12	7.5	7.88	5.0	1.0	5.0

17. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C . $\mu\text{ESD3.3D}$ Series

Table 27. Two Line ESD Protection in SOT-723; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

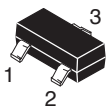
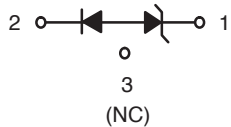
Device	Breakdown Voltage				Max Reverse Leakage Current I_R (μA) @ V_{RWM}
	V_{BR} (Note 18) (V)			@ I_T (mA)	
	Min	Nom	Max		
 CASE 631AA STYLE 4 SOT-723 					
μ ESD3.3D	5.0	–	–	1.0	1.0
μ ESD5.0D	6.2	–	–	1.0	0.1
μ ESD6.0D	7.0	–	–	1.0	0.1

18. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

Low Capacitance TVS/ESD Protection – One Line

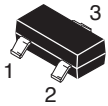
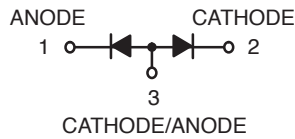
SL05 Series

Table 28. Single Line Low Cap TVS/ESD in SOT-23; 300 Watts Peak Power (8 x 20 μ s); Meets IEC61000-4-2, Level 4

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μ sec)
		V_{BR} (V)		@ I_T	I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μ A)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
 CASE 318 STYLE 26 SOT-23 											
SL05	6.0	–	8.0	1.0	20	5.0	3.5	5.0	17	11	300
SL15	16.7	–	18.5	1.0	1.0	15	3.5	5.0	10	30	300
SL24	26.7	–	29	1.0	1.0	24	3.5	5.0	5.0	55	300

NUP1301ML

Table 29. Single Line Low Capacitance TVS/ESD in SOT-23; Meets IEC61000-4-2, Level 4

Device	Breakdown Voltage		Forward Voltage		Capacitance* (pF) @ 0 V, 1.0 MHz	
	V_{BR} (V)	@ I_{br}	V_f (V)	I_f		
	Min	μ A	Max	mA	Typ	Max
 CASE 318 SOT-23 						
USB 2.0						
NUP1301ML3	70	100	0.855	10	–	0.9

* C_j = Between I/O pin and ground.

ESD9L Series

Table 30. Single Line Unidirectional TVS/ESD in SOD-923; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (V)	Max Reverse Leakage Current I_R (μA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (V) @ I_T (Note 9)	@ I_T (mA)			
	Min				
CASE 514AB SOD-923 					
ESD9L3.3S	4.8	1.0	3.3	1.0	0.5
ESD9L5.0S	4.4	1.0	5.0	1.0	0.5

19. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

Low Capacitance TVS/ESD Protection – One Line

ESD9R Series

Table 31. Single Line Low Leakage Unidirectional TVS/ESD in SOD-923; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V _{RWM} (V)	Max Reverse Leakage Current I _R (nA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V _{BR} (V) @ I _T (Note 9)	@ I _T (mA)			
	Min				
CASE 514AB SOD-923 					
ESD9R3.3S	4.8	1.0	3.3	1	0.5

20. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

ESD9M Series

Table 32. Single Line Unidirectional TVS/ESD in SOD-923; Meets IEC61000-4-2, Level 4

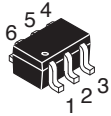
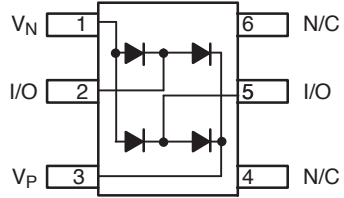
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V _{RWM} (V)	Max Reverse Leakage Current I _R (μA)	Max Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V _{BR} (V) @ I _T (Note 9)	@ I _T (mA)			
	Min				
CASE 514AB SOD-923 					
ESD9M5.0S	5.8	1.0	5.0	1.0	2.5

21. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

TVS Protection – Low Capacitance Surface Mount for USB 2.0 and 1.1 (continued)

- ESD Protection Meeting IEC 61000-4-2, 4-4, 4-5

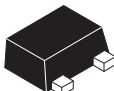
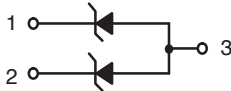
Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I_{PP} (Clamping Voltage)	Peak Power Rating (8x20 μ sec)
	V_{BR} (V)		@ I_T		I_R	V_{RWM}					
	Min	Nom	Max	(mA)	(μ A)	(V)	Typ	Max	I_{PP} (A)	V_C (V)	Watts
 CASE 419B SC-88 											
USB 2.0											
NUP2301MW6	70	–	–	–	0.1	2.5	0.8	1.5	–	–	–

Low Capacitance TVS/ESD Protection – Two Line

ESD7L Series – Common Anode Series

Table 33. Two Line TVS/ESD in SOT-723; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (Volts)	V_C (V) @ $I_{PP} = 1\text{ A}$	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (Note 13) (V)	@ I_T (mA)			
	Min				
 CASE 631AA SOT-723 					
ESD7L5.0	5.4	1.0	5.0	8.4	0.25

22. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

ESD11L – Common Anode Series

Table 34. Two Line TVS/ESD in SOT-1123; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

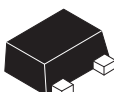
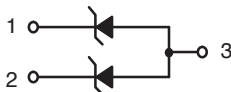
Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	Typical Capacitance (pF) Pin 1 to 2 @ 0 Volts
	V_{BR} (Note 13) (V)	@ I_T (mA)			
	Min				
 CASE 524AA SOT-1123 					
ESD11L5.0	5.4	1.0	5.0	1.0	0.25

23. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

ESD7M Series – Common Anode Series

Table 35. Two Line TVS/ESD in SOT-723; Meets IEC61000-4-2, Level 4

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)
UNIDIRECTIONAL

Device	Breakdown Voltage		Reverse Voltage Working Peak V_{RWM} (Volts)	Max Reverse Leakage Current I_R (μA)	V_C (V) @ $I_{PP} = 1$ A	Max Capacitance (pF) Pin 1 to 3 @ 0 Volts
	V_{BR} (Note 13) (V)	@ I_T (mA)				
	Min					
 CASE 631AA SOT-723 						
ESD7M5.0	5.4	1.0	5.0	1.0	8.4	2.4

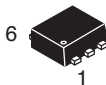
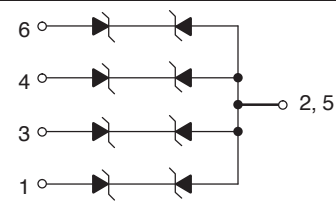
24. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

Low Capacitance TVS/ESD Protection – Four Line (continued)

Table 36. Four Line Low Cap TVS/ESD Protection in SOT-563; Meets IEC61000-4-2, Level 4

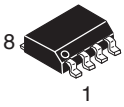
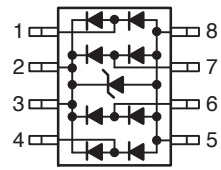
Device	Breakdown Voltage (D ₁ , D ₂ , and D ₃)				Breakdown Voltage (V _{CC})				Working Peak Reverse Voltage (D ₁ , D ₂ , and D ₃)	Max Reverse Leakage Current (D ₁ , D ₂ , and D ₃)		Max Reverse Leakage Current (V _{CC})		Capacitance (pF) @ 3.0 V, 1.0 MHz		Peak Power Rating (8x20 μsec) (D ₁ , D ₂ , and D ₃)	Peak Power Rating (8x20 μsec) (V _{CC})
		V _{BR} (V)		@ I _T		V _{BR} (V)		@ I _T	V _{RWM}	I _R	V _{RWM}	I _R	V _R			Watts	(mW)
	Min	Nom	Max	(mA)	Min	Nom	Max	(mA)	(V)	(μA)	(V)	(μA)	(V)	Typ	Max		
6  1 CASE 463A SOT-563 D₁ 1  6 GND D₂ 2  5 D₃ V_{CC} 3  4 GND																	
NUP4060AXV6	6.2	6.8	7.2	1.0	15.3	16	17.1	5.0	5.0	0.5	3.0	0.05	11	7.0	10	20	200

Table 37. Four Line Low Cap Bidirectional TVS/ESD Protection in SOT-563; Meets IEC61000-4-2, Level 4

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I _{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
	V _{BR} (V)		@ I _T		nA	V _{RWM}	(pF) @ 0 V, 1.0 MHz		I _{PP} (A)	V _C (V)	Watts
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I _{PP} (A)	V _C (V)	Watts
 CASE 463A SOT-563 											
NUP4102XV6	13.6	—	17.8	1.0	100	12	13	15	3.0	25	75

*C_J = Between I/O pin and ground.

Table 38. Four Line Low Cap TVS/ESD Protection; Meets IEC61000-4-2, Level 4

Device	Breakdown Voltage				Max Reverse Leakage Current		Capacitance* (pF) @ 0 V, 1.0 MHz		Max Reverse Surge Current	Max Reverse Voltage @ I _{PP} (Clamping Voltage)	Peak Power Rating (8x20 μsec)
	V _{BR} (V)		@ I _T		I _R	V _{RWM}	(pF) @ 0 V, 1.0 MHz		I _{PP} (A)	V _C (V)	Watts
	Min	Nom	Max	(mA)	(μA)	(V)	Typ	Max	I _{PP} (A)	V _C (V)	Watts
 CASE 751 SO-8 											
USB 2.0											
NUP4201DR2	6.0	—	—	1.0	10	5.0	5.0	10	10	12	500
SRDA05-4R2	6.0	—	—	1.0	10	5.0	10	15	10	12	500

*C_J = Between I/O pin and ground.

Rectifiers

Rectifiers

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In Brief...

Continuing investment in research and development for discrete products has created a rectifier manufacturing facility that matches the precision and versatility of the most advanced integrated circuits. As a result, ON Semiconductor's silicon rectifiers span all high tech applications with quality levels capable of passing the most stringent environmental tests, including those for automotive under-hood applications.

Product Highlights:

- **Surface Mount Devices** – A major thrust has been the development and introduction of a broad range of power rectifiers, Schottky and Ultrafast, 1/2 A to 40 A, 10 to 1000 V.
- **Application Specific Rectifiers** –
 - ♦ Schottky rectifiers having lower forward voltage drop (0.3 V to 0.6 V) for use in low voltage SMPS outputs and as “OR”ing diodes.
 - ♦ MEGAHERTZ™ series for high frequency power supplies and power factor correction.
 - ♦ UltraSoft rectifiers for high speed rectification.
 - ♦ Energy rated rectifiers with guaranteed energy handling capability.
- **Ultrafast rectifiers** having reverse recovery times as low as 25 ns to complement the Schottky devices for higher voltage requirements in high frequency applications.
- **A wide variety of package options** to match virtually any potential requirement.

The rectifier selector section is arranged by technology and package. The individual tables are sorted by voltage and current with available package types to the right. Application specific rectifiers are also included in separate tables.

APPLICATION SPECIFIC RECTIFIERS

Table 1. LOW V_F SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and $T_C = 25^\circ\text{C}$ (V)	Max I_R @ Rated V_{RRM} and $T_C = 25^\circ\text{C}$ (mA) ⁽¹⁾	Package
MBRD835L	8.0	35	0.51	1.4	DPAK
MBRD1035CTL	10	35	0.47	2.0	DPAK
MBRD5H100	5.0	100	0.71	0.0035	DPAK
MBRB2515L	25	15	0.45	15	D ² PAK
MBRB3030CTL	30	30	0.44	2.0	D ² PAK
MBRB2535CTL	25	35	0.47	10	D ² PAK
MBRB30H60CT	30	60	0.62	0.3	D ² PAK
MBRB8H100	8	100	0.71	0.0045	D ² PAK
MBRB20H100CT	20	100	0.77	0.0045	D ² PAK
MBRB41H100CT	40	100	0.8	0.01	D ² PAK
MBRB60H100CT	60	100	0.84	0.01	D ² PAK
MBRB30H30CT-1G	30	30	0.48	0.8	I ² PAK
MBRB3045CT-1G	30	45	0.62	0.2	I ² PAK
MBRB30H60CT-1G	30	60	0.62	0.3	I ² PAK
MBRB41H100CT-1G	40	100	0.80	0.01	I ² PAK
MBRM110L	1.0	10	0.365	0.5	POWERMITE®
MBRA210L	2.0	10	0.35	0.7	SMA
MBRA320	3.0	20	0.50	2.0	SMA
MBRS130L	1.0	30	0.395	1.0	SMB
MBRS230L	2.0	30	0.50	1.0	SMB
MBRS2H100	2.0	100	0.79	0.008	SMB
MBRS410L	4.0	10	0.33	5.0	SMC
MBR0520L	0.5	20	0.385	0.25	SOD-123
MBR120LSF	1.0	20	0.45	0.4	SOD-123 Flat Lead
MBR120VLSF	1.0	20	0.34	0.6	SOD-123 Flat Lead
MBR130LSF	1.0	30	0.38	1.0	SOD-123 Flat Lead
MBR30H30CT	30	30	0.48	0.8	TO-220AB
MBR2535CT	30	35	0.62	0.2	TO-220AB
MBR30L45CT	30	45	0.5	0.65	TO-220AB
MBR3045ST	30	45	0.62	0.2	TO-220AB
MBR40L45CT	40	45	0.5	1.2	TO-220AB
MBR60L45CT	60	45	0.55	1.2	TO-220AB
MBR30H60CT	30	60	0.62	0.3	TO-220AB
MBR20H100CTG	20	100	0.77	0.0045	TO-220AB
MBR10H100CTG	10	100	0.73	0.0035	TO-220AB
MBR20L45CT	20	45	0.5	0.5	TO-220AB
MBR30H100CTG	30	100	0.80	0.0045	TO-220AB
MBR41H100CTG	40	100	0.80	0.01	TO-220AB
MBR60H100CTG	60	100	0.84	0.01	TO-220AB
MBR20H150CT	20	150	0.68 @ 125C	0.05	TO-220AB
MBR2515L	25	15	0.45	15	TO-220AC
MBR2030CTL	20	30	0.52	5.0	TO-220AC
MBR2535CTL	25	35	0.47	5.0	TO-220AC
MBRF2045CT	20	45	0.84 @ 20A	0.1	TO220FP
MBRF30L45CT	30	45	0.5	0.65	TO220FP
MBRF30H60CTG	30	60	0.62	0.3	TO-220FP
MBRF20H100CT	20	100	0.77	0.0045	TO220FP
MBRF20H100CTG	20	100	0.77	0.0045	TO220FP
MBRF30H100CT	30	100	0.8	0.0045	TO220FP

Table 1. LOW V_F SCHOTTKY RECTIFIERS continued

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and $T_C = 25^\circ\text{C}$ (V)	Max I_R @ Rated V_{RRM} and $T_C = 25^\circ\text{C}$ (mA) ⁽¹⁾	Package
MBRF20H150CT	20	150	0.68 @ 125C	0.05	TO220FP
MBRF30H150CT	30	150	0.73 @ 125C	0.06	TO220FP
MBRF20L45CT	20	45	0.5	0.5	TO220FP
MBRF2545CT	25	45	0.7	0.2	TO220FP
MBR4015LWT	40	15	0.42	5.0	TO-247
MBR60L45WT	60	45	0.55	1.2	TO-247
MBR40H100WTG	40	100	0.80	0.01	TO-247

1. Refers to maximum leakage current per leg on “CT” and “WT” suffix devices.

Table 2. LOW LEAKAGE SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and $T_C = 25^\circ\text{C}$ (V)	Max I_R @ Rated V_{RRM} and $T_C = 25^\circ\text{C}$ (mA)	Package
MBR120ESF	1.0	20	0.53	0.01	SOD-123 FLAT LEAD
MBRM110E	1.0	10	0.53	0.001	POWERMITE®
MBRM120E	1.0	20	0.53	0.01	POWERMITE®
MBRA210E	2.0	10	0.5	0.05	SMA
MBRA120E	1.0	20	0.53	0.01	SMA
MBRS410E	4.0	10	0.5	0.15	SMC

Table 3. HIGH VOLTAGE SCHOTTKY RECTIFIERS

Device	I_O (A)	V_{RRM} (V)	Max V_F @ Rated I_O and $T_C = 25^\circ\text{C}$ (V)	Max I_R @ Rated V_{RRM} and $T_C = 25^\circ\text{C}$ (mA) ⁽²⁾	Package
MBRS3200	3.0	200	0.84	1.0	SMB
MBRS3201	3.0	200	0.84	1.0	SMC
MBRS4201	4.0	200	0.86	1.0	SMC
MBRB20200CT	20	200	0.9	1.0	D ² PAK
MBR20200CT	20	200	0.9	1.0	TO-220AB
MBR40250T	40	250	0.97	0.03	TO-220AB
MBR40250	40	250	0.97	0.03	TO-220AC
MBRF20200CT	20	200	0.9	1.0	FULL PAK
MBRF40250T	40	250	0.97	0.03	FULL PAK

2. Refers to maximum leakage current per leg on “CT” and “WT” suffix devices.

APPLICATION SPECIFIC RECTIFIERS (continued)

Table 4. MEGAHERTZ™ RECTIFIERS

Device	I _O (A)	V _{RRM} (V)	Max V _F @ Rated I _F and T _C = 25°C (V)	Max I _R @ Rated V _{RRM} and T _C = 25°C (mA) ⁽³⁾	t _{rr} (ns)	Package
MURHS160	1.0	600	2.4	0.02	35	SMB
MURHD560	5.0	600	2.7	0.01	30	DPAK
MURHB840CT	8.0	400	2.2	0.01	28	D ² PAK
MURHB860CT	8.0	600	2.8	0.01	35	D ² PAK
MURH840CT	8.0	400	2.2	0.01	28	TO-220AB
MURH860CT	8.0	600	2.8	0.01	35	TO-220AB
MURHF860CT	8.0	600	2.8	0.01	35	FULL PAK

3. Refers to maximum leakage current per leg on "CT" suffix devices.

Table 5. ULTRASOFT RECTIFIERS (For High Speed Rectification)

Device	I _O (A)	V _{RRM} (V)	Max V _F @ I _O and T _C = 25°C (V)	Max t _{rr} (ns)	T _J Max (°C)	Package
MSRD620CT	6.0	200	1.15	55	175	DPAK
MSR860	8.0	600	1.7	120	150	TO-220AC
MSR1560	15	600	1.8	45	150	TO-220AC
MSRF860	8	600	1.7	120	150	TO-220FP
MSRF1560	15	600	1.8	45	150	TO-220FP

Table 6. ENERGY RATED RECTIFIERS

Device	I _O (A)	V _{RRM} (V)	Max V _F @ I _O Rated and T _C = 25°C (V)	Max I _R @ Rated V _{RRM} and T _C = 125°C (μA)	Avalanche Energy (mJ)	Package
MUR180E	1.0	800	1.75	10	10	Case 59-10
MUR1100E	1.0	1000	1.75	10	10	Case 59-10
MUR480E	4.0	800	1.85	25	20	Case 267-05
MUR4100E	4.0	1000	1.85	25	20	Case 267-05
MURS480E	4.0	800	1.85	90 @ 150°C	20	SMC
MUR880E	8.0	800	1.8	25	20	TO-220AC
MUR8100E	8.0	1000	1.8	25	20	TO-220AC

SCHOTTKY RECTIFIERS

Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(4)}$ $T_J = 25^\circ\text{C}$ (mA)	Max $I_R^{(4)}$ (mA)	Package
20	0.5	$T_L = 90^\circ\text{C}$	<i>MBR0520L</i>	0.385	5.5	125	0.250	8.0 @ 100°C	CASE 425-04 (SOD-123) Cathode = Band 
30	0.5	$T_L = 100^\circ\text{C}$	<i>MBR0530</i>	0.430	5.5	125	0.130	4.0 @ 100°C	
30	2.0	$T_L = 105^\circ\text{C}$	<i>MBR230LSF</i>	0.43	40	125	1.0	25 @ 100°C	
30	1.0	$T_L = 65^\circ\text{C}$	<i>MBR130</i>	0.51	5.5	125	0.06	4.0 @ 125°C	
40	0.5	$T_L = 115^\circ\text{C}$	<i>MBR0540</i>	0.51	5.5	150	0.020	13 @ 100°C	
20	1.0	$T_L = 140^\circ\text{C}$	<i>MBR120ESF</i>	0.53	40	150	0.01	1.6 @ 100°C	CASE 498-01 (SOD-123FL) 
20	1.0	$T_L = 115^\circ\text{C}$	<i>MBR120LSF</i>	0.45	50	125	0.4	25 @ 85°C	
20	1.0	$T_L = 119^\circ\text{C}$	<i>MBR120VLSF</i>	0.34	45	125	0.6	15 @ 85°C	
30	1.0	$T_L = 117^\circ\text{C}$	<i>MBR130LSF</i>	0.38	40	125	1.0	25 @ 100°C	
40	1.0	$T_L = 112^\circ\text{C}$	<i>MBR140SF</i>	0.55	30	125	0.5	25 @ 85°C	
10	1.0	$T_C = 115^\circ\text{C}$	<i>MBRM110E</i>	0.53	50	150	0.001	0.5 @ 100°C	CASE 457-04 (POWERMITE®) 
10	1.0	$T_C = 115^\circ\text{C}$	<i>MBRM110L</i>	0.365	50	125	0.5	60 @ 100°C	
20	1.0	$T_C = 130^\circ\text{C}$	<i>MBRM120E</i>	0.53	50	150	0.01	1.6 @ 100°C	
20	1.0	$T_C = 115^\circ\text{C}$	<i>MBRM120L</i>	0.45	50	125	0.4	25 @ 85°C	
30	1.0	$T_C = 135^\circ\text{C}$	<i>MBRM130L</i>	0.38	50	125	0.41	11 @ 85°C	
40	1.0	$T_C = 110^\circ\text{C}$	<i>MBRM140</i>	0.55	50	125	0.5	25 @ 85°C	CASE 403D-02 (SMA) Cathode = Notch or Polarity Band 
10	2.0	$T_C = 125^\circ\text{C}$	<i>MBRA210E</i>	0.5	100	150	0.05	0.5 @ 100°C	
10	2.0	$T_L = 110^\circ\text{C}$	<i>MBRA210L</i>	0.35	160	125	0.70	60 @ 100°C	
20	1.0	$T_L = 125^\circ\text{C}$	<i>MBRA120E</i>	0.53	40	150	0.01	1.6 @ 100°C	
20	3.0	$T_L = 100^\circ\text{C}$	<i>MBRA320</i>	0.50	80	125	2.0	20 @ 100°C	
30	1.0	$T_C = 105^\circ\text{C}$	<i>MBRA130L</i>	0.41	25	125	1.0	25 @ 100°C	
40	1.0	$T_C = 95^\circ\text{C}$	<i>MBRA140</i>	0.55	30	125	0.5	10 @ 100°C	
40	3.0	$T_L = 100^\circ\text{C}$	<i>MBRA340</i>	0.45	100	150	0.3	15 @ 100°C	
60	1.0	$T_C = 105^\circ\text{C}$	<i>MBRA160</i>	0.51	60	150	0.2	12 @ 125°C	

4. At V_{RRM}

SCHOTTKY RECTIFIERS (continued)

Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS (continued)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(5)}$ $T_J = 25^\circ\text{C}$ (mA)	Max I_R (mA)	Package
20	1.0	$T_L = 115^\circ\text{C}$	MBRS120	0.6	40	125	1.0	10 @ 100°C	CASE 403A–03 (SMB) Cathode = Notch or Polarity Band 
30	1.0	$T_L = 120^\circ\text{C}$	MBRS130L	0.395	40	125	1.0	10 @ 100°C	
30	1.0	$T_L = 115^\circ\text{C}$	MBRS130	0.6	40	125	1.0	10 @ 100°C	
30	2.0	$T_C = 110^\circ\text{C}$	MBRS230L	0.5	40	125	1.0	75 @ 125°C	
40	1.0	$T_L = 115^\circ\text{C}$	MBRS140	0.6	40	125	1.0	10 @ 100°C	
40	1.0	$T_C = 110^\circ\text{C}$	MBRS140L	0.5	40	125	0.4	10 @ 100°C	
40	1.5	$T_C = 100^\circ\text{C}$	MBRS1540	0.46	40	125	0.8	5.7 @ 100°C	
40	2.0	$T_C = 100^\circ\text{C}$	MBRS240L	0.43	25	125	2.0	60 @ 100°C	
40	2.0	$T_C = 103^\circ\text{C}$	MBRS2040L	0.43	70	125	0.80	20 @ 100°C	
60	2.0	$T_L = 95^\circ\text{C}$	MBRS260	0.63	60	125	0.2	12 @ 125°C	
90	1.0	$T_L = 163^\circ\text{C}$	MBRS190	0.75	50	175	0.5	5.0 @ 100°C	
100	1.0	$T_L = 163^\circ\text{C}$	MBRS1100	0.75	50	175	0.5	5.0 @ 100°C	
100	2.0	$T_L = 150^\circ\text{C}$	MBRS2H100	0.79	130	175	0.008	1.5 @ 125°C	
200	3.0	$T_L = 120^\circ\text{C}$	MBRS3200	0.84	100	150	1.0	5.0 @ 100°C	
10	4.0	$T_L = 130^\circ\text{C}$	MBRS410E	0.50	250	150	0.15	4.0 @ 100°C	CASE 403–03 (SMC) Cathode = Notch 
10	4.0	$T_L = 110^\circ\text{C}$	MBRS410L	0.33	150	125	5.0	200 @ 100°C	
20	3.0	$T_L = 110^\circ\text{C}$	MBRS320	0.50	80	150	2.0	20 @ 100°C	
30	3.0	$T_L = 110^\circ\text{C}$	MBRS330	0.50	80	150	2.0	20 @ 100°C	
40	3.0	$T_L = 110^\circ\text{C}$	MBRS340	0.5	80	150	2.0	20 @ 100°C	
40	5.0	$T_C = 105^\circ\text{C}$	MBRS540	0.5	190	150	0.3	15 @ 100°C	
60	3.0	$T_L = 137^\circ\text{C}$	MBRS360	0.74	125	175	0.15	10 @ 100°C	
100	3.0	$T_L = 100^\circ\text{C}$	MBRS3100	0.79	130	175	0.05	5.0 @ 125°C	
200	3.0	$T_C = 70^\circ\text{C}$	MBRS3201	0.84	100	150	1.0	5.0 @ 150°C	
200	4.0	$T_L = 70^\circ\text{C}$	MBRS4201	0.86	100	150	1.0	5.0 @ 150°C	

5. At V_{RRM}

SCHOTTKY RECTIFIERS (continued)

Table 7. SURFACE MOUNT SCHOTTKY RECTIFIERS (continued)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(6)}$ $T_J = 25^\circ\text{C}$ (mA)	Max $I_R^{(6)}$ (mA)	Package	
20	3.0	$T_C = 125^\circ\text{C}$	MBRD320	0.60	75	175	0.2	20 @ 125°C	CASE 369A-13 (DPAK) 	 "CT" Suffix  Non-"CT" Suffix  MBRD5H100 ONLY
20	6.0	$T_C = 130^\circ\text{C}$	MBRD620CT	0.70	75	175	0.1	15 @ 125°C		
30	3.0	$T_C = 125^\circ\text{C}$	MBRD330	0.60	75	175	0.2	20 @ 125°C		
30	6.0	$T_C = 130^\circ\text{C}$	MBRD630CT	0.70	75	175	0.1	15 @ 125°C		
35	8.0	$T_C = 88^\circ\text{C}$	MBRD835L	0.51	75	150	1.4	35 @ 100°C		
35	10	$T_C = 115^\circ\text{C}$	MBRD1035CTL	0.47	50	150	2.0	60 @ 100°C		
40	3.0	$T_C = 125^\circ\text{C}$	MBRD340	0.60	75	175	0.2	20 @ 125°C		
40	6.0	$T_C = 130^\circ\text{C}$	MBRD640CT	0.70	75	175	0.1	15 @ 125°C		
45	10	$T_C = 135^\circ\text{C}$	MBRD1045	0.84	70	175	0.1	15 @ 125°C		
50	3.0	$T_C = 125^\circ\text{C}$	MBRD350	0.60	75	175	0.2	20 @ 125°C		
50	6.0	$T_C = 130^\circ\text{C}$	MBRD650CT	0.70	75	175	0.1	15 @ 125°C		
60	3.0	$T_C = 125^\circ\text{C}$	MBRD360	0.60	75	175	0.2	20 @ 125°C		
60	6.0	$T_C = 130^\circ\text{C}$	MBRD660CT	0.70	75	175	0.1	15 @ 125°C		
100	5.0	$T_C = 171^\circ\text{C}$	MBRD5H100	0.71	105	175	0.0035	4.5 @ 125°C		
15	25	$T_C = 90^\circ\text{C}$	MBRB2515L	0.45	150	100	15	200 @ 70°C	CASE 418B-04 (D ² PAK) 	 "CT" Suffix  Non-"CT" Suffix
30	30	$T_C = 134^\circ\text{C}$	MBRB3030CT	0.54	200	175	0.6	145 @ 150°C		
30	30	$T_C = 115^\circ\text{C}$	MBRB3030CTL	0.44	300	125	2.0	195 @ 125°C		
30	40	$T_C = 115^\circ\text{C}$	MBRB4030	0.55	300	175	0.35	150 @ 125°C		
35	25	$T_C = 110^\circ\text{C}$	MBRB2535CTL	0.47	150	125	10	500 @ 125°C		
45	30	$T_C = 164^\circ\text{C}$	MBRB2545CT	0.62	150	175	0.2	25 @ 125°C		
45	10	$T_C = 135^\circ\text{C}$	MBRB1045	0.84	150	175	0.1	15 @ 125°C		
45	15	$T_C = 167^\circ\text{C}$	MBRB1545CT	0.84	150	175	0.1	15 @ 125°C		
45	16	$T_C = 163^\circ\text{C}$	MBRB1645	0.63	150	175	0.2	40 @ 125°C		
60	30	$T_C = 159^\circ\text{C}$	MBRB30H60CT	0.62	260	175	0.3	45 @ 125°C		
60	20	$T_C = 110^\circ\text{C}$	MBRB2060CT	0.95	150	175	0.15	135 @ 125°C		
100	8	$T_C = 146^\circ\text{C}$	MBRB8H100	0.71	250	175	0.0045	5.3 @ 125°C		
100	20	$T_C = 162^\circ\text{C}$	MBRB20H100CT	0.77	250	175	0.0045	6.0 @ 125°C		
100	40	$T_C = 150^\circ\text{C}$	MBRB41H100CT	0.8	350	175	0.01	10 @ 125°C		
100	60	$T_C = 155^\circ\text{C}$	MBRB60H100CT	0.84	350	175	0.01	10 @ 125°C		
100	20	$T_C = 110^\circ\text{C}$	MBRB20100CT	0.85	150	175	0.1	6.0 @ 125°C		
200	20	$T_C = 134^\circ\text{C}$	MBRB20200CT	0.9	150	150	1.0	50 @ 125°C		

6. At V_{RRM} ; refers to maximum leakage current per leg on "CT" suffix devices.

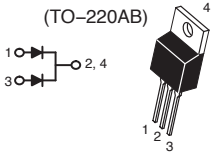
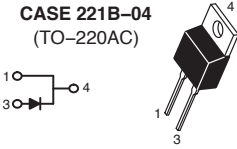
SCHOTTKY RECTIFIERS (continued)

Table 8. AXIAL LEAD SCHOTTKY RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max I_R @ V_{RRM} $T_A = 25^\circ\text{C}$ (mA)	Max I_R @ V_{RRM} $T_A = 100^\circ\text{C}$ (mA)	Package
20	1.0	$T_A = 55^\circ\text{C}$ $R_{\theta JA} = 80^\circ\text{C/W}$	1N5817	0.45	25	125	1.0	10	CASE 59–10 (DO–41) Plastic  Cathode = Polarity Band
30	1.0	$T_A = 55^\circ\text{C}$ $R_{\theta JA} = 80^\circ\text{C/W}$	1N5818	0.55	25	125	1.0	10	
40	1.0	$T_A = 55^\circ\text{C}$ $R_{\theta JA} = 80^\circ\text{C/W}$	1N5819	0.60	25	125	1.0	10	
50	1.0	$T_A = 55^\circ\text{C}$	MBR150	0.75	25	150	0.5	5.0	
60	1.0	$T_A = 55^\circ\text{C}$ $R_{\theta JA} = 80^\circ\text{C/W}$	MBR160	0.75	25	150	0.5	5.0	
100	1.0	$T_A = 120^\circ\text{C}$ $R_{\theta JA} = 50^\circ\text{C/W}$	MBR1100	0.79	50	175	0.5	5.0	
20	3.0	$T_A = 76^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	1N5820	0.475	80	125	2.0	20	CASE 267–05 (DO–201AD) Plastic  Cathode = Polarity Band
30	3.0	$T_A = 71^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	1N5821	0.50	80	125	2.0	20	
40	3.0	$T_A = 61^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	1N5822	0.525	80	125	2.0	20	
40	3.0	$T_A = 65^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	MBR340	0.60	80	175	0.6	20	
45	8.0	$T_L = 75^\circ\text{C}$	80SQ045N	0.55	140	125	1.0	50	
50	3.0	$T_A = 65^\circ\text{C}$	MBR350	0.74	80	150	0.6	20	
60	3.0	$T_A = 65^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	MBR360	0.74	80	150	0.6	20	
100	3.0	$T_A = 100^\circ\text{C}$ $R_{\theta JA} = 28^\circ\text{C/W}$	MBR3100	0.79	150	175	0.6	20	

SCHOTTKY RECTIFIERS (continued)

Table 9. TO-220 AND I²PAK THRU-HOLE SCHOTTKY RECTIFIERS

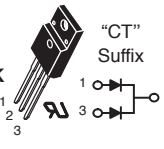
V _{RRM} (V)	I _O (A)	I _O Rating Condition	Device	Max V _F @ I _O Rated T _C = 25°C (V)	I _{FSM} (A)	T _J Max (°C)	Max I _R ⁽⁷⁾ @ V _{RRM} T _A = 25°C (mA)	Max I _R ⁽⁷⁾ @ V _{RRM} T _A = 125°C (mA)	Package
15	40	T _C = 140°C	MBR4015CTL	0.43	150	150	10	600 @ 125°C	CASE 221A-09 (TO-220AB) 
30	20	T _C = 167°C	MBR2030CTL	0.52	150	175	5.0	75 @ 125°C	
30	30	T _C = 138°C	MBR30H30CT	0.48	260	150	0.8	130 @ 125°C	
35	15	T _C = 163°C	MBR1535CT	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
35	25	T _C = 142°C	MBR2535CTL	0.47	150	150	5.0	500 @ 125°C	
35	30	T _C = 160°C	MBR2535CT	0.62	150	175	0.2	25 @ 125°C	
45	15	T _C = 163°C	MBR1545CT	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
45	20	T _C = 141°C	MBR20L45CT	0.5	180	150	0.5	170 @ 125°C	
45	20	T _C = 165°C	MBR2045CT	0.57 @ 125°C	150	175	0.1	15 @ 125°C	
45	25	T _C = 160°C	MBR2545CT	0.62	150	175	0.2	25 @ 125°C	
45	30	T _C = 137°C	MBR30L45CT	0.5	190	150	0.65	250 @ 125°C	
45	30	T _C = 130°C	MBR3045ST	0.62	150	175	0.2	40 @ 125°C	
45	40	T _C = 145°C	MBR40L45CT	0.5	200	175	1.2	275 @ 125°C	
45	60	T _C = 145°C	MBR60L45CT	0.55	200	175	1.2	275 @ 125°C	
60	20	T _C = 133°C	MBR2060CT	0.85	150	175	0.1	20 @ 125°C	
60	30	T _C = 159°C	MBR30H60CT	0.62	260	175	0.3	45 @ 125°C	
80	20	T _C = 133°C	MBR2080CT	0.85	150	175	0.1	6.0 @ 125°C	
90	20	T _C = 133°C	MBR2090CT	0.85	150	175	0.1	6.0 @ 125°C	
100	16	T _C = 166°C	MBR16100CT	0.74	150	175	0.1	5.0 @ 125°C	
100	10	T _C = 168°C	MBR10H100CT	0.75	180	175	0.0035	4.5 @ 125°C	
100	20	T _C = 162°C	MBR20H100CT	0.77	250	175	0.0045	6.0 @ 125°C	
100	20	T _C = 133°C	MBR20100CT	0.85	150	175	0.1	6.0 @ 125°C	
100	30	T _C = 156°C	MBR30H100CT	0.80	250	175	0.0045	6.0 @ 125°C	
100	40	T _C = 150°C	MBR41H100CT	0.80	350	175	0.01	10 @ 125°C	
100	60	T _C = 155°C	MBR60H100CT	0.84	350	175	0.01	10 @ 125°C	
150	20	T _C = 134°C	MBR20H150CT	0.68 @ 125°C	180	150	0.05	30 @ 125°C	
200	20	T _C = 161°C	MBR20200CT	0.90	150	175	1.0	50 @ 125°C	
250	40	T _C = 82°C	MBR40250T	0.86	150	150	0.03	30 @ 125°C	
15	25	T _C = 91°C	MBR2515L	0.45	150	100	15	200 @ 70°C	CASE 221B-04 (TO-220AC) 
35	7.5	T _C = 164°C	MBR735	0.84	150	175	0.1	15 @ 125°C	
35	10	T _C = 135°C	MBR1035	0.84	150	175	0.1	15 @ 125°C	
35	16	T _C = 163°C	MBR1635	0.63	150	175	0.2	40 @ 125°C	
45	7.5	T _C = 164°C	MBR745	0.84	150	175	0.1	15 @ 125°C	
45	10	T _C = 135°C	MBR1045	0.84	150	175	0.1	15 @ 125°C	
45	16	T _C = 163°C	MBR1645	0.63	150	175	0.2	40 @ 125°C	
60	10	T _C = 133°C	MBR1060	0.80	150	175	0.1	15 @ 125°C	
80	10	T _C = 133°C	MBR1080	0.80	150	175	0.1	6.0 @ 125°C	
90	10	T _C = 133°C	MBR1090	0.80	150	175	0.1	6.0 @ 125°C	
100	10	T _C = 133°C	MBR10100	0.80	150	175	0.1	6.0 @ 125°C	CASE 418D-01 I²PAK (TO-262) 
250	40	T _C = 82°C	MBR40250	0.86	150	150	0.03	30 @ 125°C	
30	30	T _C = 138°C	MBRB30H30CT-1	0.48	260	150	0.8	45 @ 125°C	
45	30	T _C = 130°C	MBRB3045CT-1	0.48	150	175	0.2	40 @ 125°C	
60	30	T _C = 159°C	MBRB30H60CT-1	0.62	260	175	0.3	45 @ 125°C	
100	40	T _C = 150°C	MBRB41H100CT-1	0.80	350	175	0.01	10 @ 125°C	

7. Refers to maximum leakage current per leg on "CT" suffix devices.

Ⓜ Indicates UL Recognized – File #E69369

SCHOTTKY RECTIFIERS (continued)

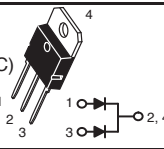
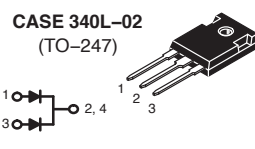
Table 9. TO-220 AND I²PAK THRU-HOLE SCHOTTKY RECTIFIERS

V _{RRM} (V)	I _O (A)	I _O Rating Condition	Device	Max V _F @ I _O Rated T _C = 25°C (V)	I _{FSM} (A)	T _J Max (°C)	Max I _R ⁽⁷⁾ @ V _{RRM} T _A = 25°C (mA)	Max I _R ⁽⁷⁾ @ V _{RRM} T _A = 125°C (mA)	Package
45	20	T _C = 141°C	MBRF20L45CT	0.5	180	150	0.5	170 @ 125°C	CASE 221D-03 FULL PAK  "CT" Suffix
45	20	T _C = 165°C	MBRF2045CT	0.84 @ 20 A	150	175	0.1	15 @ 125°C	
45	25	T _C = 125°C	UL MBRF2545CT	0.70	150	175	0.2	40 @ 125°C	
45	30	T _C = 137°C	MBRF30L45CT	0.5	190	150	0.65	250 @ 125°C	
60	20	T _C = 133°C	UL MBRF2060CT	0.85	150	175	0.15	150 @ 125°C	
60	30	T _C = 159°C	MBRF30H60CT	0.62	260	175	0.3	45 @ 125°C	
100	20	T _C = 162°C	MBRF20H100CT	0.77	250	175	0.0045	6.0 @ 125°C	
100	20	T _C = 133°C	UL MBRF20100CT	0.85	150	175	0.15	150 @ 125°C	
100	30	T _C = 156°C	MBRF30H100CT	0.8	250	175	0.0045	6.0 @ 125°C	
150	20	T _C = 134°C	MBRF20H150CT	0.68 @ 125°C	180	150	0.05	30 @ 125°C	
150	30	T _C = 124°C	MBRF30H150CT	0.73 @ 125°C	200	150	0.06	50 @ 125°C	
200	20	T _C = 125°C	UL MBRF20200CT	0.90	150	150	1.0	50 @ 125°C	
250	40	T _C = 46°C	UL MBRF40250T	0.86	150	150	0.03	30 @ 125°C	

7. Refers to maximum leakage current per leg on "CT" suffix devices.

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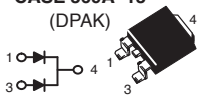
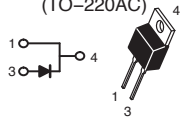
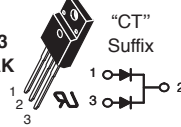
Table 10. TO-218 AND TO-247 SCHOTTKY RECTIFIERS

V _{RRM} (V)	I _O (A)	I _O Rating Condition	Device	Max V _F @ I _O Rated T _C = 25°C (V)	I _{FSM} (A)	T _J Max (°C)	Max I _R ⁽⁸⁾ @ V _{RRM} T _A = 25°C (mA)	Max I _R ⁽⁸⁾ @ V _{RRM} T _A = 100°C (mA)	Package
45	30	T _C = 105°C	MBR3045PT	0.76 @ 60 A	200	175	1.0	100 @ 125°C	CASE 340D-02 (TO-218AC) 
45	40	T _C = 125°C	MBR4045PT	0.70	400	175	1.0	50 @ 125°C	
45	60	T _C = 125°C	MBR6045PT	0.62	500	175	1.0	50 @ 125°C	
15	40	T _C = 120°C	MBR4015LWT	0.42	120	150	5.0	150 @ 100°C	CASE 340L-02 (TO-247) 
30	70	T _C = 100°C	MBR7030WT	0.55	500	175	5.0	250 @ 100°C	
45	30	T _C = 105°C	MBR3045WT	0.76 @ 60 A	200	175	1.0	100 @ 125°C	
45	40	T _C = 125°C	MBR4045WT	0.70	400	175	1.0	530 @ 100°C	
45	60	T _C = 125°C	MBR6045WT	0.62	500	175	1.0	50 @ 100°C	
45	60	T _C = 165°C	MBR60L45WT	0.55	200	175	1.2	275 @ 125°C	
100	40	T _C = 148°C	MBR40H100WT	0.80	200	175	0.01	10 @ 125°C	

8. Refers to maximum leakage current per leg on "CT" suffix devices.

ULTRASOFT RECTIFIERS

Table 11. ULTRASOFT RECTIFIERS (For High Speed Rectification)

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O $T_C = 25^\circ\text{C}$ (V)	t_{rr} (ns)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(9)}$ @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max $I_R^{(9)}$ @ V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
200	6.0	$T_C = 137^\circ\text{C}$	MSRD620CT	1.15	55	175	5.0	200	CASE 369A-13 (DPAK) 
600	8.0	$T_C = 125^\circ\text{C}$	MSR860	1.7	120	150	10	1000	CASE 221B-04 (TO-220AC) 
600	15	$T_C = 125^\circ\text{C}$	MSR1560	1.8	45	150	15	5000	
600	8	$T_C = 125^\circ\text{C}$	MSRF860	1.7	120	150	10	1000	CASE 221D-03 FULL PAK  "CT" Suffix
600	15	$T_C = 125^\circ\text{C}$	MSRF1560	1.8	45	150	15	5000	

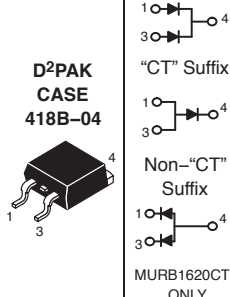
9. Refers to maximum leakage current per leg on "CT" suffix devices.

ULTRAFAST RECTIFIERS

Table 12. SURFACE MOUNT ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(10)}$ @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max $I_R^{(10)}$ @ V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
50	1.0	$T_L = 155^\circ\text{C}$	MURA105	30	0.875	50	175	2.0	50	CASE 403D–02 SMA  Cathode = Polarity Band
50	2.0	$T_L = 135^\circ\text{C}$	MURA205	30	0.94	50	175	2.0	50	
100	1.0	$T_L = 155^\circ\text{C}$	MURA110	30	0.875	50	175	2.0	50	
100	2.0	$T_L = 135^\circ\text{C}$	MURA210	30	0.94	50	175	2.0	50	
150	1.0	$T_L = 155^\circ\text{C}$	MURA115	35	0.875	40	175	2.0	50	
150	2.0	$T_L = 135^\circ\text{C}$	MURA215	35	0.95	40	175	2.0	50	
200	1.0	$T_L = 155^\circ\text{C}$	MURA120	35	0.875	40	175	2.0	50	
200	2.0	$T_L = 135^\circ\text{C}$	MURA220	35	0.95	40	175	2.0	50	
300	1.0	$T_L = 150^\circ\text{C}$	MURA130	65	1.1	35	175	5.0	150	
300	2.0	$T_L = 125^\circ\text{C}$	MURA230	65	1.3	35	175	5.0	150	
400	1.0	$T_L = 150^\circ\text{C}$	MURA140	65	1.1	35	175	5.0	150	
400	2.0	$T_L = 125^\circ\text{C}$	MURA240	65	1.3	35	175	5.0	150	
600	1.0	$T_L = 145^\circ\text{C}$	MURA160	75	1.25	30	175	5.0	150	
600	2.0	$T_L = 110^\circ\text{C}$	MURA260	75	1.45	30	175	5.0	150	
50	1.0	$T_L = 155^\circ\text{C}$	MURS105	35	0.875	40	175	2.0	50	CASE 403A–03 SMB  Cathode = Polarity Band
50	2.0	$T_L = 125^\circ\text{C}$	MURS205	30	0.94	50	175	2.0	50	
100	1.0	$T_L = 155^\circ\text{C}$	MURS110	35	0.875	40	175	2.0	50	
100	2.0	$T_L = 125^\circ\text{C}$	MURS210	30	0.94	50	175	2.0	50	
150	1.0	$T_L = 155^\circ\text{C}$	MURS115	35	0.875	40	175	2.0	50	
200	1.0	$T_L = 155^\circ\text{C}$	MURS120	35	0.875	40	175	2.0	50	
200	2.0	$T_L = 145^\circ\text{C}$	MURS220	35	0.95	40	175	2.0	50	
300	2.0	$T_L = 125^\circ\text{C}$	MURS230	65	1.3	35	175	5.0	150	
400	1.0	$T_L = 150^\circ\text{C}$	MURS140	75	1.25	35	175	5.0	150	
400	2.0	$T_L = 125^\circ\text{C}$	MURS240	65	1.3	35	175	5.0	150	
600	1.0	$T_L = 145^\circ\text{C}$	MURHS160	35	2.4	15	175	20	200 @ 125°C	
600	1.0	$T_L = 150^\circ\text{C}$	MURS160	75	1.25	35	175	5.0	150	
600	2.0	$T_L = 125^\circ\text{C}$	MURS260	75	1.45	35	175	5.0	150	
600	3.0	$T_L = 105^\circ\text{C}$	MURS360B	75	1.25	100	175	3.0	150	
200	3.0	$T_L = 140^\circ\text{C}$	MURS320	35	0.875	75	175	5.0	150	CASE 403–03 SMC Cathode = Notch 
400	3.0	$T_L = 130^\circ\text{C}$	MURS340	75	1.25	75	175	10	250	
600	3.0	$T_L = 130^\circ\text{C}$	MURS360	75	1.25	75	175	10	250	
800	4.0	$T_L = 110^\circ\text{C}$	MURS480E	100	1.85	70	175	25	900	
200	3.0	$T_C = 158^\circ\text{C}$	MURD320	35	0.95	75	175	5.0	500 @ 125°C	DPAK   “CT” Suffix  MURD550PF ONLY  Non-“CT” Suffix
200	6.0	$T_C = 140^\circ\text{C}$	MURD620CT	35	1.0	50	175	5.0	250 @ 125°C	
300	3.0	$T_C = 160^\circ\text{C}$	MURD330	50	1.15	75	175	5.0	500	
300	5.0	–	MURD530	45	1.05	75	175	5.0	100 @ 125°C	
520	5.0	$T_C = 160^\circ\text{C}$	MURD550PF	95	1.15	75	175	5.0	400	
600	5.0	$T_C = 159^\circ\text{C}$	MURHD560	30	2.7	50	175	10	70 @ 125°C	

Table 12. SURFACE MOUNT ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(10)}$ @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max $I_R^{(10)}$ @ V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
200	16	$T_C = 150^\circ\text{C}$	<i>MURB1620CT</i>	35	0.975	100	175	5.0	250	 D2PAK CASE 418B-04 “CT” Suffix Non-“CT” Suffix MURB1620CTR ONLY
200	16	$T_C = 150^\circ\text{C}$	<i>MURB1620CTR</i>	35	0.975	100	175	5.0	250	
400	8.0	$T_C = 120^\circ\text{C}$	<i>MURHB840CT</i>	28	2.2	100	175	10	500	
600	8.0	$T_C = 120^\circ\text{C}$	<i>MURHB860CT</i>	35	2.8	100	175	10	500	
600	16	$T_C = 150^\circ\text{C}$	<i>MURB1660CT</i>	60	1.5	100	175	10	500	

10. Refers to maximum leakage current per leg on “CT” suffix devices.

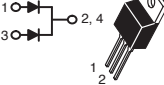
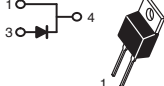
ULTRAFAST RECTIFIERS (continued)

Table 13. AXIAL LEAD ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max I_R @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max I_R @ V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
50	1.0	$T_A = 130^\circ\text{C}$	MUR105	35	0.875	35	175	2.0	50	 CASE 59-10 (DO-41) Plastic Cathode = Polarity Band
100	1.0	$T_A = 130^\circ\text{C}$	MUR110	35	0.875	35	175	2.0	50	
100	2.0	$T_A = 100^\circ\text{C}$	MUR210	30	0.94	35	175	2.0	50	
150	1.0	$T_A = 130^\circ\text{C}$	MUR115	35	0.875	35	175	2.0	50	
200	1.0	$T_A = 130^\circ\text{C}$	MUR120	35	0.875	35	175	2.0	50	
200	2.0	$T_A = 90^\circ\text{C}$	MUR220	35	0.95	35	175	2.0	50	
300	1.0	$T_A = 120^\circ\text{C}$	MUR130	75	1.25	35	175	5.0	150	
400	1.0	$T_A = 120^\circ\text{C}$	MUR140	75	1.25	35	175	5.0	150	
400	2.0	$T_A = 85^\circ\text{C}$	MUR240	65	1.3	35	175	5.0	150	
600	1.0	$T_A = 120^\circ\text{C}$	MUR160	100	1.25	35	175	5.0	150	
600	2.0	$T_A = 60^\circ\text{C}$	MUR260	75	1.35	35	175	5.0	150	
800	1.0	$T_A = 95^\circ\text{C}$	MUR180E	100	1.75	35	175	10	600 @ 100 $^\circ\text{C}$	
1000	1.0	$T_A = 95^\circ\text{C}$	MUR1100E	100	1.75	35	175	10	600 @ 100 $^\circ\text{C}$	
1000	2.0	$T_A = 35^\circ\text{C}$	MUR2100E	100	2.2	35	175	10	600 @ 100 $^\circ\text{C}$	
50	4.0	$T_A = 80^\circ\text{C}$	MUR405	35	0.89	125	175	5.0	150	 CASE 267-05 (DO-201AD) Plastic Cathode = Polarity Band
100	4.0	$T_A = 80^\circ\text{C}$	MUR410	35	0.89	125	175	5.0	150	
150	4.0	$T_A = 80^\circ\text{C}$	MUR415	35	0.89	125	175	5.0	150	
200	4.0	$T_A = 80^\circ\text{C}$	MUR420	35	0.89	125	175	5.0	150	
400	4.0	$T_A = 40^\circ\text{C}$	MUR440	75	1.28	110	175	10	250	
520	5.0	$T_A = 65^\circ\text{C}$	MUR550APF	95	1.15	85	175	5.0	500	
600	4.0	$T_A = 40^\circ\text{C}$	MUR460	75	1.28	110	175	10	400	
800	4.0	$T_A = 35^\circ\text{C}$	MUR480E	100	1.85	70	175	25	900	
1000	4.0	$T_A = 35^\circ\text{C}$	MUR4100E	100	1.85	70	175	25	900	

ULTRAFAST RECTIFIERS (continued)

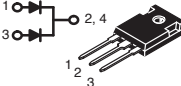
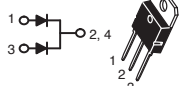
Table 14. TO-220 ULTRAFAST AND MEGAHERTZ™ RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(11)}$ @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max $I_R^{(11)}$ @ V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
100	16	$T_C = 150^\circ\text{C}$	MUR1610CT	35	0.975	100	175	5.0	250	CASE 221A-09 (TO-220AB) 
150	16	$T_C = 150^\circ\text{C}$	MUR1615CT	35	0.975	100	175	5.0	250	
200	6.0	$T_C = 130^\circ\text{C}$	MUR620CT	35	0.975	75	175	5.0	250	
200	16	$T_C = 150^\circ\text{C}$	MUR1620CT	35	0.975	100	175	5.0	250	
200	16	$T_C = 160^\circ\text{C}$	MUR1620CTR	85	1.2	100	175	5.0	500	
400	8.0	$T_C = 155^\circ\text{C}$	MURH840CT	28	2.2	100	175	10	500	
400	16	$T_C = 150^\circ\text{C}$	MUR1640CT	60	1.30	100	175	10	500	
600	8.0	$T_C = 120^\circ\text{C}$	MURH860CT	35	2.8	100	175	10	500	
600	16	$T_C = 150^\circ\text{C}$	MUR1660CT	60	1.5	100	175	10	500	
50	8.0	$T_C = 150^\circ\text{C}$	MUR805	35	0.975	100	175	5.0	250	
100	8.0	$T_C = 150^\circ\text{C}$	MUR810	35	0.975	100	175	5.0	250	CASE 221B-04 (TO-220AC) 
100	15	$T_C = 150^\circ\text{C}$	MUR1510	35	1.05	200	175	10	500	
150	8.0	$T_C = 150^\circ\text{C}$	MUR815	35	0.975	100	175	5.0	250	
150	8.0	$T_C = 150^\circ\text{C}$	MUR815	35	0.975	100	175	5.0	250	
150	15	$T_C = 150^\circ\text{C}$	MUR1515	35	1.05	200	175	10	500	
200	8.0	$T_C = 150^\circ\text{C}$	MUR820	35	0.975	100	175	5.0	250	
200	15	$T_C = 150^\circ\text{C}$	MUR1520	35	1.05	200	175	10	500	
200	20	$T_C = 125^\circ\text{C}$	MUR2020R	95	1.10	250	175	50	1000	
400	8.0	$T_C = 150^\circ\text{C}$	MUR840	60	1.30	100	175	10	500	
400	15	$T_C = 150^\circ\text{C}$	MUR1540	60	1.25	150	175	10	500	
520	5.0	$T_C = 160^\circ\text{C}$	MUR550PF	95	1.15	100	175	5.0	400	
600	8.0	$T_C = 150^\circ\text{C}$	MUR860	60	1.50	100	175	10	500	
600	15	$T_C = 145^\circ\text{C}$	MUR1560	60	1.50	150	175	10	1000	
800	8.0	$T_C = 150^\circ\text{C}$	MUR880E	100	1.80	100	175	25	500 @ 100°C	
1000	8.0	$T_C = 150^\circ\text{C}$	MUR8100E	100	1.80	100	175	25	500 @ 100°C	
200	16	$T_C = 150^\circ\text{C}$	UL MURF1620CT	35	0.975	100	150	5.0	250	CASE 221D-03 (TO-220) FULL PAK 
520	5.0	$T_C = 160$	MURF550PF	95	1.15	100	175	5.0	400	
600	8.0	$T_C = 150$	MURF860	60	1.5	100	175	10	500	
600	8.0	$T_C = 120^\circ\text{C}$	UL MURHF860CT	35	2.8	100	150	10	500	
600	15	$T_C = 145$	MURF1560	60	45	150	175	10	1000	
600	16	$T_C = 150^\circ\text{C}$	UL MURF1660CT	60	1.5	100	150	10	500	

UL Indicates UL Recognized – File #E69369

11. Refers to maximum leakage current per leg on “CT” and “CTR” suffix devices.

Table 15. TO-218 AND TO-247 ULTRAFAST RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max t_{rr} (ns)	Max V_F @ I_O Rated $T_C = 25^\circ\text{C}$ (V)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max $I_R^{(12)}$ @ V_{RRM} $T_A = 25^\circ\text{C}$ (μA)	Max $I_R^{(12)}$ V_{RRM} $T_A = 150^\circ\text{C}$ (mA)	Package
200	30	$T_C = 145^\circ\text{C}$	MUR3020WT	35	1.05	200	175	10	0.5	CASE 340L-02 (TO-247) 
600	30	$T_C = 145^\circ\text{C}$	MUR3060WT	60	1.70	150	175	10	1.0	
200	30	$T_C = 150^\circ\text{C}$	MUR3020PT	35	1.05	200	175	10	0.5	CASE 340D-02 (TO-218AC) 
400	30	$T_C = 150^\circ\text{C}$	MUR3040PT	60	1.25	150	175	10	0.5	
600	30	$T_C = 145^\circ\text{C}$	MUR3060PT	60	1.50	150	175	10	1.0	

12. Refers to maximum leakage current per leg on “WT” and “PT” suffix devices.

FAST RECOVERY RECTIFIERS/GENERAL PURPOSE RECTIFIERS

Table 16. FAST RECOVERY RECTIFIERS/GENERAL PURPOSE RECTIFIERS

V_{RRM} (V)	I_O (A)	I_O Rating Condition	Device	Max V_F @ I_O Rated $T_J = 25^\circ\text{C}$ (V)	Max t_{rr} (ns)	I_{FSM} (A)	T_J Max ($^\circ\text{C}$)	Max I_R V_{RRM} $T_J = 25^\circ\text{C}$ (μA)	Max I_R V_{RRM} $T_A = 150^\circ\text{C}$ (μA)	Package
300	1.0	$T_L = 150^\circ\text{C}$	MRA4003	1.1	–	30	175	10	50	CASE 403D–02 SMA  Cathode = Notch
400	1.0	$T_L = 150^\circ\text{C}$	MRA4004	1.1	–	30	175	10	50	
600	1.0	$T_L = 150^\circ\text{C}$	MRA4005	1.1	–	30	175	10	50	
800	1.0	$T_L = 150^\circ\text{C}$	MRA4006	1.1	–	30	175	10	50	
1000	1.0	$T_L = 150^\circ\text{C}$	MRA4007	1.1	–	30	175	10	50	
400	1.5	$T_L = 118^\circ\text{C}$	MRS1504	1.04	–	50	150	1.0	340	CASE 403A–03 SMB 
50	1.0	$T_A = 75^\circ\text{C}$	1N4001RL	1.1	–	30	175	10	50	CASE 59–10⁽¹³⁾ (DO–41) Plastic  Cathode = Polarity Band
100	1.0	$T_A = 75^\circ\text{C}$	1N4002RL	1.1	–	30	175	10	50	
200	1.0	$T_A = 75^\circ\text{C}$	1N4003RL	1.1	–	30	175	10	50	
400	1.0	$T_A = 75^\circ\text{C}$	1N4004RL	1.1	–	30	175	10	50	
600	1.0	$T_A = 75^\circ\text{C}$	1N4005RL	1.1	–	30	175	10	50	
800	1.0	$T_A = 75^\circ\text{C}$	1N4006RL	1.1	–	30	175	10	50	
1000	1.0	$T_A = 75^\circ\text{C}$	1N4007RL	1.1	–	30	175	10	50	
50	1.0	$T_A = 75^\circ\text{C}$	1N4933RL	1.2	200	30	150	5.0	100	
100	1.0	$T_A = 75^\circ\text{C}$	1N4934RL	1.2	200	30	150	5.0	100	
200	1.0	$T_A = 75^\circ\text{C}$	1N4935RL	1.2	200	30	150	5.0	100	
400	1.0	$T_A = 75^\circ\text{C}$	1N4936RL	1.2	200	30	150	5.0	100	
600	1.0	$T_A = 75^\circ\text{C}$	1N4937RL	1.2	200	30	150	5.0	100	
50	3.0	$T_L = 105^\circ\text{C}$	1N5400RL	1.0	–	200	150	10	50	CASE 267–05 (DO–201AD) Plastic  Cathode = Polarity Band
100	3.0	$T_L = 105^\circ\text{C}$	1N5401RL	1.0	–	200	150	10	50	
100	3.0	$T_A = 80^\circ\text{C}$	MR851	1.25	200	100	125	10	150 @ 80°C	
200	3.0	$T_L = 105^\circ\text{C}$	1N5402RL	1.0	–	200	150	10	50	
400	3.0	$T_L = 105^\circ\text{C}$	1N5404RL	1.0	–	200	150	10	50	
600	3.0	$T_L = 105^\circ\text{C}$	1N5406RL	1.0	–	200	150	10	50	
800	3.0	$T_L = 105^\circ\text{C}$	1N5407RL	1.0	–	200	150	10	50	
1000	3.0	$T_L = 105^\circ\text{C}$	1N5408RL	1.0	–	200	150	10	50	
200	3.0	$T_A = 80^\circ\text{C}$	MR852RL	1.25	200	100	125	–	200 @ 80°C	
400	3.0	$T_A = 80^\circ\text{C}$	MR854RL	1.25	200	100	125	–	250 @ 80°C	
600	3.0	$T_A = 80^\circ\text{C}$	MR856RL	1.25	200	100	125	–	300 @ 80°C	

13. Package Size: 0.120" max diameter by 0.260" length.

Thyristors

Thyristors

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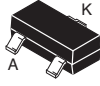
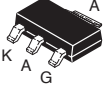
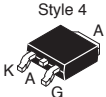
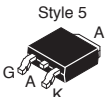
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In Brief...

ON Semiconductor's broad line of Thyristors includes...

- A full line of Silicon Controlled Rectifiers (SCR's) covering a forward current range of 0.8 A to 25 A and blocking voltages from 30 V to 800 V. Available in a choice of six different plastic packages in both through hole and surface mount, for space saving requirements.
- An extensive line of Triacs (bidirectional devices) from 0.6 A to 16 A with blocking voltages from 200 V to 800 V. Like the SCR's, the Triacs are available in a choice of six different plastic packages.
- A new line of Thyristor Surge Suppressors in the surface mount SMB package covering surge currents of 50 A and 100 A, with break over voltages from 77 V to 400 V.
- ON Semiconductor offers Thyristors Surge Protection Devices (TSPD's) designed to protect sensitive electronic equipment from transient overvoltage conditions. The 36 devices in the "NP Series" cover the protection voltage range of 64 V – 350 V in 50 A, 80 A, 100 A current ratings. Our new low capacitance devices NP-MC and NP0080TA support protection of Hi-Speed broadband applications such as ADSL2+ and VDSL.
- Trigger devices, including Sidacs and PUT's (Programmable Unijunction Transistors). Trigger devices are available in both the axial lead and TO-92 packages.

SILICON CONTROLLED RECTIFIERS (SCRs)

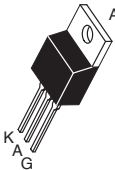
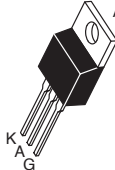
							  			
On-State RMS Current $I_{T(RMS)}$ (A)	Blocking Voltage V_{DRM} , V_{RRM} (V)	SOT-23 Case 318 Style 8	TO-92 (Note 1) (TO-226AA) Case 029 Style 10	SOT-223 Case 318E Style 10	SOT-223 Case 318E Style 10	TO-225AA (TO-126) Case 077 Style 2	D-PAK Case 369C Style 4 & 5 Case 369D Style 5	Surge Current I_{TSM} (A) 60 Hz	Max I_{GT} (mA)	Max V_{GT} (V)
0.25	200	NCY0102BL						7.0	0.2	0.8
0.8	30		2N5060					10	0.2	0.8
	60		2N5061							
	100		2N5062							
	200		2N5064							
	100		MCR100-3							
	200		MCR100-4							
	400		MCR100-6							
	600		MCR100-8							
	200				MCR08B			8.0	0.2	0.8
	600				MCR08M					
1.5	400		MCR22-6					15	0.2	0.8
	600		MCR22-8							
	50			NYC222ST						
	400			NCY226ST						
	600			NCY228ST						
4.0	200					C106B		20	0.2	0.8
	400					C106D				
						C106D1				
	600					C106M				
						C106M1				
	400					MCR106-6		25	0.2	1.0
	600					MCR106-8				
	100						MCR703A (Note 2)	25	0.1	0.8
	400						MCR706A (Note 2)			
	600						MCR708A (Note 2)			
							MCR708A1 (Note 2 & 4)			
	400						MCR716 (Note 3)			
	600						MCR718 (Note 3)			

- See TO-92 data sheets for complete device suffix packaging ordering options.
RLRA, RLRE, RL, & RL1 suffixes: Radial Tape and Reel
RLRM & ZL1 suffixes: Radial Tape and Ammo Pack
- Denotes pkg style 5
- Denotes pkg style 4
- Denotes straight lead package

Lead Identification
A = Anode
K = Cathode
G = Gate

Shaded devices denote sensitive gate SCR's

SILICON CONTROLLED RECTIFIERS (SCRs) (continued)

		 CASE 369C  CASE 369D					
On-State RMS Current $I_{T(RMS)}$ (A)	Blocking Voltage V_{DRM} , V_{RRM} (V)	DPAK Case 369C -001 = Case 369D Style 4	TO-220AB Case 221A-09 Style 3	TO-220AB Case 221A-07 Style 3	Surge Current I_{TSM} (A) 60 Hz	Max I_{GT} (mA)	Max V_{GT} (V)
8.0	600	MCR8DSMT4			80	0.2	1.0
	800	MCR8DSNT4					
	600	MCR8DCMT4			80	15	1.0
	800	MCR8DCNT4					
	400		MCR8SD		80	0.2	1.0
	600		MCR8SM				
	800		MCR8SN				
	800		MCR8N		80	15	1.0
	50			C122F1			
	100			MCR72-3	100	0.2	1.5
	400			MCR72-6			
	600			MCR72-8			
	50			MCR218-2	100	25	1.5
	200			MCR218-4			
	400			MCR218-6			
12	400		MCR12LD		100	8.0	0.8
	600		MCR12LM				
	800		MCR12LN				
	800			MCR310-10	100	0.2	1.5
	600	MCR12DSM			100	0.2	1.0
	800	MCR12DSN					
	800	MCR12DSN-001					
	600	MCR12DCM			100	20	1.0
	800	MCR12DCN					
	400		MCR12D				
	600		MCR12M				
	800		MCR12N				
	50			MCR68-2	100	30	1.5

Shaded devices denote sensitive gate SCR's

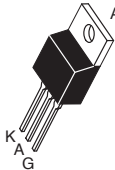
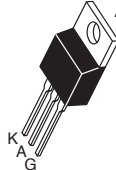
Lead Identification

A = Anode

K = Cathode

G = Gate

SILICON CONTROLLED RECTIFIERS (SCRs) (continued)

						
On-State RMS Current $I_{T(RMS)}$ (A)	Blocking Voltage V_{DRM} , V_{RRM} (V)	TO-220AB Case 221A-09 Style 3	TO-220AB Case 221A-07 Style 3	Surge Current I_{TSM} (A) 60 Hz	Max I_{GT} (mA)	Max V_{GT} (V)
12	50		2N6394	100	30	1.5
	100		2N6395			
	400		2N6397			
	800		2N6399			
16	800	MCR16N		160	20	1.0
	50		2N6400	160	30	1.5
	100		2N6401			
	200		2N6402			
	400		2N6403			
	600		2N6404			
	800		2N6405			
25	400	MCR25D		300	30	1.0
	600	MCR25M				
	800	MCR25N				
	50		2N6504	300	30	1.5
	100		2N6505			
	400		2N6507			
	600		2N6508			
	800		2N6509			
	50		MCR69-2			
	100		MCR69-3			

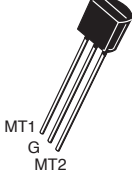
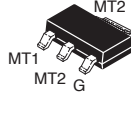
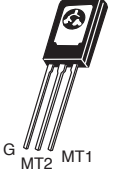
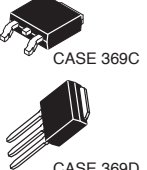
Lead Identification

A = Anode

K = Cathode

G = Gate

TRIACs (Bidirectional Devices)

										
		MT1 G MT2	MT1 MT2 G	G MT2 MT1	CASE 369C CASE 369D					
							Max IGT (mA)			
On-State RMS Current $I_{T(RMS)}$ (A)	Blocking Voltage V_{DRM} , V_{RRM} (V)	TO-92 (Note 5) (TO-226AA) Case 029 Style 12	SOT-223 Case 318E Style 11	TO-225AA (TO-126) Case 077 Style 5	D-PAK Case 369C -001 = Case 369D Style 6	Surge Current I_{TSM} (A) 60 Hz	Q1	Q2	Q3	Q4
0.6	200	MAC97A4				8.0	5.0	5.0	5.0	7.0
	400	MAC97A6								
	600	MAC97A8								
0.8	400	MAC997A6				8.0				
		MAC997B6					3.0	3.0	3.0	5.0
	600	MAC997A8					5.0	5.0	5.0	7.0
		MAC997B8					3.0	3.0	3.0	5.0
	200		MAC08B				10	10	10	10
	600		MAC08M							
1.0	600	Z0103MA				8.0	3.0	3.0	3.0	5.0
		Z0107MA					5.0	5.0	5.0	7.0
		Z0109MA					10	10	10	10
			Z0103MN			8.0	3.0	3.0	3.0	5.0
			Z0107MN				5.0	5.0	5.0	7.0
			Z0109MN				10	10	10	10
2.5	200			T2322B		25	10	10	10	10
4.0	200			2N6071A		30	5.0	5.0	5.0	10
				2N6071B			3.0	3.0	3.0	5.0
	400			2N6073A			5.0	5.0	5.0	10
				2N6073B			3.0	3.0	3.0	5.0
	600			2N6075A			5.0	5.0	5.0	10
				2N6075B			3.0	3.0	3.0	5.0
4.0	600				MAC4DLM (Note 6)	40	3.0	3.0	3.0	5.0
					MAC4DLM-1 (Note 7)					
4.0	600				MAC4DHM (Note 6)	40	5.0	5.0	5.0	10
					MAC4DHM-1 (Note 7)					
4.0	600				MAC4DSM (Note 6)	40	10	10	10	–
					MAC4DSMT-1 (Note 7)					
	800				MAC4DSN (Note 6)					
					MAC4DSN-1 (Note 7)					
4.0	600				MAC4DCM (Note 6)	40	35	35	35	–
					MAC4DCM-1 (Note 7)					
	800				MAC4DCN (Note 6)					
					MAC4DCN-1 (Note 7)					

5. See TO-92 data sheets for complete device suffix packaging ordering options.

RLRA, RLRE, RL, & RL1 suffixes: Radial Tape and Reel

RLRM & ZL1 suffixes: Radial Tape and Ammo Pack

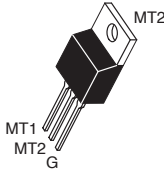
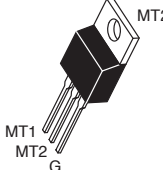
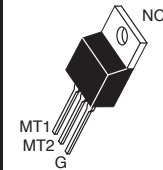
6. Denotes SMT package

7. Denotes straight lead package

Shaded devices denote sensitive gate Triacs

Lead Identification
MT1 = Main Terminal 1
MT2 = Main Terminal 2
G = Gate

TRIACs (Bidirectional Devices) (continued)

									
						Max I_{GT} (mA)			
On-State RMS Current $I_{T(RMS)}$ (A)	Blocking Voltage V_{DRM} , V_{RRM} (V)	TO-220AB Case 221A-09 Style 4	TO-220AB Case 221A-07 Style 4	ISOLATED TO-220 Case 221A-07 Style 12	Surge Current I_{TSM} (A) 60 Hz	Q1	Q2	Q3	Q4
6.0	400		T2500D		60	25	60	25	60
8.0	400	MAC8SD			70	5.0	5.0	5.0	–
	600	MAC8SM							
	800	MAC8SN							
8.0	400	MAC8D			80	35	35	35	–
	600	MAC8M							
	800	MAC8N							
8.0	400	MAC9D			80	50	50	50	–
	600	MAC9M							
	800	MAC9N							
8.0	200		MAC228A4		80	5	5	5	10
	400		MAC228A6						
	600		MAC228A8						
	800		MAC228A10						
8.0	600			BTA08-600CW3G	90	50	50	50	–
	800			BTA08-800CW3G					
	600		BTB08-600CW3G						
	800		BTB08-800CW3G						
8.0	600			BTA08-600BW3G	90	90	50	50	–
	800			BTA08-800BW3G					
	600		BTB08-600BW3G						
	800		BTB08-800BW3G						
8.0	600		2N6344		100	50	75	50	75
8.0	400		T2800D		100	25	60	25	60

8. Denotes SMT package

9. Denotes straight lead package

Shaded devices denote sensitive gate Triacs

Lead Identification

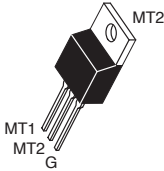
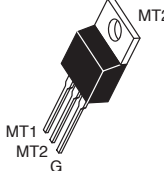
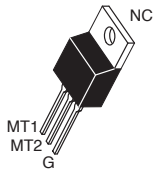
MT1 = Main Terminal 1

MT2 = Main Terminal 2

G = Gate

NC = Not Connected

TRIACs (Bidirectional Devices) (continued)

									
						Max I _{GT} (mA)			
On-State RMS Current I _{T(RMS)} (A)	Blocking Voltage V _{DRM} , V _{RPM} (V)	TO-220AB Case 221A-09 Style 4	TO-220AB Case 221A-07 Style 4	ISOLATED TO-220 Case 221A-07 Style 12	Surge Current I _{TSM} (A) 60 Hz	Q1	Q2	Q3	Q4
10	600		MAC210A8		100	50	50	50	75
	800		MAC210A10						
12	600	MAC12SM			90	5.0	5.0	5.0	–
	800	MAC12SN							
12	400	MAC12HCD			100	50	50	50	–
	600	MAC12HCM							
	800	MAC12HCN							
12	400	MAC12D			100	35	35	35	–
	600	MAC12M							
	800	MAC12N							
12	600		MAC212A8		100	50	50	50	75
	800		MAC212A10						
12	600			BTA12-600CW3G	105	35	35	35	–
	800			BTA12-800CW3G					
	600		BTB12-600CW3G						
	800		BTB12-800CW3G						
	600			BTA12-600BW3G	120	50	50	50	–
	800			BTA12-800BW3G					
	600		BTB12-600BW3G						
	800		BTB12-800BW3G						
12	600		2N6344A		120	50	75	50	75
	600		2N6348A						
	800		2N6349A						
15	400	MAC15SD			120	5.0	5.0	5.0	–
	600	MAC15SM							
	800	MAC15SN							
15	600	MAC15M			150	35	35	35	–
	800	MAC15N							
15	400		MAC15A6		150	50	50	50	75
	600		MAC15A8						
	800		MAC15A10						

Shaded devices denote sensitive gate Triacs

Lead Identification

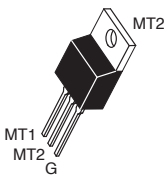
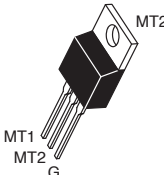
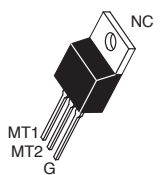
MT1 = Main Terminal 1

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G = Gate

NC = Not Connected

TRIACs (Bidirectional Devices) (continued)

									
						Max I _{GT} (mA)			
On-State RMS Current I _{T(RMS)} (A)	Blocking Voltage V _{DRM} , V _{RRM} (V)	TO-220AB Case 221A-09 Style 4	TO-220AB Case 221A-07 Style 4	ISOLATED TO-220 Case 221A-07 Style 12	Surge Current I _{TSM} (A) 60 Hz	Q1	Q2	Q3	Q4
15	400	MAC16D			150	50	50	50	–
	600	MAC16M							
	800	MAC16N							
16	600	MAC16CM			150	35	35	35	–
	800	MAC16CN							
16	400	MAC16HCD			150	50	50	50	–
	600	MAC16HCM							
	800	MAC16HCN							
16	800			BTA16-600CW3G	170	35	35	35	–
	600			BTA16-800CW3G					
	600		BTB16-600CW3G						
	800		BTB16-800CW3G						
	600			BTA16-600BW3G		50	50	50	–
	800			BTA16-800BW3G					
	600		BTB16-600BW3G						
	800		BTB16-800BW3G						

Shaded devices denote sensitive gate Triacs

Lead Identification

MT1 = Main Terminal 1

MT2 = Main Terminal 2

G = Gate

NC = Not Connected

ULTRA LOW CAPACITANCE (TSPD)

					
SMB CASE 403C					
Device	V_{DRM}	V_{BO}	I_{PPS} = 10x100 μs	C_O, 2 V, 1 MHz	General Description
	Offstate Voltage (V)	Breakover Voltage (V)	Surge Current Rating (A)	Capacitance Maximum (pF)	
NP0640SCMCT3G	58	77	100	29	Due to their ultra low off-state capacitance (C _O), these devices offer minimal signal distortion for high speed equipment such as DSL and T1/E1 circuits. The low capacitance translates into extremely low differential capacitance offering superb linearity with applied voltage or frequency, and assists designers in protecting equipment from surge events while maximizing circuit performance.
NP0720SCMCT3G	65	88		29	
NP0900SCMCT3G	75	98		29	
NP1100SCMCT3G	90	130		29	
NP1300SCMCT3G	120	160		29	
NP1500SCMCT3G	140	180		29	

LOW VOLTAGE PROTECTOR

					
TSOP-5 CASE 483 SN SUFFIX					
Device	V_{RWM}	V_{BR}	I_{PPS} = 8x20uS	Co, 2 V, 1 Mhz	General Description
	Offstate Voltage (V)	Breakover Voltage (V)	Surge Current Rating (A)	Capacitance Maximum (pF)	
NP0080TAT1G	8	9.5	50	13	These low capacitance, low leakage current devices provide superior performance in low voltage high speed applications and assist designers in protecting equipment from surge events while maximizing circuit performance.
NP0120TAT1G	12	13		11	
NP0160TAT1G	16	18		11	

SURGE SUPPRESSORS AND TRIGGERS

THYRISTOR SURGE PROTECTION DEVICE (TSPD)

					
SMB CASE 403C					
Device	V _{DRM}	V _{BR}	I _{PPS} = 8x20μS	Co, 2 V, 1 Mhz	General Description
	Offstate Voltage (V)	Breakover Voltage (V)	Surge Current Rating (A)	Capacitance Maximum (pF)	
NP0640SAT3G	58	77	50	84	These Thyristor Surge Protector Devices (TSPD) protect telecommunication circuits such as central office, access, and customer premises equipment from over-voltage conditions. These are bidirectional devices so they are able to have functionality of 2 devices in one package, saving valuable space on board layout. These devices will act as a crowbar when over-voltage occurs and will divert the energy away from circuit or device that is being protected. Use of the NP Series in equipment will help meet various regulatory requirements including: GR-1089-CORE, EC 61000-4-5, ITU K.20/21/45, IEC 60950, TIA-968-A, FCC Part 68, EN 60950, UL 1950.
NP0720SAT3G	65	88		79	
NP0900SAT3G	75	98		65	
NP1100SAT3G	90	130		58	
NP1300SAT3G	120	160		46	
NP1500SAT3G	140	180		44	
NP1800SAT3G	170	220		39	
NP2100SAT3G	180	240		37	
NP2300SAT3G	190	260		36	
NP2600SAT3G	220	300		33	
NP3100SAT3G	275	350		31	
NP3500SAT3G	320	400		28	
NP0640SBT3G	58	77	80	129	
NP0720SBT3G	65	88		123	
NP0900SBT3G	75	98		122	
NP1100SBT3G	90	130		95	
NP1300SBT3G	120	160		75	
NP1500SBT3G	140	180		70	
NP1800SBT3G	170	220		59	
NP2100SBT3G	180	240		59	
NP2300SBT3G	190	260		56	
NP2600SBT3G	220	300		52	
NP3100SBT3G	275	350		47	
NP3500SBT3G	320	400		44	
NP0640SCT3G	58	77	100	222	
NP0720SCT3G	65	88		198	
NP0900SCT3G	75	98		122	
NP1100SCT3G	90	130		154	
NP1300SCT3G	120	160		120	
NP1500SCT3G	140	180		113	
NP1800SCT3G	170	220		99	
NP2100SCT3G	180	240		97	
NP2300SCT3G	190	260		56	
NP2600SCT3G	220	300		81	
NP3100SCT3G	275	350		76	
NP3500SCT3G	320	400		71	

SURGE SUPPRESSORS AND TRIGGERS (continued)

THYRISTOR TRIGGERS

					
On-State RMS Current $I_{T(RMS)}$ (A).	DO-41 Case 059A	Surmetic 50 Case 267 Style 2	Range Breakover Voltage V_{BO} (V)	I_{TSM} Surge Current 60 Hz (A)	General Description
0.9	MKP1V120		110–130	4	High voltage trigger devices (used primarily to trigger SCRs and Triacs gates) similar in operation to triacs. Upon reaching the breakover voltage in either direction, the devices switch to a low voltage on state.
	MKP1V130		120–140		
	MKP1V160		150–170		
	MKP1V240		220–250		
1.0		MKP3V120	110–130	20	
		MKP3V240	220–250		

TRANSISTOR TRIGGERS

					
I_P $R_G = 10\text{ k}\Omega$ ($\mu\text{A Max}$)	$R_G = 1\text{ M}\Omega$ ($\mu\text{A Max}$)	TO-92 ⁽¹⁰⁾ (TO226AA) Case 029 Style 2	IV $R_G = 10\text{ k}\Omega$ ($\mu\text{A Max}$)	$R_G = 1\text{ M}\Omega$ ($\mu\text{A Max}$)	General Description
5.0	2.0	2N6027	70	50	The only transistors in the Thyristor portfolio. Similar to unijunction transistors, except that I_P , IV, and intrinsic voltage are programmable (adjustable) by means of external voltage divider. Used primarily to trigger SCR and Triac gates,
1.0	0.15	2N6028	25	25	

10. (See TO-92 data sheets for device suffix packaging ordering options.)

Clock Managers

Clock Managers

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CLOCK DISTRIBUTORS

Product	Outputs Per	Channels	Input Level	Output Level	V _{CC} Typ (V)	f _{Max} Typ (MHz)	t _{skew(OO)} Max (ps)	t _{jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100E210	4+5	2	ECL	ECL	5	700	75	0.2	600	PLCC-28
MC100LVE210	4+5	2	ECL	ECL	3.3	700	75	0.2	600	PLCC-28
NB100LVEP224	24	1	ECL	ECL	2.5	1000	40	5	300	LQFP-64
NB100EP223	22	1	ECL, HSTL	HSTL	3.3	500	25	0.2	700	LQFP-64
NB4N121K	21	1	ECL, CML, CMOS, LVDS	HCSL	3.3	200	50	1	340	QFN-52
NB100LVEP221	20	1	ECL/PECL/HSTL	ECL	2.5	1000	20	1	300	QFN-52, LQFP-52
MC100LVE222	15	1	ECL	ECL	3.3	1500	50	0.2	600	LQFP-52
NB100LVEP222	15	1	CML, LVPECL, LVDS	ECL	2.5	1000	20	0.2	160	QFN-52, LQFP-52
MC100LVEP111	10	1	ECL, HSTL	ECL	2.5	3000	25	0.2	200	QFN-32, LQFP-32
NB4N111K	10	1	ECL, CML, LVDS	HCSL	3.3	400	100	1	700	QFN-32
NB7L111M	10	1	ECL, CML, CMOS, LVDS	CML	2.5	5500	20	0.2	75	QFN-52
MC100E111	9	1	ECL	ECL	5	800	50	0.2	600	PLCC-28
MC100EP809	9	1	ECL, CML, LVDS, HSTL	HSTL	3.3	750	15	1.4	600	LQFP-32
MC100H641	9	1	ECL	TTL	5	65	350		1700	PLCC-28
MC100LVE111	9	1	ECL	ECL	3.3	1500	20	0.2	600	PLCC-28
MC10E111	9	1	ECL	ECL	5	800	50	0.2	600	PLCC-28
MC10E411	9	1	ECL	ECL	5	1000	50	0.2	600	PLCC-28
MC10H641	9	1	ECL	ECL	5	65	350		1700	PLCC-28
MC10H645	9	1	TTL	TTL	5		650		2500	PLCC-28
MC100E310	8	1	ECL	ECL	5	900	50	0.2	600	PLCC-28
MC100H640	8	1	ECL	TTL	5	135	500		2500	PLCC-28
MC100H641	8	1	ECL	TTL	5	80	350		1700	PLCC-28
MC100H642	8	1	ECL	TTL	5	100	500		2500	PLCC-28
MC100H643	8	1	ECL	TTL	5	80	500		1200	PLCC-28
MC100H646	8	1	ECL	TTL	5	80	350		1500	PLCC-28
MC100LVE310	8	1	ECL	ECL	3.3	1000	50	1.5	600	PLCC-28
MC10H640	8	1	ECL	TTL	5		500		2500	PLCC-28
MC10H642	8	1	ECL	TTL	5	100	500		2500	PLCC-28
MC10H643	8	1	ECL	TTL	5	80	500		1200	PLCC-28
MC10H646	8	1	ECL	TTL	5	80	350		1500	PLCC-28
MC100E211	6	1	ECL	ECL	5	700	75	0.2	400	PLCC-28
MC10E211	6	1	ECL	ECL	5	700	75	0.2	400	PLCC-28

CLOCK DISTRIBUTORS

Product	Outputs Per	Channels	Input Level	Output Level	V _{CC} Typ (V)	f _{Max} Typ (MHz)	t _{skew(OO)} Max (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
NB7VQ1006M	6	1	ECL, CML, LVDS	CML	1.8	7500	1	0.2	65	QFN-24
MC100EL14	5	1	ECL	ECL	5	1000	50	0.2	500	SOIC-20
MC100EP14	5	1	ECL, HSTL	ECL	3.3	2000	45	0.2	270	TSSOP-20
MC100EP210S	5	2	ECL, LVDS	LVDS	3.3	1000	20	0.2	225	QFN-32, LQFP-32
MC100LVEL14	5	1	ECL	ECL	3.3	1000	50	0.2	500	SOIC-20
MC100LVEP14	5	1	ECL, HSTL	ECL	2.5	2000	25	0.2	250	TSSOP-20
MC100LVEP210	5	2	ECL, HSTL	ECL	2.5	3000	20	0.2	270	QFN-32, LQFP-32
NBSG14	5	1	ECL, CML, CMOS, LVDS	RSECL	2.5	12000	15	0.5	55	QFN-16, BGA-16
MC100EL15	4	1	ECL	ECL	5	1000	50	0.2	575	SOIC-16
MC10EL15	4	1	ECL	ECL	5	1000	50	0.2	575	SOIC-16
NB3L553	4	1	CMOS	CMOS	2.5	200	50		1000	SOIC-8, DFN-8
NB3N2304NZ	4	1	CMOS	CMOS	3.3	140	100		1500	TSSOP-8, DFN-8
NB3N551	4	1	CMOS	CMOS	3.3	180	160	2	1	SOIC-8, DFN-8
NB6L14M	4	1	ECL, CML, CMOS, LVDS	CML	2.5	3000	20	0.2	150	QFN-16
NB6L14	4	1	ECL, CML, CMOS, LVDS	ECL	2.5	3000	20	0.2	225	QFN-16
NB6N14S	4	1	ECL, CML, CMOS, LVDS	LVDS	3.3	2000	20	0.5	190	QFN-16
NB7L14M	4	1	ECL, CML, CMOS, LVDS	CML	2.5	8000	15	0.5	60	QFN-16
MC100EL13	3	2	ECL	ECL	5	1000	50	0.2	500	SOIC-20
MC100LVEL13	3	2	ECL	ECL	3.3	1000	50	0.2	500	SOIC-20
NB4L6254	3	2	ECL, CML, CMOS, LVDS	ECL	2.5	3000	50	0.3	300	LQFP-32
MC100EL11	2	1	ECL	ECL	5	2000	5	0.2	350	SOIC-8, TSSOP-8
MC100EP11	2	1	ECL	ECL	3.3	3000	20	0.2	180	SOIC-8, TSSOP-8, DFN-8
MC100LVEL11	2	1	ECL	ECL	3.3	1000	20	0.2	180	SOIC-8, TSSOP-8, DFN-8
MC100LVEP11	2	1	ECL, CML, LVDS	ECL	2.5	3000	20	0.2	180	SOIC-8, TSSOP-8, DFN-8
MC10EL11	2	1	ECL	ECL	5	2000	5	0.2	350	SOIC-8, TSSOP-8
MC10EP11	2	1	ECL	ECL	3.3	3000	20	0.2	180	SOIC-8, TSSOP-8
MC10LVEP11	2	1	ECL	ECL	2.5	3000	20	0.2	180	SOIC-8, TSSOP-8
NB4L339	2	1	ECL, CML, LVDS	ECL	2.5	700	60	0.5	250	QFN-32
NB4N11M	2	1	ECL, CML, CMOS, LVDS	CML	3.3	2500	25	1	300	TSSOP-8
NB6L11	2	1	ECL, CML, CMOS, LVDS	ECL	2.5	6000	15	0.2	120	SOIC-8, TSSOP-8

CLOCK DISTRIBUTORS

Product	Outputs Per	Channels	Input Level	Output Level	V _{CC} Typ (V)	f _{Max} Typ (MHz)	t _{skew(OO)} Max (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
NB6L11M	2	1	ECL, CML, CMOS, LVDS	CML	2.5	4000	15	0.15	120	QFN–16
NB6L11S	2	1	ECL, CML, CMOS, LVDS	LVDS	2.5	2000	25	0.5	170	QFN–16
NB6L611	2	1	ECL, CML, CMOS, LVDS	ECL	2.5	3000	15	0.2	200	QFN–16
NB6N11S	2	1	ECL, CML, CMOS, LVDS	LVDS	3.3	2000	30	0.5	120	QFN–16
NB7L11M	2	1	ECL, CML, CMOS, LVDS	CML	2.5	8000	15	0.2	60	QFN–16
NBSG11	2	1	ECL, CML, CMOS, LVDS	RSECL	2.5	12000	15	0.5	30	QFN–16, BGA–16
NB4N855S	1	1	ECL, CML, CMOS, LVDS, HSTL, SSTL	LVDS	3.3	1500	25	0.5	140	Micro–10

CLOCK MODULES

Device	V _{DD} Typ (V)	Input	Output Level	f _{CLKOUT1} Typ (MHz)	f _{CLKOUT2} Typ (MHz)	Δ _f (± PPM)	t _{Jitter(Φ)} Typ (ps)	t _R & t _F Typ (ps)	t _R & t _F Max (ps)	Duty Cycle Min (%)	Duty Cycle Typ (%)	Duty Cycle Max (%)	Package
NBXDBA009	3.3	Crystal, CMOS	ECL	75	150	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA012	3.3	Crystal, CMOS	ECL	106.25	212.5	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA014	3.3	Crystal, CMOS	ECL	62.5	125	50	0.4	380	620	48	50	52	CLCC–6
NBXDBA015	3.3	Crystal, CMOS	ECL	200	206.9	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA017	3.3	Crystal, CMOS	ECL	156.25	312.5	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA018	3.3	Crystal, CMOS	ECL	155.52	311.04	50	0.4	250	400	48	50	52	CLCC–6
NBXDBA019	3.3	Crystal, CMOS	ECL	125	250	50	0.4	250	400	48	50	52	CLCC–6
NBXDBB017	3.3	Crystal, CMOS	ECL	156.25	312.5	20	0.4	250	400	48	50	52	CLCC–6
NBXDBB018	3.3	Crystal, CMOS	ECL	155.52	311.04	20	0.4	250	400	48	50	52	CLCC–6
NBXDDA016	3.3	Crystal, CMOS	ECL	133.33	137.93	50	0.4	160	300	48	50	52	CLCC–6
NBXHBA017	3.3	Crystal, CMOS	ECL	156.25	–	50	0.4	250	400	48	50	52	CLCC–6
NBXHBA019	3.3	Crystal, CMOS	ECL	125	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA007	3.3	Crystal, CMOS	ECL	240	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA008	3.3	Crystal, CMOS	ECL	161.1328	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA010	3.3	Crystal, CMOS	ECL	100	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA017	3.3	Crystal, CMOS	ECL	312.5	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA019	3.3	Crystal, CMOS	ECL	250	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA020	3.3	Crystal, CMOS	ECL	280	–	50	0.4	250	400	48	50	52	CLCC–6

CLOCK MODULES

Device	V _{DD} Typ (V)	Input	Output Level	f _{CLKOUT1} Typ (MHz)	f _{CLKOUT2} Typ (MHz)	Δ _f (± PPM)	t _{Jitter(Φ)} Typ (ps)	t _R & t _F Typ (ps)	t _R & t _F Max (ps)	Duty Cycle Min (%)	Duty Cycle Typ (%)	Duty Cycle Max (%)	Package
NBXSBA021	3.3	Crystal, CMOS	ECL	266.667	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA022	3.3	Crystal, CMOS	ECL	187.5	–	50	0.4	250	400	48	50	52	CLCC–6
NBXSBA023	3.3	Crystal, CMOS	ECL	400	–	50	0.4	250	400	48	50	52	CLCC–6

CLOCK SYNTHESIZERS

Device	V _{CC} Typ (V)	Input	Output Level	f _{Max} Min (MHz)	f _{Max} Max (MHz)	t _{LOCK} Max (ms)	t _{Jitter} Typ (ps)	t _{su} Min (ns)	t _h Min (ns)	t _R & t _F Min (ps)	t _R & t _F Max (ps)	Package
NB3N3001	3.3	Crystal	ECL	Not Used	106.25 or 212.5 Typ	1	0.3	–	–	275	600	TSSOP–8
NB3N3002	3.3	Crystal, CMOS	HCSL	25	200	1	2	–	–	175	700	TSSOP–16
NB3N3011	3.3	Crystal	ECL	96	120	1	0.29	–	–	275	600	TSSOP–8
NB3N502	3	Crystal, CMOS	CMOS	10	190	1	15	–	–	1000	1000	SOIC–8
NB3N508S	3.3	Crystal, CMOS	LVDS	Not Used	216	2	88 dBc/Hz @1 kHz	–	–	380	500	TSSOP–16
NB4N441	3.3	Crystal, CMOS	CMOS	12.5	425	5	3.5	20	–	175	425	QFN–24
NB4N507A	3.3	Crystal, CMOS	ECL	50	200	1	10	–	–	50	70	SOIC–16
NBC12429A	3.3	Crystal, CMOS	ECL, CMOS	25	400	10	20	20	20	175	425	QFN–32, LQFP–32, PLCC–28
NBC12429	3.3	Crystal, CMOS	ECL, CMOS	25	400	10	20	20	20	175	425	LQFP–32, PLCC–28
NBC12430A	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	QFN–32, LQFP–32, PLCC–28
NBC12430	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	LQFP–32, PLCC–28
NBC12439A	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	QFN–32, LQFP–32, PLCC–28
NBC12439	3.3	Crystal, CMOS	ECL, CMOS	50	800	10	20	20	20	175	425	LQFP–32, PLCC–28

EMI SUPPRESSION CLOCKS

Device	Input	Output Level	I _{CC} Typ (mA)	f _d Max (%)	f _{Clock} Min (MHz)	f _{Clock} Max (MHz)	Duty Cycle (%)	t _{Jitter} Max (ps)	t _r Max (ns)	t _f Max (ns)	V _{DD} Typ (V)	Package
NB2579A	CRYSTAL	CMOS	4	±1	13	30	50	200	1.7	1.2	2.5	TSOP-6
NB2669A	CRYSTAL	CMOS	2	±1	6	13	50	200	1.5	1.1	2.5	TSOP-6
NB2760A	CRYSTAL	CMOS	3	±0.65	6	13	50	200	1.5	1.2	2.5	TSOP-6
NB2762A	CRYSTAL	CMOS	3	-1.25	6	13	50	200	1.4	1.2	3.3	TSOP-6
NB2769A	CRYSTAL	CMOS	3.5	±1	6	13	50	200	1.4	1.1	2.5	TSOP-6
NB2779A	CRYSTAL	CMOS	3.5	±1	13	30	50	200	1.3	0.9	2.5	TSOP-6
NB2780A	CRYSTAL	CMOS	5	±0.75	30	50	50	200	1.4	1.1	2.5	TSOP-6
NB2869A	CRYSTAL	CMOS	4	±1	6	13	50	200	1.6	1.2	2.5	TSOP-6
NB2870A	CRYSTAL	CMOS	4	±0.75	13	30	50	200	1.5	1.1	2.5	TSOP-6
NB2872A	CRYSTAL	CMOS	6	-1.25	15	30	50	360	0.7	0.7	3.3	TSOP-6
NB2879A	CRYSTAL	CMOS	-	-	-	-	50	360	-	-	3.3	TSOP-6
NB2969A	CRYSTAL	CMOS	3.5	±1	6	13	50	200	1.5	1.2	2.5	TSOP-6

PHASE/FREQUENCY DETECTORS

Device	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EP140	3.3	ECL, CML	ECL	2000	0.475	0.2	200	SOIC-8
MC100EP40	3.3	ECL, CML	ECL	2000	0.55	0.2	150	TSSOP-20
MC100LVEL40	3.3	ECL, CML	ECL	250	1.35	0.2	475	SOIC-20
MCH12140	5	ECL, CML	ECL	800	0.44	0.2	350	SOIC-8
MCK12140	5	ECL, CML	ECL	800	0.44	0.2	350	SOIC-8
NB3N5573	3.3	ECL, CML	ECL	200	-	1.5	700	TSSOP-16

SKEW MANAGERS

Device	V _{CC} Typ (V)	Input Level	Output Level	f _{Max} Typ (MHz)	t _{d(prog)} Min (ns)	t _{d(prog)} Max (ns)	t _{d(step)} Typ (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100E195	5	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC-28
MC100E196	5	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC-28
MC100EP195B	3.3	ECL, CML, LVDS	ECL	1200	2.2	12	10	3	300	QFN-32, LQFP-32
MC100EP195	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	300	QFN-32, LQFP-32
MC100EP196B	3.3	ECL, CML, LVDS	ECL	1200	8.95	12.11	11	1.2	165	QFN-32, LQFP-32
MC100EP196	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	210	LQFP-32
MC10E195	3.3	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC-28
MC10E196	3.3	ECL, CML	ECL	1000	2.05	2.6	20	5	325	PLCC-28
MC10EP195	3.3	ECL, CML	ECL	1200	2.2	12.2	10	3	300	QFN-32, LQFP-32
NB6L295M	2.5	ECL, CML	CML	1500	6.2	6.2	11	2.4	150	QFN-24
NB6L295M	2.5	ECL, CML	CML	1500	6.2	6.2	11	3	150	QFN-24

VCOs (PLLs)

Device	Input Level	Output Level	Description	f _{Max} Typ (MHz)	V _{CC} Max (V)	Duty Cycle (%)	Package
FS6128-04	CMOS	CMOS	VCXO Clock Generator, 27 MHz Output	27	3.6	50	SOIC-14
FS6128-07	CMOS	CMOS	VCXO Clock Generator, 27 MHz Output	27	3.6	50	SOIC-14
FS6131	CMOS	CMOS	I2C Programmable 1-PLL Clock	230	5.5	50	SOIC-14
FS6370	CMOS	CMOS	EE Programmable 3-PLL Clock	150	5.5	50	SOIC-14
FS6377	CMOS	CMOS	I2C Programmable 3-PLL Clock	150	5.5	50	SOIC-14
FS7140	CMOS	CMOS	I2C Programmable 1-PLL Clock	300	3.6	50	SOIC-14, SSOP-16
FS7145	CMOS	CMOS	I2C Programmable 1-PLL Clock	300	3.6	50	SOIC-14
MC100EL1648	LRC tank	ECL	5 V ECL Voltage Controlled Oscillator	1100	5.5	50	SOIC-8, TSSOP-8, SOEIAJ-14, DFN-8
MC14046B	CMOS	CMOS	Phase Locked Loop	–	18	–	SOIC-16, SOEIAJ-16, PDIP-16
MC74HC4046A	CMOS	CMOS	Phase Locked Loop	–	6	–	SOIC-16, TSSOP-16, SOEIAJ-16, PDIP-16

ZERO DELAY BUFFERS

Device	Input Level	Output Level	Outputs Per	V _{DD} Typ (V)	t _{skew} Max (ps)	F Max (MHz)	t _{jitter} Max (ps)	Package
NB2304A	CMOS	CMOS	4	3.3	200	133.3	100	SOIC-8
NB2305A	CMOS	CMOS	5	3.3	250	133.3	200	SOIC-8, TSSOP-8
NB2308A	CMOS	CMOS	8	3.3	200	133.3	100	SOIC-16, TSSOP-16
NB2309A	CMOS	CMOS	9	3.3	250	133.3	200	SOIC-16, TSSOP-16

Differential Logic (ECL)

Differential Logic (ECL)

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ARITHMETIC FUNCTIONS

ADDERS/SUBTRACTORS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC10H180	Dual 2-Bit Adder/Subtractor	–5.2	ECL	ECL	1.8	2100	PDIP-16, PLCC-20

COUNTERS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC100EP016A	8-Bit Synchronous Binary Up Counter	3.3	ECL, CML	ECL	1400	0.55	320	QFN-32, LQFP-32
MC10EP016	8-Bit Synchronous Binary Up Counter	3.3	ECL, CML	ECL	900	0.5	220	LQFP-32
MC100E016	8-Bit Synchronous Binary Up Counter	5	ECL	ECL	900	0.775	700	PLCC-28
MC10E016	8-Bit Synchronous Binary Up Counter	5	ECL	ECL	900	0.775	800	PLCC-28
MC10H016	4-Bit Binary Counter	5	ECL	ECL	200	1.8	21	PDIP-16, PLCC-20
MC100E136	6-Bit Universal Up/Down Counter	5	ECL	ECL	650	1.15	600	PLCC-28
MC10E136	6-Bit Universal Up/Down Counter	5	ECL	ECL	650	1.15	600	PLCC-28
MC10H136	Universal Hexadecimal Counter	5	ECL	ECL	250	1.5	2400	PDIP-16, PLCC-20
MC100E137	8-Bit Ripple Counter	5	ECL	ECL	2200	2.9	600	PLCC-28
MC10E137	8-Bit Ripple Counter	5	ECL	ECL	2200	2.9	600	PLCC-28

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DIVIDERS

Device	Input Level	Output Level	Type	V _{CC} Typ (V)	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
NB6L239	ECL, CML, LVDS, CMOS	ECL	Dual Bank ÷ 1/2/4/8, ÷ 2/4/8/16	2.5	3000	0.47	120	QFN-16
NB6N239S	ECL, CML, LVDS, CMOS	LVDS	Dual Bank ÷ 1/2/4/8, ÷ 2/4/8/16	3.3	3000	0.665	190	QFN-16
NB7N017M	ECL, CML, LVDS, CMOS	CML	8 Bit Dual Modulus Divider	3.3	3500	0.5	65	QFN-52
MC100LVEP34	ECL, CML, LVDS	ECL	÷ 2, ÷ 4, ÷ 8	3.3	2800	0.7	250	TSSOP-16, SOIC-16
MC100LVEL34	ECL, CML, LVDS	ECL	÷ 2, ÷ 4, ÷ 8	3.3	1500	0.7	400	TSSOP-16, SOIC-16
MC100EL34	ECL	ECL	÷ 2, ÷ 4, ÷ 8	5	1100	1	52.5	SOIC-16
MC10EL34	ECL	ECL	÷ 2, ÷ 4, ÷ 8	5	1100	1	52.5	SOIC-16
MC100LVEL37	ECL, LVDS	ECL	1:4 ÷ 1/÷ 2	3.3	1000	0.7	550	SOIC-20
MC100LVEL38	ECL	ECL	÷ 2, ÷ 4/6	3.3	1000	0.9	550	SOIC-20
MC100EL38	ECL	ECL	÷ 2, ÷ 4/6	5	1200	0.9	550	SOIC-20
MC100EP139	ECL, CML	ECL	÷ 2/4, ÷ 4/5/6	3.3	1000	0.75	275	TSSOP-20, SOIC-20, QFN-20
MC10EP139	ECL, CML	ECL	÷ 2/4, ÷ 4/5/6	3.3	1000	0.75	275	TSSOP-20, SOIC-20
MC100LVEL39	ECL, LVDS	ECL	÷ 2/4, ÷ 4/6	3.3	1000	0.9	550	SOIC-20
MC100EL39	ECL	ECL	÷ 2/4, ÷ 4/6	5	1200	0.9	550	SOIC-20
NB7L32M	ECL, CML, LVDS	CML	÷ 2	2.5	14000	0.155	45	QFN-16
MC100EP32	ECL, CML	ECL	÷ 2	3.3	4000	0.35	170	TSSOP-8, SOIC-8, DFN-8
MC10EP32	ECL, CML	ECL	÷ 2	3.3	4000	0.35	170	TSSOP-8, SOIC-8, DFN-8
MC100LVEL32	ECL, LVDS	ECL	÷ 2	3.3	2600	0.51	320	TSSOP-8, SOIC-8, DFN-8
MC100EL32	ECL	ECL	÷ 2	5	3000	0.51	350	TSSOP-8, SOIC-8
MC10EL32	ECL	ECL	÷ 2	5	3000	0.51	350	TSSOP-8, SOIC-8
MC100EP33	ECL, CML	ECL	÷ 4	3.3	4000	0.32	180	TSSOP-8, SOIC-8, DFN-8
MC10EP33	ECL, CML	ECL	÷ 4	3.3	4000	0.32	180	TSSOP-8, SOIC-8, DFN-8
MC100LVEL33	ECL, LVDS	ECL	÷ 4	3.3	4000	0.63	320	TSSOP-8, SOIC-8, DFN-8
MC100EL33	ECL	ECL	÷ 4	5	4200	0.65	350	TSSOP-8, SOIC-8
MC10EL33	ECL	ECL	÷ 4	5	4000	0.65	350	TSSOP-8, SOIC-8

MAGNITUDE COMPARATORS

Device	Input Level	Output Level	Type	V _{CC} Typ (V)	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC10E166	ECL	ECL	9-Bit	5	1100	0.85	800	PLCC-20
MC10H166	ECL	ECL	5-Bit	5		2	1600	PDIP-16, PLCC-20

PARITY GENERATOR CHECKERS

Device	Input Level	Output Level	Type	V _{CC} Typ (V)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC10H160	ECL	ECL	12-Bit	5	1	1800	PDIP-16, PLCC-20, SOEIAJ-16

PRESCALERS

Device	Input Level	Output Level	Type	V _{CC} Typ (V)	f _{Max} Typ (MHz)	Package
MC12026A	ECL	ECL	1.1 GHz Dual Modulus Prescaler	5	1100	SOIC-8
MC12080	ECL	ECL	1.1 GHz Prescaler	5	1100	SOIC-8
MC12093	ECL	ECL	1.1 GHz Prescaler, ÷ 2, ÷ 4, ÷ 8	3.3	1100	SOIC-8, DFN-8
MC12095	ECL	ECL	2.5 GHz Prescaler	3.3	3000	SOIC-8

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BUFFERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Output Level	t _{pd} Typ (ns)	t _{skew(OO)} Max (ps)	t _R & t _F Max (ps)	Package
MC100LVEL12	3.3	ECL, CML	ECL	LVECL/LVPECL	0.445		550	TSSOP-8, SOIC-8, DFN-8
MC100EL12	5	ECL	ECL	ECL/PECL	0.29		550	TSSOP-8, SOIC-8
MC10EL12	5	ECL	ECL	ECL/PECL	0.29		550	TSSOP-8, SOIC-8
MC100E112	5	ECL	ECL	ECL/PECL	0.4	40	700	PLCC-28
MC10E112	5	ECL	ECL	ECL/PECL	0.4	40	700	PLCC-28
MC10E122	5	ECL	ECL	S.E.	0.35	75	800	PLCC-28
MC10H123	5	ECL	ECL	ECL/PECL	1.5		1700	PDIP-16, PLCC-20
MC10H188	5	ECL	ECL	ECL/PECL	1.3		2400	PDIP-16, PLCC-20, SOEIAJ-16
MC10H189	5	ECL	ECL	MECL	1.3		2400	PDIP-16, PLCC-20, SOEIAJ-16
NB4N316M	3.3	ECL, CML, CMOS, LVDS	CML	CML	0.55	20	300	TSSOP-8
NB4N527S	3.3	ECL, CML, CMOS, LVDS, HSTL	LVDS	LVDS	0.275	50	300	QFN-16
NB4N855S	3.3	ECL, CML, CMOS, LVDS, HSTL	LVDS	LVDS	0.47	25	140	Micro-10

CROSSPOINT SWITCHES

Device	V _{CC} Typ (V)	Input Level	Output Level	f _{Max} Max (V)	t _{jitter} Max (ps)	t _{skew} Max (ps)	t _{pd} Max (ps)	Package
NBSG72A	2.5 / 1.8	ECL, CML, LVDS	ECL (with OLS)	7	1.5	25	255	QFN-16
NB7V72M	2.5 / 1.9	ECL, CML, LVDS	CML	5	0.8	30		QFN-16
NB4N840M	3.3	CML	CML	3.5	0.5	25	340	QFN-32
NB4L6254	2.5	CML, ECL, CMOS, LVDS	ECL	3	0.8	60	610	LQFP-32
NB4L858M	2.5	ECL, CML	CML	3	0.5	12	450	LQFP-32
NB6L72M	2.5	ECL, CML, CMOS, LVDS	CML	3	0.5	20	480	QFN-16
NB6L72	2.5	ECL, CML, CMOS, LVDS	ECL	3	1.0	20	525	QFN-16
NB4L7210	2.5	ECL, CML, CMOS, LVDS	ECL	1	0.19	10	875	QFN-52

FLIP-FLOPS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Typ (MHz)	t _{pd} Typ (ns)	t _{su} Min (ns)	t _h Min (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EP29	D-Type	3.3	ECL,CML	ECL	3000	0.42	0.1	0.1	0.2	300	TSSOP-20, QFN-20
MC10EP29	D-Type	3.3	ECL,CML	ECL	3000	0.42	0.1	0.1	0.2	300	TSSOP-20, QFN-20
MC100LVEL29	D-Type	3.3	ECL, LVDS	ECL	1100	0.58	0	0.1	1	550	SOIC-20
MC100EL29	D-Type	5	ECL	ECL	1100	0.58	0	0.1	1	550	SOIC-20
MC100LVEL30	D-Type	3.3	ECL	ECL	1200	0.45	0.15	0.2	1	550	SOIC-20
MC100EL30	D-Type	5	ECL	ECL	1200	0.45	0.15	0.2	1	550	SOIC-20
MC100EP31	D-Type	3.3	ECL,CML	ECL	3000	0.34	0.1	0.15	0.2	200	TSSOP-8, SOIC-8, DFN-8
MC10EP31	D-Type	3.3	ECL, CML	ECL	3000	0.34	0.1	0.15	0.2	200	TSSOP-8, SOIC-8
MC100LVEL31	D-Type	3.3	ECL	ECL	2900	0.475	0.15	0.25	1	320	TSSOP-8, SOIC-8
MC100EL31	D-Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP-8, SOIC-8
MC10EL31	D-Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP-8, SOIC-8
MC100EP51	D-Type	3.3	ECL,CML	ECL	3000	0.37	0.1	0.1	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP51	D-Type	3.3	ECL,CML	ECL	3000	0.375	0.1	0.1	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC100LVEL51	D-Type	3.3	ECL	ECL	2800	0.475	0.15	0.25	1	320	TSSOP-8, SOIC-8, DFN-8
MC100EL51	D-Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP-8, SOIC-8
MC10EL51	D-Type	5	ECL	ECL	2800	0.475	0.15	0.25	1	350	TSSOP-8, SOIC-8
NB4L52	D-Type	2.5	ECL, CML, CMOS, LVDS	ECL	4000	0.33	0.1	0.05	1	200	QFN-16
MC100EP52	D-Type	3.3	ECL, CML	ECL	4000	0.33	0.05	0	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP52	D-Type	3.3	ECL, CML	ECL	4000	0.33	0.05	0	1	180	TSSOP-8, SOIC-8, DFN-8
MC100EL52	D-Type	5	ECL	ECL	2800	0.365	0.125	0.15	1	350	TSSOP-8, SOIC-8
MC10EL52	D-Type	5	ECL	ECL	2800	0.365	0.125	0.15	1	350	TSSOP-8, SOIC-8
NBSG53A	D-Type	2.5	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	10000	0.215	0.03	0.025	0.5	60	QFN-16, BGA-16
MC100EP131	D-Type	3.3	ECL, CML	ECL	3000	0.46	0.12	0.12	0.2	290	QFN-32, LQFP-32
MC10EP131	D-Type	3.3	ECL, CML	ECL	3000	0.46	0.12	0.12	0.2	290	QFN-32, LQFP-32
MC100E131	D-Type	5	ECL	ECL	1100	0.5	0.15	0.175	1	480	PLCC-28
MC10E131	D-Type	5	ECL	ECL	1100	0.5	0.15	0.175	1	480	PLCC-28

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FLIP-FLOPS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Typ (MHz)	t _{pd} Typ (ns)	t _{su} Min (ns)	t _h Min (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC10H131	D-Type	5	ECL	ECL	250	1	0.7	0.8		2000	PDIP-16, PLCC-20, SOEIAJ-16
MC10H176	D-Type	5	ECL	ECL	250	1.7	1.5	0.9		1900	PDIP-16, PLCC-20, SOEIAJ-16
MC10H186	D-Type	5	ECL	ECL	250	1.7	1.5	1		2600	PDIP-16, PLCC-20
MC100E431	D-Type	5	ECL	ECL	1100	0.6	0.2	0.2	1	650	PLCC-28
MC10E431	D-Type	5	ECL	ECL	1100	0.6	0.2	0.2	1	650	PLCC-28
MC100EP35	JK-Type	3.3	ECL, CML	ECL	3000	0.41	0.15	0.15	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP35	JK-Type	3.3	ECL, CML	ECL	3000	0.41	0.15	0.15	0.2	180	TSSOP-8, SOIC-8
MC100EL35	JK-Type	5	ECL	ECL	2200	0.525	0.15	0.25	1	350	TSSOP-8, SOIC-8
MC10EL35	JK-Type	5	ECL	ECL	2200	0.525	0.15	0.25	1	350	TSSOP-8, SOIC-8
MC10H135	JK-Type	5	ECL	ECL	250	1.5	1.5	1		2200	PDIP-16, PLCC-20, SOEIAJ-16

LOGIC GATES

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Channels	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
NB7L86M	2.5	ECL, CML, LVDS, CMOS	ECL	SmartGate	1	8000	0.09	0.2	60	QFN-16
NBSG86A	2.375–3.465	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	SmartGate	1	8000	0.165	0.5	65	BGA-16, QFN-16
MC10H104	5	ECL	ECL	AND	4		1		1700	PDIP-16, PLCC-20, SOEIAJ-16
MC100E104	5	ECL	ECL	AND/NAND	5	2000	0.385	1	700	PLCC-28
MC100E404	5	ECL	ECL	AND/NAND	4	2000	0.475	1	400	PLCC-28
MC100EL04	5	ECL	ECL	AND/NAND	1	2000	0.24	1	350	TSSOP-8, SOIC-8
MC100EL05	5	ECL	ECL	AND/NAND	1	2000	0.275	1	350	TSSOP-8, SOIC-8
MC100EP05	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC100EP105	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	QFN-32, LQFP-32
MC100LVEL05	3.3	ECL, CML, LVDS	ECL	AND/NAND	1	2000	0.34	1	320	TSSOP-8, SOIC-8
MC100LVEP05	2.5	ECL	ECL	AND/NAND		3000	0.22	0.2	200	TSSOP-8
MC10E104	5	ECL	ECL	AND/NAND	5	700	0.385	1	700	PLCC-28

LOGIC GATES

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Channels	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC10E404	5	ECL	ECL	AND/NAND	4	700	0.475	1	400	PLCC–28
MC10EL04	5	ECL	ECL	AND/NAND	1	2000	0.24	1	350	TSSOP–8, SOIC–8
MC10EL05	5	ECL	ECL	AND/NAND	1	2000	0.275	1	350	TSSOP–8, SOIC–8
MC10EP05	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	TSSOP–8, SOIC–8
MC10EP105	3.3	ECL, CML	ECL	AND/NAND	1	3000	0.22	0.2	180	QFN–32, LQFP–32
MC10H100	5	ECL	ECL	NOR	4		1		2100	PDIP–16, SOEIAJ–16
MC10H102	5	ECL	ECL	NOR	4		1		1600	PDIP–16, PLCC–20, SOEIAJ–16
MC10H106	5	ECL	ECL	NOR	3		1		1800	PDIP–16, PLCC–20, SOEIAJ–16
MC10H211	5	ECL	ECL	NOR	2		1		2200	PDIP–16, PLCC–20, SOEIAJ–16
MC10H103	5	ECL	ECL	OR	4		1		1800	PDIP–16, PLCC–20, SOEIAJ–16
MC10H210	5	ECL	ECL	OR	2		1		1900	PDIP–16, PLCC–20, SOEIAJ–16
MC100E101	5	ECL	ECL	OR/NOR	4	2000	0.35	1	575	PLCC–28
MC100EL01	5	ECL	ECL	OR/NOR	1	2000	0.23	1	235	TSSOP–8, SOIC–8
MC100EP01	3.3	ECL, CML	ECL	OR/NOR	1	3000	0.27	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC100EP101	3.3	ECL, CML	ECL	OR/NOR	4	3000	0.3	0.2	220	QFN–32, LQFP–32
MC100LVEL01	3.3	ECL	ECL	OR/NOR	1	2000	0.37	1	320	TSSOP–8, SOIC–8
MC10E101	5	ECL	ECL	OR/NOR	4	700	0.35	1	575	PLCC–28
MC10EL01	5	ECL	ECL	OR/NOR	1	2000	0.23	1	235	TSSOP–8, SOIC–8
MC10EP01	3.3	ECL, CML	ECL	OR/NOR	1	3000	0.27	0.2	180	TSSOP–8, SOIC–8, DFN–8
MC10EP101	3.3	ECL, CML	ECL	OR/NOR	4	3000	0.3	0.2	220	QFN–32, LQFP–32
MC10H101	5	ECL	ECL	OR/NOR	4		1		2200	PDIP–16, PLCC–20, SOEIAJ–16
MC10H105	5	ECL	ECL	OR/NOR	3		1		1600	PDIP–16, PLCC–20, SOEIAJ–16
MC10H109	5	ECL	ECL	OR/NOR	2		1		2100	PDIP–16, PLCC–20, SOEIAJ–16
MC10H209	5	ECL	ECL	OR/NOR	2		0.75		1500	PLCC–20, SOEIAJ–16
MC10H117	5	ECL	ECL	OR–AND/O R–AND INV	2		1		1600	PDIP–16, PLCC–20, SOEIAJ–16
MC10H121	5	ECL	ECL	OR–AND/O R–AND INV	4		1		1800	PDIP–16, PLCC–20, SOEIAJ–16
MC10H113	5	ECL	ECL	XOR	4		1.3		1900	PDIP–16, PLCC–20, SOEIAJ–16
MC100E107	5	ECL	ECL	XOR/XNOR	5	2000	0.41	1	700	PLCC–28

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LOGIC GATES

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Channels	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EL07	5	ECL	ECL	XOR/XNOR	1	2000	0.26	1	225	TSSOP-8, SOIC-8, DFN-8
MC100EP08	3.3	ECL, CML	ECL	XOR/XNOR	1	3000	0.25	0.2	180	TSSOP-8, SOIC-8
MC10E107	5	ECL	ECL	XOR/XNOR	5	700	0.41	1	700	PLCC-28
MC10EL07	5	ECL	ECL	XOR/XNOR	1	2000	0.26	1	225	TSSOP-8, SOIC-8
MC10EP08	3.3	ECL, CML	ECL	XOR/XNOR	1	3000	0.25	0.2	180	TSSOP-8, SOIC-8
MC10H107	5	ECL	ECL	XOR/XNOR	3		1		1600	PDIP-16, PLCC-20, SOEIAJ-16

LATCHES AND REGISTERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Bits	t _{pd} Typ (ns)	t _{su} Min (ns)	t _h Min (ns)	t _{rec} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC10H130	5	ECL	ECL	Latch	2	1	2.2	0.7			1700	PDIP-16, PLCC-20
MC100E150	5	ECL	ECL	Latch	6	0.8	0.2	0.2	0.75	1	450	PLCC-28
MC10E150	5	ECL	ECL	Latch	6	0.8	0.2	0.2	0.75	1	450	PLCC-28
MC100E175	5	ECL	ECL	Latch	9	0.6	0.275	0.175	0.85	1	800	PLCC-28
MC10E175	5	ECL	ECL	Latch	9	0.6	0.275	0.175	0.85	1	800	PLCC-28
MC10H175	5	ECL	ECL	Latch	5	1.2	1.5	0.8			1900	PDIP-16, PLCC-20, SOEIAJ-16
MC100E143	5	ECL	ECL	Register	9	0.8	0.05	0.3	0.9	1	800	PLCC-28
MC10E143	5	ECL	ECL	Register	9	0.8	0.05	0.3	0.9	1	800	PLCC-28
MC100E151	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	450	PLCC-28
MC10E151	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	450	PLCC-28
MC100EP451	3.3	ECL, CML	ECL	Register	6	0.45	0.08	0.08	0.25	0.2	260	QFN-32, LQFP-32
MC10EP451	3.3	ECL, CML	ECL	Register	6	0.45	0.08	0.08	0.25	0.2	260	QFN-32, LQFP-32
MC100E451	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	800	PLCC-28
MC10E451	5	ECL	ECL	Register	6	0.65	0.15	0.35	0.75	1	800	PLCC-28
MC100E452	5	ECL	ECL	Register	5	0.6	0.175	0.225	0.75	1	650	PLCC-28
MC10E452	5	ECL	ECL	Register	5	0.6	0.175	0.225	0.75	1	650	PLCC-28
MC10E141	5	ECL	ECL	Shift Register	8	0.75	0.175	0.2	0.9	1	800	PLCC-28
MC10H141	5	ECL	ECL	Shift Register	4	1.5	1.5	1			2400	PDIP-16, PLCC-20

LATCHES AND REGISTERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Bits	t _{pd} Typ (ns)	t _{su} Min (ns)	t _h Min (ns)	t _{rec} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EP142	3.3	ECL, CML	ECL	Shift Register	9	0.675	0.05	0.1	0.8	1	275	QFN-32, LQFP-32
MC10EP142	3.3	ECL, CML	ECL	Shift Register	9	0.675	0.05	0.1	0.8	1	275	QFN-32, LQFP-32
MC100E142	5	ECL	ECL	Shift Register	9	0.8	0.05	0.3	0.9	1	800	PLCC-28
MC10E142	5	ECL	ECL	Shift Register	9	0.8	0.05	0.3	0.9	1	800	PLCC-28
MC100E241	5	ECL	ECL	Shift Register	8	0.75	0.175	0.2	0.9	1	800	PLCC-28

MULTIPLEXERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Mux Ratio	Channels	f _{Toggle} Typ (MHz)	t _{pd} Typ (ns)	t _{skew(OO)} Max (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EL58	5	ECL	ECL	2:1	1	1500	0.23		1	350	TSSOP-8, SOIC-8
MC100EP58	3.3	ECL, CML	ECL	2:1	1	3000	0.31		0.2	180	TSSOP-8, SOIC-8
MC100LVEL58	3.3	ECL	ECL	2:1	1	1500	0.44		1	320	TSSOP-8, SOIC-8, DFN-8
MC10EL58	5	ECL	ECL	2:1	1	1500	0.23		1	350	TSSOP-8, SOIC-8
MC10EP58	3.3	ECL, CML	ECL	2:1	1	3000	0.31		0.2	180	TSSOP-8, SOIC-8
NB7L86M	2.5	ECL, CML, CMOS, LVDS	CML	2:1	1	8000	0.09		0.2	60	QFN-16
NBSG86A	2.5	ECL, CML, CMOS, LVDS	200, 400, 600, 800 mV	2:1	1	8000	0.165	20	0.5	65	BGA-16, QFN-16
MC100EL56	5	ECL	ECL	2:1	2	1000	0.58	80	1	540	SOIC-20
MC100EP56	3.3	ECL, CML	ECL	2:1	2	3000	0.36	100	0.2	180	TSSOP-20, SOIC-20, QFN-20
MC100LVEL56	3.3	ECL, LVDS	ECL	2:1	2	1000	0.44	80	3	540	SOIC-20
MC10EP56	5	ECL, CML	ECL	2:1	2	3000	0.475	100	0.2	200	TSSOP-20, QFN-20
NB100LVEP56	2.5	ECL, CML	ECL	2:1	2	2500	0.7	50	0.2	170	TSSOP-20, QFN-24
MC100E457	5	ECL	ECL	2:1	3	1000	0.475	40	1	500	PLCC-28
MC100EL59	5	ECL	ECL	2:1	3	1000	0.5	100	1	540	SOIC-20
MC100LVEL59	3.3	ECL	ECL	2:1	3	1000	0.5	100	1	540	SOIC-20
MC10E457	5	ECL	ECL	2:1	3	1000	0.475	40	1	500	PLCC-28

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MULTIPLEXERS

Device	V _{cc} Typ (V)	Input Level	Output Level	Mux Ratio	Channels	f _{Toggle} Typ (MHz)	t _{pd} Typ (ns)	t _{skew(OO)} Max (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100E157	5	ECL	ECL	2:1	4	1000	0.38	70	1	650	PLCC-28
MC10E157	5	ECL	ECL	2:1	4	1100	0.38	70	1	650	PLCC-28
MC10H158	5	ECL	ECL	2:1	4		1.5			2200	PDIP-16, PLCC-20, SOEIAJ-16
MC10H159	5	ECL	ECL	2:1	4		1.5			2200	PLCC-20, SOEIAJ-16
MC100E158	5	ECL	ECL	2:1	5	1000	0.385	60	1	650	PLCC-28
MC10E154	5	ECL	ECL	2:1	5	1100	0.5	50	1	800	PLCC-28
MC10E158	5	ECL	ECL	2:1	5	1100	0.385	60	1	650	PLCC-28
MC10E155	5	ECL	ECL	2:1	6	1100	0.5	75	1	800	PLCC-28
MC10E167	5	ECL	ECL	2:1	6	1400	0.65	75	1	800	PLCC-28
NB4N7132	3.3	ECL, CML, LVDS	ECL	2:1		750	0.375		25	175	TSSOP-28
MC100EL57	5	ECL	ECL	4:1	1	1000	0.56	100	1	375	SOIC-16
MC100EP57	3.3	ECL, CML	ECL	4:1	1	3000	0.475	200	0.2	200	TSSOP-20, QFN-20
MC10EL57	5	ECL	ECL	4:1	1	1000	0.56	100	1	375	SOIC-16
MC10EP57	3.3	ECL, CML	ECL	4:1	1	3000	0.475	200	0.2	200	TSSOP-20, QFN-20
MC10H174	5	ECL	ECL	4:1	2		1.5			1600	PDIP-16, PLCC-20, SOEIAJ-16
MC100E171	5	ECL	ECL	4:1	3	1000	0.48	60	1	650	PLCC-28
MC10E156	5	ECL	ECL	4:1	3	1100	0.6	50	1	700	PLCC-28
MC10E171	5	ECL	ECL	4:1	3	1400	0.48	60	1	650	PLCC-28
MC10H164	5	ECL	ECL	8:1	1		1			1600	PDIP-16, PLCC-20, SOEIAJ-16
MC100E163	5	ECL	ECL	8:1	2	1000	0.55	40	1	575	PLCC-28
MC10E163	5	ECL	ECL	8:1	2	1100	0.55	40	1	575	PLCC-28
MC100E164	5	ECL	ECL	16:1	1	1000	0.6	50	1	550	PLCC-28
MC100LVE164	3.3	ECL	ECL	16:1	1	1000	0.6	50	1	550	LQFP-32
MC10E164	5	ECL	ECL	16:1	1	1100	0.6	50	1	550	PLCC-28
MC10H172	5	ECL	ECL		2		2			1800	PDIP-16, PLCC-20
NB4N1158	3.3	ECL, CMOS	ECL		3	1500	0.375		10	150	TSSOP-28

MULTIPLEXERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Mux Ratio	Channels	f _{Toggle} Typ (MHz)	t _{pd} Typ (ns)	t _{skew(OO)} Max (ps)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
NB7L572	2.5	ECL, CML, CMOS	ECL								QFN-32
MC10H161	5	ECL	ECL	3 Bit to 1 of 8 Decode	1		1			1800	PDIP-16, PLCC-20, SOEIAJ-16
MC10H162	5	ECL	ECL	3 Bit to 1 of 8 decode	1		1			1900	PDIP-16, PLCC-20, SOEIAJ-16
MC10H165	5	ECL	ECL	8 Bit Priority Encode	1		2.2			2400	PDIP-16, PLCC-20
MC10H171	5	ECL	ECL	BIN 1:4 Decode	2		2			1800	PDIP-16, PLCC-20

RECEIVERS/DRIVERS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC10EL89	Coaxial Cable Driver	5	ECL	2x ECL	1500	0.35		455	TSSOP-8, SOIC-8
MC10EP89	Coaxial Cable Driver	3.3	ECL, CML	2x ECL	2000	0.31		350	TSSOP-8, SOIC-8, DFN-8
MC10SX1189	Fibre Channel Coaxial Cable Driver	5	ECL	2x ECL	2500	0.425		250	SOIC-16
MC10SX1190	Fibre Channel Coaxial Cable Driver	3.3	ECL	2x ECL		0.425		250	TSSOP-20
MC10SX1130	LED Driver	5	ECL	LED	400	1.4		1260	SOIC-16
NBSG16	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	RSECL	12000	0.12	0.3	65	BGA-16, QFN-16
NBSG16M	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	CML	10000	0.12	0.2	53	QFN-16
NBSG16VS	Signal Driver	2.5	ECL, TTL, CMLS, CML, LVDS	RSECL	12000	0.125	0.8	55	BGA-16, QFN-16
NB6L16	Signal Driver	2.5	LVDS, ECL, CML, CMOS, TTL	ECL	6000	0.13	0.2	120	TSSOP-8, SOIC-8
NB4L16M	Signal Driver	2.5	TTL, CMOS, LVDS, ECL, CML	CML	3500	0.265	0.2	90	QFN-16
MC100LVEP16	Signal Driver	3.3	ECL, CML, LVDS	ECL	4000	0.24	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10LVEP16	Signal Driver	2.5	ECL, CML, LVDS	ECL	4000	0.24	0.2	180	TSSOP-8, SOIC-8
MC100EP16	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP16	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC100LVEL16	Signal Driver	3.3	ECL, LVDS	ECL	2000	0.3	0.2	320	TSSOP-8, SOIC-8, DFN-8
MC100EL16	Signal Driver	5	ECL	ECL	2000	0.25	0.2	350	TSSOP-8, SOIC-8

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RECEIVERS/DRIVERS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC10EL16	Signal Driver	5	ECL	ECL	2000	0.25	0.2	350	TSSOP-8, SOIC-8
MC100EP16F	Signal Driver	3.3	ECL, CML	ECL	3000	0.3	0.2	100	TSSOP-8, SOIC-8
MC100EP16T	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP16T	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC100EP16VA	Signal Driver	3.3	ECL, CML	ECL	3000	0.27	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC10EP16VA	Signal Driver	3.3	ECL, CML	ECL	3000	0.27	0.2	180	TSSOP-8, SOIC-8, DFN-8
MC100EP16VB	Signal Driver	3.3	ECL, CML	ECL	3000	0.3	0.2	240	TSSOP-8, SOIC-8
MC100EP16VC	Signal Driver	3.3	ECL, CML	ECL	3000	0.38	0.2	240	TSSOP-8, SOIC-8, DFN-8
MC100EP16VS	Signal Driver	3.3	ECL, CML	ECL	4000	0.22	0.2	180	TSSOP-8, SOIC-8
MC100EP16VT	Signal Driver	3.3	ECL, CML	ECL	4000	0.3	0.2	180	TSSOP-8, SOIC-8, DFN-8
NB100LVEP17	Signal Driver	2.5	ECL, CML, LVDS	ECL	2500	0.25	0.5	240	TSSOP-20, QFN-24
MC100EP17	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	230	TSSOP-20, SOIC-20, QFN-20
MC10EP17	Signal Driver	3.3	ECL, CML	ECL	3000	0.22	0.2	230	TSSOP-20, SOIC-20, QFN-20
MC100LVEL17	Signal Driver	3.3	ECL, LVDS	ECL	2000	0.425	0.2	550	SOIC-20
MC100EL17	Signal Driver	5	ECL	ECL	2000	0.425	0.2	550	SOIC-20
MC10H115	Signal Driver	5	ECL	ECL		1		1500	PDIP-16, PLCC-20, SOEIAJ-16
MC100EP116	Signal Driver	3.3	ECL, CML	ECL	3000	0.26	0.2	240	QFN-32, LQFP-32
MC10EP116	Signal Driver	3.3	ECL	ECL	3000	0.26	0.2	240	LQFP-32
MC100E116	Signal Driver	5	ECL	ECL	1200	0.3	0.2	575	PLCC-28
MC10E116	Signal Driver	5	ECL	ECL	800	0.3	0.2	575	PLCC-28
MC10H116	Signal Driver	5	ECL	ECL		1		1600	PDIP-16, SOIC-16, PLCC-20, SOEIAJ-16
NB7L216	Signal Driver	2.5	CMOS, TTL, LVDS, ECL, CML	RSECL	12000	0.18	0.1	45	QFN-16
NB4N316M	Signal Driver	3.3	CML, ECL, LVDS, CMOS, TTL	CML		0.55		300	TSSOP-8
MC10H330	Signal Driver	5	ECL	ECL		1.5		2000	PLCC-28
MC10H332	Signal Driver	5	ECL	ECL		1.5		2000	PDIP-20, PLCC-20
MC10H334	Signal Driver	5	ECL	ECL		1.6		2200	PLCC-20
MC100E416	Signal Driver	5	ECL	ECL	2000	0.35	0.2	350	PLCC-28
MC10E416	Signal Driver	5	ECL	ECL	2000	0.35	0.2	350	PLCC-28

RECEIVERS/DRIVERS

Device	Type	V _{CC} Typ (V)	Input Level	Output Level	f _{Toggle} Max (MHz)	t _{pd} Typ (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100H680	Signal Driver	5	ECL	TTL		3.2		3400	PLCC–28
MC10H680	Signal Driver	5	ECL	TTL		3.2		3400	PLCC–28
NB4N855S	Signal Driver	3.3	LVDS, CML, ECL, HSTL, SSTL, CMOS, TTL	LVDS		0.47	0.5	140	Micro–10
NB7VQ1006M	Signal Driver	1.8	CML, ECL, LVDS	CML	7500	0.225	0.2	65	QFN–24

SERIAL/PARALLEL CONVERTERS

Device	V _{CC} Typ (V)	Input Level	Output Level	Type	Bits	f _{dr} Typ (Gb/sec)	t _{pd} Typ (ns)	t _{su} Min (ns)	t _h Min (ns)	t _{Jitter} Typ (ps)	t _R & t _F Max (ps)	Package
MC100EP445	3.3	ECL, CML	ECL	Serial/Parallel	8	2.5	1.3	–0.4	0.6	0.2	300	QFN–32, LQFP–32
MC10EP445	3.3	ECL, CML	ECL	Serial/Parallel	8	2.5	1.3	–0.4	0.6	0.2	300	LQFP–32
MC100E445	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28
MC10E445	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28
MC100EP446	3.3	ECL, CML	ECL	Parallel/Serial	8	3.4	0.8	–0.45	–0.6	0.2	170	QFN–32, LQFP–32
MC10EP446	3.3	ECL, CML	ECL	Parallel/Serial	8	3.4	0.8	–0.45	–0.6	0.2	170	QFN–32, LQFP–32
MC100E446	5	ECL	ECL	Parallel/Serial	4	1.6	1.2	–0.45	0.65	1	350	PLCC–28
MC10E446	5	ECL	ECL	Serial/Parallel	4	2.0	1.8	–0.25	0.3	1	350	PLCC–28

TRANSLATORS

Device	V _{CC} Typ (V)	Input Level	Output Level	Channels	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC100EPT20	3.3	CMOS	ECL	1	1000	0.37	180	TSSOP–8, SOIC–8, DFN–8
MC10EPT20	3.3	CMOS	ECL	1	1000	0.37	180	TSSOP–8, SOIC–8, DFN–8
MC100LVELT20	3.3	CMOS	ECL	1	1000	0.37	180	SOIC–8
MC100ELT20	5	CMOS	ECL	1	100	1.2	1500	TSSOP–8, SOIC–8
MC10ELT20	5	CMOS	ECL	1	100	1.2	1500	TSSOP–8, SOIC–8
MC100EPT21	3.3	ECL, CML, LVDS	TTL	1	350	1.4	500	TSSOP–8, SOIC–8, DFN–8
MC100ELT21	5	ECL, CML	TTL	1	100	3.5	750	TSSOP–8, SOIC–8
MC10ELT21	5	ECL, CML	TTL	1	100	3.5	750	TSSOP–8, SOIC–8
MC100EPT22	3.3	TTL, CMOS	ECL	2	1100	0.42	220	TSSOP–8, SOIC–8, DFN–8
MC100LVELT22	3.3	TTL, CMOS	ECL	2	2000	0.35	500	TSSOP–8, SOIC–8

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TRANSLATORS

Device	V _{CC} Typ (V)	Input Level	Output Level	Channels	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC100ELT22	5	TTL	ECL	2	100	1.2	1600	TSSOP–8, SOIC–8
MC10ELT22	5	TTL	ECL	2	100	1.2	1600	TSSOP–8, SOIC–8
MC100EPT23	3.3	ECL, CML, LVDS	TTL	2	350	1.5	600	TSSOP–8, SOIC–8, DFN–8
MC100LVELT23	3.3	CML, PECL, LVDS	TTL	2	180	1.7	600	TSSOP–8, SOIC–8, DFN–8
MC100ELT23	5	ECL, CML	TTL	2	100	3.5	1600	TSSOP–8, SOIC–8
NB100ELT23L	3.3	ECL, CML, LVDS	TTL	2	275	2.1	1300	TSSOP–8, SOIC–8
MC100EPT24	3.3	TTL, CMOS	LVNECL	1	1000	0.53	180	TSSOP–8, SOIC–8, DFN–8
MC100ELT24	5	TTL	NECL	1	400	0.95	1250	TSSOP–8, SOIC–8
MC10ELT24	5	TTL	NECL	1	400	0.95	1250	TSSOP–8, SOIC–8
MC100EPT25	3.3	LVNECL/NECL	TTL	1	275	1.1	1100	TSSOP–8, SOIC–8, DFN–8
MC100ELT25	5	NECL	TTL	1	100	2.6	2300	TSSOP–8, SOIC–8
MC100EPT26	3.3	ECL, LVDS	TTL	1	275	1.5	900	TSSOP–8, SOIC–8, DFN–8
MC100ELT28	5	TTL, ECL	ECL, TTL	2	100	1.2	1500	TSSOP–8, SOIC–8
MC10ELT28	5	TTL, ECL	ECL, TTL	2	100	1.2	1500	TSSOP–8, SOIC–8
MC100EP90	3.3	LVNECL/NECL	LVPECL, PECL	3	3000	0.26	180	TSSOP–20
MC100EL90	5	LVNECL/NECL	PECL	3	650	0.5	500	SOIC–20
NB100LVEP91	2.5	HSTL, CML, LVDS, ECL	LVNECL/NECL	3	2500	0.43	250	QFN–24, SOIC–20
MC100EP91	3.3	LVDS, HSTL, ECL, CML, TTL	NECL	3	2	0.55	150	QFN–24, SOIC–20
MC100EL91	5	ECL	NECL	3		0.67	400	SOIC–20
MC100LVEL90	3.3	LVNECL, NECL	ECL	3	650	0.5	500	SOIC–20
MC100LVEL91	3.3	ECL	LVNECL	3	600	0.62	580	SOIC–20
MC100LVEL92	3.3	ECL	LVPECL	3	600	0.61	580	SOIC–20
MC10EP90	3.3	LVNECL/NECL	LVPECL/PECL	3	3000	0.26	180	TSSOP–20
MC100EPT622	3.3	LVTTTL/LVCMOS	PECL	10	1500	0.45	250	QFN–32, LQFP–32
MC10H124	5	TTL	NECL	4			1600	PDIP–16, PLCC–20, SOEIAJ–16
MC10H125	5	NECL	TTL	4			1200	PDIP–16, PLCC–20, SOEIAJ–16
MC10H350	5	PECL	TTL	4		3.5	1600	PDIP–16, PLCC–20, SOEIAJ–16
MC10H351	5	TTL/NMOS	PECL	4		1.3	2000	PDIP–20, PLCC–20, SOEIAJ–20
MC10H352	5	CMOS	PECL	4		1.3	2000	PDIP–20, PLCC–20

TRANSLATORS

Device	V _{CC} Typ (V)	Input Level	Output Level	Channels	f _{Max} Typ (MHz)	t _{pd} Typ (ns)	t _R & t _F Max (ps)	Package
MC10H424	5	TTL	ECL	4		1.5	2000	PDIP-16, PLCC-20
MC100H600	5	TTL	ECL	1		2300	1500	PLCC-28
MC10H600	5	TTL	ECL	1			1500	PLCC-28
MC100H601	5	ECL	TTL	1		3.45	3000	PLCC-28
MC10H601	5	ECL	TTL	1		3.45	3000	PLCC-28
MC100H602	5	TTL	ECL	1		2.5	1500	PLCC-28
MC10H602	5	TTL	ECL	1			1500	PLCC-28
MC100H603	5	ECL	TTL	1			3000	PLCC-28
MC10H603	5	ECL	TTL	1			3000	PLCC-28
MC100H604	5	TTL	ECL	6			2000	PLCC-28
MC10H604	5	TTL	ECL	6			2000	PLCC-28
MC100H605	5	ECL	TTL	6		5.2	1500	PLCC-28
MC10H605	5	ECL	TTL	6		5.2	1500	PLCC-28
MC100H606	5	TTL	ECL	6		3	2000	PLCC-28
MC10H606	5	TTL	ECL	6			2000	PLCC-28
MC100H607	5	PECL	TTL	6			2000	PLCC-28
MC10H607	5	ECL	TTL	6			2000	PLCC-28

Logic

Logic

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ARITHMETIC FUNCTION

Device	Description	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	P _D Max (W)	I _O Max (mA)	Package
MC14040B	12-Bit Binary Counter	3.00	18.0	1440.0	0.50	2.25	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC4040A	12-Stage Binary Counter	2.00	6.0	31.0	0.75	5.20	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74AC4040D	12-Stage Binary Ripple Counter	2.00	6.0	8.0	0.75	24.00	SOIC-16, PDIP-16, EIAJ-16
MC14020B	14-Bit Binary Counter	3.00	18.0	1725.0	0.50	2.25	SOIC-16, PDIP-16
MC74HC4020A	14-Stage Binary Counter	2.00	6.0	31.0	0.75	5.20	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14060B	14-Stage Binary Counter/Oscillator	3.00	18.0	1300.0	0.50	2.25	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC4060A	14-Stage Binary Ripple Counter With Oscillator	2.00	6.0	250.0	0.75	5.20	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14521B	24-Stage Frequency Divider	3.00	18.0	4500.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14553B	3-Digit BCD Counter	3.00	18.0	1000.0	0.50	2.25	PDIP-16
MC14008B	4-Bit Full Adder	3.00	18.0	320.0	0.50	2.25	SOIC-16, PDIP-16
MC14585B	4-Bit Magnitude Comparator	3.00	18.0	360.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14024B	7-Segment Ripple Counter	3.00	18.0	750.0	0.50	2.25	SOIC-14, PDIP-14, EIAJ-14
MC14516B	Binary Up/Down Counter	3.00	18.0	260.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14029B	Binary/Decade Up/Down Counter	3.00	18.0	200.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
NL7SZ57	Configurable Multifunction Logic	1.65	5.5	2.5	0.20	32.00	SC-88 / SC-70 / SOT-363
NL7SZ97	Configurable Multifunction Logic	1.65	5.5	2.5	0.20	32.00	SC-88 / SC-70 / SOT-363
NLX1G99	Configurable Multifunction Logic	1.65	5.5	6.7	0.20	32.00	ULLGA-8
NL7SZ58	Configurable Multifunction Logic, Inverting	1.65	5.5	2.5	0.20	32.00	SC-88 / SC-70 / SOT-363
NL7SZ98	Configurable Multifunction Logic, Inverting	1.65	5.5	2.5	0.20	32.00	SC-88 / SC-70 / SOT-363
MC14017B	Decade Counter/Divider	3.00	18.0	460.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
MC74HC393A	Dual 4-Stage Binary Ripple Counter	2.00	6.0	52.0	0.75	5.20	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74HC390A	Dual 4-Stage Binary Ripple Counter, ÷ 2 and ÷ 5 Sections	2.00	6.0	58.0	0.75	5.20	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14518B	Dual BCD Up Counter	3.00	18.0	230.0	0.50	2.25	SOIC-16, PDIP-16
MC14520B	Dual BCD Up Counter	3.00	18.0	230.0	0.50	2.25	SOIC-16, PDIP-16
MC14490	Hex Bounce Eliminator	3.00	18.0	320.0	0.50	9.00	SOIC-16, PDIP-16, EIAJ-16
MC14022B	Octal Counter	3.00	18.0	460.0	0.50	2.25	SOIC-16, PDIP-16
MC14018B	Preset Divide By N Counter	3.00	18.0	240.0	0.50	2.25	SOIC-16, PDIP-16
MC14526B	Presetable 4-Bit Down Counters	3.00	18.0	450.0	0.50	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14569B	Programmable Divide-By-N Dual 4-Bit Binary/BCD Down Counter	3.00	18.0	500.0	0.50	2.25	SOIC-16, PDIP-16
MC74AC161	Synchronous Presetable Binary Counter	2.00	6.0	9.5	0.35	24.00	SOIC-16, PDIP-16, EIAJ-16
MC74AC163	Synchronous Presetable Binary Counter	2.00	6.0	9.5	0.35	24.00	SOIC-16, PDIP-16
MC74ACT161	Synchronous Presetable Binary Counter, TTL Level	4.50	5.5	10.5	0.35	24.00	SOIC-16, PDIP-16, EIAJ-16
MC74ACT163	Synchronous Presetable Binary Counter, TTL Level	4.50	5.5	11.0	0.35	24.00	SOIC-16, PDIP-16, EIAJ-16

BUFFERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74LCX16240	16-Bit Buffer	16	2.00	3.6	4.5	24.0	TSSOP-48
MC74LCX16244	16-Bit Buffer	16	2.00	3.6	4.5	24.0	TSSOP-48
M74LCX16240	16-Bit Noninverting Buffer	16	2.00	3.6	4.5	24.0	TSSOP-48
M74LCX16244	16-Bit Noninverting Buffer	16	2.00	3.6	4.5	24.0	TSSOP-48
74VHCX245	8-Bit Transceiver	1	2.00	6.0	15.0	6.0	QFN-20
MC14511B	BCD-to-7 Segment Latch/Decoder/Driver	1	3.00	18.0	580.0	25.0	SOIC-16, PDIP 16, EIAJ-16
MC14513B	BCD-to-7 Segment Latch/Decoder/Driver	1	3.00	18.0	580.0	25.0	PDIP-18
MC14543B	BCD-to-7 Segment Latch/Decoder/Driver for Liquid Crystals	1	3.00	18.0	660.0	10.0	SOIC-16, PDIP 16, EIAJ-16
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.0	ULLGA-8
NL27WZ16	Dual Buffer	2	1.65	5.5	3.8	32.0	TSOP-6, SC-88
NLU2G16	Dual Buffer	2	1.65	5.5	5.5	8.0	UDFN-6, ULLGA-6
NLX2G16	Dual Buffer	2	1.65	5.5	1.8	24.0	ULLGA-6
NL27WZ17	Dual Buffer Schmitt	2	1.65	5.5	5.9	32.0	SC-88
NLX2G17	Dual Buffer Schmitt	2	1.65	5.5	3.1	24.0	ULLGA-6
NL27WZ07	Dual Buffer, Open Drain	2	1.65	5.5	3.5	32.0	TSOP-6, SC-88
NLX2G07	Dual Buffer, Open Drain	2	1.65	5.5	3.5	32.0	ULLGA-6
NL27WZ126	Dual Noninverting Buffer With High Enable, 3-State Outputs	2	1.65	5.5	5.7	24.0	US-8
NL27WZ125	Dual Noninverting Buffer With Low Enable, 3-State Outputs	2	1.65	5.5	5.7	32.0	US-8
NLU2G07	Dual Non-Inverting Buffer, Open Drain Output	2	1.65	5.5	5.5	8.0	UDFN-6, ULLGA-6
NLU2G17	Dual Schmitt-Trigger Buffer	2	1.65	5.5	8.6	8.0	UDFN-6, ULLGA-6
MC74VHC50	Hex Buffer	6	2.00	5.5	7.5	8.0	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX50	Hex Buffer, 3-State Outputs	6	2.00	3.6	9.7	4.0	TSSOP-14, SOIC-14, EIAJ-14
MC74LCX07	Hex Buffer, Open Drain Outputs	6	2.00	5.5	3.0	24.0	TSSOP-14, SOIC-14, EIAJ-14
MC14503B	Hex Noninverting Buffer, 3-State Outputs	6	3.00	18.0	80.0	6.2	SOIC-16, PDIP-16, EIAJ-16
MC74VHCT50A	Non-inverting Buffer / CMOS Logic Level Shifter, TTL Level	6	4.50	5.5	7.7	8.0	TSSOP-14, SOIC-14, EIAJ-14
NLU1G07	Non-Inverting Buffer, Open Drain Output	1	1.65	5.5	5.5	8.0	UDFN-6, ULLGA-6
NLU1GT50	Non-Inverting Buffer, TTL Level	1	1.65	5.5	6.7	8.0	UDFN-6, ULLGA-6
MC74AC240	Octal Buffer/Line Driver, 3-State Outputs	8	2.00	6.0	6.5	24.0	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74AC244	Octal Buffer/Line Driver, 3-State Outputs	8	2.00	6.0	7.0	24.0	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74ACT240	Octal Buffer/Line Driver, 3-State Outputs, TTL Level	8	4.50	5.5	8.5	24.0	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74ACT241	Octal Buffer/Line Driver, 3-State Outputs, TTL Level	8	4.50	5.5	9.0	24.0	TSSOP-20, SOIC-20, EIAJ-20
MC74ACT244	Octal Buffer/Line Driver, 3-State Outputs, TTL Level	8	4.50	5.5	9.0	24.0	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20

BUFFERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHCT244	Octal Bus Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	8.4	8.0	TSSOP–20, SOIC–20, EIAJ–20
MC74LCX240	Octal Inverting Buffer, 3–State Outputs	8	2.00	3.6	6.5	24.0	TSSOP–20, SOIC–20
74HC540	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	25.0	6.0	TSSOP–20
MC74AC540	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	6.0	24.0	SOIC–20, PDIP–20
MC74HC540A	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	25.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LCX540	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	3.6	6.5	24.0	TSSOP–20, SOIC–20, EIAJ–20
MC74LVX540	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	3.6	7.0	4.0	EIAJ–20
MC74VHC240	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	5.5	7.5	8.0	TSSOP–20, SOIC–20
MC74VHC540	Octal Inverting Buffer/Line Driver, 3–State Outputs	8	2.00	5.5	7.0	8.0	TSSOP–20, SOIC–20
MC74ACT540	Octal Inverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	8.0	24.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74VHCT240A	Octal Inverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	8.8	8.0	TSSOP–20, SOIC–20, EIAJ–20
MC74VHCT540A	Octal Inverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	7.0	8.0	EIAJ–20
MC74HC240A	Octal Inverting Buffer/Line Driver/Line Receiver, 3–State Outputs	8	2.00	6.0	22.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LVX240	Octal Inverting Bus Buffer, 3–State Outputs	8	2.00	3.6	9.7	4.0	TSSOP–20, SOIC–20, EIAJ–20
MC74LCX244	Octal Noninverting Buffer, 3–State Outputs	8	2.00	3.6	6.5	24.0	TSSOP–20, SOIC–20, EIAJ–20
74HC541	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	25.0	6.0	TSSOP–20
MC74AC541	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	6.0	24.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HC541A	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	6.0	25.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LCX541	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	3.6	6.5	24.0	TSSOP–20, SOIC–20, EIAJ–20
MC74LVX541	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	3.6	7.0	4.0	TSSOP–20, SOIC–20, EIAJ–20
MC74VHC541	Octal Noninverting Buffer/Line Driver, 3–State Outputs	8	2.00	5.5	7.0	8.0	TSSOP–20, SOIC–20, EIAJ–20
MC74ACT541	Octal Noninverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	7.5	24.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HCT541A	Octal Noninverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	30.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74VHCT541A	Octal Noninverting Buffer/Line Driver, 3–State Outputs, TTL Level	8	4.50	5.5	7.9	8.0	TSSOP–20, SOIC–20, EIAJ–20
74HC244	Octal Noninverting Buffer/Line Driver/Line Receiver, 3–State Outputs	8	2.00	5.5	7.5	8.0	TSSOP–20
MC74HC244A	Octal Noninverting Buffer/Line Driver/Line Receiver, 3–State Outputs	8	2.00	6.0	22.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74HCT244A	Octal Noninverting Buffer/Line Driver/Line Receiver, 3–State Outputs, TTL Level	8	4.50	5.5	26.0	6.0	TSSOP–20, SOIC–20, PDIP–20, EIAJ–20
MC74LVX244	Octal Noninverting Bus Buffer, 3–State Outputs	8	2.00	3.6	10.6	4.0	TSSOP–20, SOIC–20, EIAJ–20
MC74VHC244	Octal Noninverting Bus Buffer, 3–State Outputs	8	2.00	5.5	7.5	8.0	TSSOP–20, SOIC–20, EIAJ–20
MC74LVX257	Quad 2–Channel Multiplexer, 3–State Outputs	4	2.00	3.6	12.0	4.0	TSSOP–16, SOIC–16, EIAJ–16
MC74VHC257	Quad 2–Channel Multiplexer, 3–State Outputs	4	2.00	5.5	7.9	8.0	TSSOP–16, SOIC–16, EIAJ–16
MC74VHCT257A	Quad 2–Channel Multiplexer, 3–State Outputs, TTL Level	4	4.50	5.5	7.9	8.0	TSSOP–16, SOIC–16, EIAJ–16

BUFFERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74HC126A	Quad Noninverting Buffer With High Enable, 3–State Outputs	4	2.00	6.0	24.0	6.0	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LVX126	Quad Noninverting Buffer With High Enable, 3–State Outputs	4	2.00	3.6	9.7	4.0	EIAJ–14
MC74VHC126	Quad Noninverting Buffer With High Enable, 3–State Outputs	4	2.00	5.5	7.5	8.0	TSSOP–14, SOIC–14
M74VHCT126A	Quad Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	TSSOP–14
MC74VHCT126A	Quad Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	SOIC–14, EIAJ–14
NLSF3T126	Quad Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	4	2.00	5.5	7.5	25.0	QFN–16
74HC125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	5.5	7.5	8.0	TSSOP–14, SOIC–14
MC74AC125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	6.0	7.0	24.0	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74HC125A	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	6.0	24.0	6.0	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LCX125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	3.6	6.0	24.0	TSSOP–14, SOIC–14
MC74LVX125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	3.6	9.7	4.0	TSSOP–14, SOIC–14, EIAJ–14
MC74VHC125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	5.5	7.5	8.0	TSSOP–14, SOIC–14, EIAJ–14
NLVCX125	Quad Noninverting Buffer With Low Enable, 3–State Outputs	4	2.00	3.6	6.0	24.0	TSSOP–14
MC74ACT125	Quad Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	4	4.50	5.5	9.0	24.0	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74VHCT125A	Quad Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	4	4.50	5.5	7.5	8.0	TSSOP–14, SOIC–14, EIAJ–14
NLSF3T125	Quad Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	4	2.00	5.5	5.5	25.0	QFN–16
NL17SZ16	Single Buffer	1	1.65	5.5	4.5	24.0	SC7288A, SOT23553
NL17SZ17	Single Buffer, Schmitt	1	1.65	5.5	4.9	24.0	SC7288A, SOT23553
MC74VHC1G50	Single Noninverting Buffer	1	2.00	5.5	7.5	8.0	TSOP–5, SC7288A
MC74VHC1G126	Single Noninverting Buffer With Enable, 3–State	1	2.00	5.5	7.5	8.0	TSOP–5, SC7288A
M74VHC1G126	Single Noninverting Buffer With High Enable, 3–State Outputs	1	2.00	5.5	7.5	8.0	TSOP–5, SC7288A
NL17SZ126	Single Noninverting Buffer With High Enable, 3–State Outputs	1	1.65	5.5	5.0	24.0	SC7288A, SOT23553
M74VHC1GT126	Single Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP–5, SC7288A
NLU1GT126A	Single Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT126B	Single Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT126C	Single Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT126	Single Noninverting Buffer With High Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	UDFN–6

BUFFERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
M74VHC1G125	Single Noninverting Buffer With Low Enable, 3–State Outputs	1	2.00	5.5	7.5	8.0	TSOP–5, SC788A
MC74VHC1G125	Single Noninverting Buffer With Low Enable, 3–State Outputs	1	2.00	5.5	7.5	8.0	TSOP–5, SC788A
NL17SZ125	Single Noninverting Buffer With Low Enable, 3–State Outputs	1	1.65	5.5	5.0	24.0	TSOP–5, SC788A, SOT–553
M74VHC1GT125	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP–5, SC788A
MC74VHC1GT125	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	3.00	5.5	7.5	8.0	TSOP–5, SC788A
NLU1GT125A	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT125B	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT125C	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	ULLGA–6
NLU1GT125	Single Noninverting Buffer With Low Enable, 3–State Outputs, TTL Level	1	1.65	5.5	5.5	8.0	UDFN–6
MC74VHC1G07	Single Noninverting Buffer, Open Drain	1	2.00	5.5	7.5	8.0	TSOP–5, SC788A
NL17SZ07	Single Noninverting Buffer, Open Drain	1	1.65	5.5	3.5	24.0	SC788A, SOT553
NL17VHC1G07	Single Noninverting Buffer, Open Drain	1	2.00	5.5	7.5	8.0	TSOP–5
M74VHC1GT50	Single Noninverting Buffer, TTL Level	1	1.65	5.5	7.7	8.0	TSOP–5, SC788A
MC74VHC1GT50	Single Noninverting Buffer, TTL Level	1	1.65	5.5	7.7	8.0	TSOP–5, SC788A
NL27WZ07	The NL27WZ07 is a high performance dual buffer, open drain	2	1.65	5.5	3.5	32.0	SC788
NL37WZ16	Triple Buffer	3	1.65	5.5	3.8	32.0	US–8
NLU3G16	Triple Buffer	3	1.65	5.5	5.5	8.0	UDFN–8, ULLGA–8
NLX3G16	Triple Buffer	3	1.65	5.5	3.8	32.0	ULLGA–8
NL37WZ07	Triple Buffer, Open Drain	3	1.65	5.5	3.5	32.0	US–8
NLX3G14	Triple Inverter, Schmitt	3	1.65	5.5	4.9	32.0	ULLGA–8
NL37WZ17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	4.9	32.0	US–8
NLU3G17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	8.6	8.0	UDFN–8, ULLGA–8
NLX3G17	Triple Non–Inverting Schmitt–Trigger Buffer	3	1.65	5.5	2.7	24.0	ULLGA–8

FLIP-FLOPS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
M74LCX16374	16-Bit D-Type Flip-Flop	16	2.00	3.6	6.2	24.00	TSSOP-48
MC74LCX16374	16-Bit D-Type Flip-Flop	16	2.00	3.6	6.2	24.00	TSSOP-48
MC14013B	Dual D-Type Flip-Flop	2	3.00	18.0	150.0	2.25	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74LCX74	Dual D-Type Flip-Flop	2	2.00	3.6	7.0	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX74	Dual D-Type Flip-Flop	2	2.00	3.6	13.6	4.00	TSSOP-14, SOIC-14, EIAJ-14
74HC74	Dual D-Type Flip-Flop, Set and Reset	2	2.00	5.5	9.3	8.00	TSSOP-14, SOIC-14
MC74HC74A	Dual D-Type Flip-Flop, Set and Reset	2	2.00	6.0	20.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74HCT74A	Dual D-Type Flip-Flop, Set and Reset, TTL Level	2	4.50	5.5	24.0	4.00	SOIC-14, PDIP-14
MC74VHCT74A	Dual D-Type Flip-Flop, Set and Reset, TTL Level	2	4.50	5.5	8.8	8.00	TSSOP-14, SOIC-14
MC74AC74	Dual D-Type Positive Edge Trigger	2	2.00	6.0	9.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74ACT74	Dual D-Type Positive Edge Trigger, TTL Level	2	4.50	5.5	10.0	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC14027B	Dual J-K Flip-Flop	2	3.00	18.0	150.0	2.25	SOIC-16, PDIP-16
MC14174B	Hex D-Type Flip-Flop	6	3.00	18.0	160.0	2.25	SOIC-16, PDIP-16
MC74HC174A	Hex D-Type Flip-Flop, Clock	6	2.00	6.0	22.0	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
NLSF1174	Hex D-Type Flip-Flop, Common Clock and Reset	6	2.00	6.0	19.0	25.00	QFN-16
74HC574	Octal D-Type 3-State Noninverting Flip-Flop	8	2.00	5.5	10.6	8.00	TSSOP-20
MC74HC574A	Octal D-Type 3-State Noninverting Flip-Flop	8	2.00	6.0	32.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
74HC374	Octal D-Type Flip-Flop	8	2.00	5.5	10.1	8.00	TSSOP-20
MC74AC273	Octal D-Type Flip-Flop	8	2.00	6.0	10.0	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74HC273A	Octal D-Type Flip-Flop	8	2.00	6.0	29.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74HC374A	Octal D-Type Flip-Flop	8	2.00	6.0	25.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74LCX374	Octal D-Type Flip-Flop	8	2.00	3.6	8.5	24.00	TSSOP-20, SOIC-20, EIAJ-20
MC74LCX574	Octal D-Type Flip-Flop Flow Through Pinout	8	2.00	3.6	8.5	3.60	TSSOP-20, SOIC-20, EIAJ-20
MC74AC374	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	6.0	9.5	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74AC574	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	6.0	9.5	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74LVX374	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	3.6	14.1	4.00	TSSOP-20, SOIC-20, EIAJ-20
MC74LVX374	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	3.6	14.1	4.00	EIAJ-20
MC74LVX574	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	3.6	16.7	4.00	TSSOP-20, SOIC-20, EIAJ-20
MC74VHC374	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	5.5	10.1	8.00	TSSOP-20, SOIC-20, EIAJ-20
MC74VHC574	Octal D-Type Flip-Flop, 3-State Outputs	8	2.00	5.5	10.6	8.00	TSSOP-20, SOIC-20
MC74VHC74	Octal D-Type Flip-Flop, 3-State Outputs	2	2.00	5.5	9.3	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC74ACT374	Octal D-Type Flip-Flop, 3-State Outputs, TTL Level	8	4.50	5.5	10.0	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20

FLIP-FLOPS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74ACT574	Octal D-Type Flip-Flop, 3-State Outputs, TTL Level	8	4.50	5.5	11.0	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74AC377	Octal D-Type Flip-Flop, Clock Enable	8	2.00	6.0	10.0	24.00	TSSOP-20, SOIC-20, PDIP-20
MC74ACT377	Octal D-Type Flip-Flop, Clock Enable, TTL Level	8	4.50	5.5	10.0	24.00	SOIC-20, PDIP-20, EIAJ-20
MC74ACT273	Octal D-Type Flip-Flop, TTL Level	8	4.50	5.5	11.0	24.00	TSSOP-20, SOIC-20, PDIP-20
MC74HCT273A	Octal D-Type Flip-Flop, TTL Level	8	4.50	5.5	25.0	6.00	TSSOP-20, SOIC-20, PDIP-20
MC74HCT374A	Octal D-Type Noninverting Flip-Flop, 3-State, TTL Level	8	4.50	5.5	31.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74HCT574A	Octal D-Type Noninverting Flip-Flop, 3-State, TTL Level	8	4.50	5.5	30.0	6.00	TSSOP-20, SOIC-20, PDIP-20
MC74VHCT374A	Octal D-Type Noninverting Flip-Flop, 3-State, TTL Level	8	4.50	5.5	10.4	8.00	TSSOP-20, SOIC-20, EIAJ-20
MC74VHCT574A	Octal D-Type Noninverting Flip-Flop, 3-State, TTL Level	8	4.50	5.5	10.4	8.00	TSSOP-20, SOIC-20
MC14175B	Quad D-Type Flip-Flop	4	3.00	18.0	160.0	2.25	SOIC-16, PDIP-16, EIAJ-16
MC74HC175A	Quad D-type Flip-Flop, Common Clock and Reset	4	2.00	6.0	26.0	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
NL17SZ74	Single D-Type Flip-Flop	1	1.65	5.5	5.0	24.00	US-8

LOGIC GATES

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHC32DR2	2–1 Quad OR Gate	4	2.00	5.5	7.5	8.00	TSSOP–14, SOIC–14, EIAJ–14
NL7SZ57	Configurable Multifunction Logic	3	1.65	5.5	2.5	32.00	SC–88
NLX1G57	Configurable Multifunction Logic	1	1.65	5.5	5.1	24.00	ULLGA–6
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.00	ULLGA–6
NLX1G97	Configurable Multifunction Logic	1	1.65	5.5	6.3	24.00	ULLGA–6
NL7SZ58	Configurable Multifunction Logic, Inverting	3	1.65	5.5	2.5	32.00	SC–88
NLX1G58	Configurable Multifunction Logic, Inverting	1	1.65	5.5	5.1	24.00	ULLGA–6
NLX1G98	Configurable Multifunction Logic, Inverting	1	1.65	5.5	5.1	24.00	ULLGA–6
NL27WZ08	Dual 2–Input AND Gate	2	1.65	5.5	3.7	32.00	US–8
NL27WZ86	Dual 2–Input Exclusive OR Gate	2	1.65	5.5	4.2	32.00	US–8
NL27WZ00	Dual 2–Input NAND Gate	2	1.65	5.5	3.6	32.00	US–8
NL27WZ02	Dual 2–Input NOR Gate	2	1.65	5.5	3.7	32.00	US–8
NL27WZ32	Dual 2–Input OR Gate	2	1.65	5.5	3.7	32.00	US–8
MC14012B	Dual 4–Input NAND Gates	2	3.00	18.0	130.0	2.25	SOIC–14, PDIP–14
MC14082B	Dual 4–Input AND Gate	2	3.00	18.0	130.0	2.25	SOIC–14, PDIP–14
MC74AC20	Dual 4–Input NAND Gate	2	2.00	6.0	7.0	24.00	SOIC–14, PDIP–14, EIAJ–14
MC74ACT20	Dual 4–Input NAND Gate, TTL Level	2	4.50	5.5	9.0	24.00	SOIC–14, PDIP–14
NLU2G16	Dual Buffer	2	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
NLU2G04	Dual Inverter	2	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
NLU2G06	Dual Inverter, Open Drain Output	2	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
NLU2G07	Dual Non–Inverting Buffer, Open Drain Output	2	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
NLU2G17	Dual Schmitt–Trigger Buffer	2	1.65	5.5	8.6	8.00	UDFN–6, ULLGA–6
NLU2G14	Dual Schmitt–Trigger Inverter	2	1.65	5.5	8.6	8.00	UDFN–6, ULLGA–6
NLU2GU04	Dual Unbuffered Inverter	2	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
74HC04	Hex Inverter	6	2.00	5.5	7.5	8.00	TSSOP–14, SOIC–14
NLU1G07	Non–Inverting Buffer, Open Drain Output	1	1.65	5.5	5.5	8.00	UDFN–6, ULLGA–6
NLU1GT50	Non–Inverting Buffer, TTL Level	1	1.65	5.5	6.7	8.00	UDFN–6, ULLGA–6
74HC08	Quad 2–Input AND Gate	4	2.00	5.5	7.9	8.00	TSSOP–14, SOIC–14
MC14081B	Quad 2–Input AND Gate	4	3.00	18.0	130.0	2.25	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74AC08	Quad 2–Input AND Gate	4	2.00	6.0	7.5	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74HC08A	Quad 2–Input AND Gate	4	2.00	6.0	15.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LCX08	Quad 2–Input AND Gate	4	2.00	3.6	5.5	24.00	TSSOP–14, SOIC–14, EIAJ–14

LOGIC GATES

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74LVX08	Quad 2–Input AND Gate	4	2.00	3.6	10.6	4.00	TSSOP–14, SOIC–14, EIAJ–14
MC74VHC08	Quad 2–Input AND Gate	4	2.00	5.5	7.9	8.00	TSSOP–14, SOIC–14, EIAJ–14
NLSF308	Quad 2–Input AND Gate	4	2.00	5.5	7.9	8.00	QFN–16
74HCT08	Quad 2–Input AND Gate, TTL Level	4	4.50	5.5	7.9	8.00	TSSOP–14, SOIC–14
MC74ACT08	Quad 2–Input AND Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP–14, SOIC–14, PDIP–14
74HC86	Quad 2–Input Exclusive OR Gate	4	2.00	5.5	8.0	8.00	TSSOP–14, SOIC–14
MC74AC86	Quad 2–Input Exclusive OR Gate	4	2.00	6.0	8.5	24.00	TSSOP–14, SOIC–14, PDIP–14
MC74HC86A	Quad 2–Input Exclusive OR Gate	4	2.00	6.0	20.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74VHC86	Quad 2–Input Exclusive OR Gate	4	2.00	5.5	8.8	8.00	TSSOP–14, SOIC–14, EIAJ–14
MC74ACT86	Quad 2–Input Exclusive–OR Gate, TTL Level	4	4.50	5.5	9.5	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
74HC00	Quad 2–Input NAND Gate	4	2.00	5.5	7.5	8.00	TSSOP–14, SOIC–14
MC14011B	Quad 2–Input NAND Gate	4	3.00	18.0	100.0	2.25	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC14011UB	Quad 2–Input NAND Gate	4	3.00	18.0	100.0	2.25	SOIC–14, PDIP–14
MC74AC00	Quad 2–Input NAND Gate	4	2.00	6.0	8.0	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74HC00A	Quad 2–Input NAND Gate	4	2.00	6.0	15.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LCX00	Quad 2–Input NAND Gate	4	2.00	3.6	5.2	24.00	TSSOP–14, SOIC–14, EIAJ–14
MC74LVX00	Quad 2–Input NAND Gate	4	2.00	3.6	9.7	4.00	TSSOP–14, SOIC–14, EIAJ–14
MC74VHC00	Quad 2–Input NAND Gate	4	2.00	5.5	7.5	8.00	TSSOP–14, SOIC–14, EIAJ–14
MC74HC03A	Quad 2–Input NAND Gate, Open Drain Outputs	4	2.00	6.0	24.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
74HC132	Quad 2–Input NAND Gate, Schmitt Trigger	4	2.00	5.5	9.7	8.00	TSSOP–14, SOIC–14
MC74ACT00	Quad 2–Input NAND Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74VHCT00A	Quad 2–Input NAND Gate, TTL Level	4	3.00	5.5	7.9	8.00	TSSOP–14, SOIC–14
MC14093B	Quad 2–Input NAND Schmitt Trigger	4	3.00	18.0	100.0	2.25	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74AC132	Quad 2–Input NAND Schmitt Trigger	4	2.00	6.0	9.0	24.00	SOIC–14, PDIP–14, EIAJ–14
MC74HC132A	Quad 2–Input NAND Schmitt Trigger	4	2.00	6.0	25.0	4.00	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC74LVX132	Quad 2–Input NAND Schmitt Trigger	4	2.00	3.6	15.4	4.00	TSSOP–14, SOIC–14, EIAJ–14
MC74VHC132	Quad 2–Input NAND Schmitt Trigger	4	2.00	5.5	7.5	8.00	TSSOP–14, SOIC–14, EIAJ–14
MC74ACT132	Quad 2–Input NAND, Schmitt Trigger, TTL Level	4	4.50	5.5	11.5	24.00	SOIC–14, PDIP–14, EIAJ–14
MC74VHCT132A	Quad 2–Input NAND, Schmitt Trigger, TTL Level	4	4.50	5.5	9.7	8.00	TSSOP–14, SOIC–14, EIAJ–14
74HC02	Quad 2–Input NOR Gate	4	2.00	6.0	22.0	4.00	TSSOP–14, SOIC–14
MC14001B	Quad 2–Input NOR Gate	4	3.00	18.0	100.0	2.25	TSSOP–14, SOIC–14, PDIP–14, EIAJ–14
MC14001UB	Quad 2–Input NOR Gate	4	3.00	18.0	100.0	2.25	SOIC–14, PDIP–14

LOGIC GATES

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74AC02	Quad 2-Input NOR Gate	4	2.00	6.0	6.5	24.00	TSSOP-14, SOIC-14, PDIP-14
MC74HC02A	Quad 2-Input NOR Gate	4	2.00	6.0	15.0	4.00	TSSOP-14, SOIC-14, PDIP-14
MC74LCX02	Quad 2-Input NOR Gate	4	2.00	3.6	5.2	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX02	Quad 2-Input NOR Gate	4	2.00	3.6	10.1	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHC02	Quad 2-Input NOR Gate	4	2.00	5.5	7.5	8.00	TSSOP-14, SOIC-14
NLSF302	Quad 2-Input NOR Gate	4	2.00	5.5	7.5	8.00	QFN-16
MC74ACT02	Quad 2-Input NOR Gate, TTL Level	4	4.50	5.5	9.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74VHCT02A	Quad 2-Input NOR Gate, TTL Level	4	4.50	5.5	7.5	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHCT08A	Quad 2-Input NOR Gate, TTL Level	4	4.50	5.5	7.9	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC14071B	Quad 2-Input OR Gate	4	3.00	18.0	130.0	2.25	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74AC32	Quad 2-Input OR Gate	4	2.00	6.0	7.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74LCX32	Quad 2-Input OR Gate	4	2.00	3.6	5.5	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX32	Quad 2-Input OR Gate	4	2.00	3.6	10.1	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHCT32A	Quad 2-Input OR Gate / CMOS Logic Level Shifter, TTL Level	4	2.00	5.5	7.5	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC74ACT32	Quad 2-Input OR Gate, TTL Level	4	4.50	5.5	9.0	24.00	TSSOP-14, SOIC-14, PDIP-14
MC74LCX86	Quad 2-Input XOR Gate	4	2.00	3.6	6.5	24.00	TSSOP-14, SOIC-14
MC74LVX86	Quad 2-Input XOR Gate	4	2.00	3.6	12.8	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHCT86A	Quad 2-Input XOR Gate / CMOS Logic Level Shifter, TTL Level	4	2.00	5.5	8.8	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC14077B	Quad Exclusive NOR Gate	4	3.00	18.0	150.0	2.25	SOIC-14, PDIP-14, EIAJ-14
74HC32	Quad OR Gate	4	2.00	5.5	7.5	8.00	TSSOP-14, SOIC-14
MC74HC32A	Quad OR Gate	4	2.00	6.0	15.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
74HCT32	Quad OR Gate, TTL Level	4	2.00	6.0	22.0	4.00	TSSOP-14, SOIC-14
MC14070B	Quad XOR Gate	4	3.00	18.0	150.0	2.25	SOIC-14, PDIP-14, EIAJ-14
NLU1GT14	Schmitt-Trigger Inverter, TTL Level	1	1.65	5.5	8.6	8.00	UDFN-6, ULLGA-6
MC74HC1G08	Single 2-Input AND Gate	1	2.00	6.0	20.0	2.00	TSOP-5, SC70-8A
MC74VHC1G08	Single 2-Input AND Gate	1	2.00	5.5	7.9	8.00	TSOP-5, SC70-8A
NL17SV08	Single 2-Input AND Gate	1	0.90	3.6	1.0	24.00	SOT23-5
NL17SZ08	Single 2-Input AND Gate	1	1.65	5.5	4.5	24.00	SC70-8A, SOT23-5
NLU1G08	Single 2-Input AND Gate	1	1.65	5.5	5.9	8.00	UDFN-6, ULLGA-6
MC74VHC1G09	Single 2-Input AND Gate, Open Drain	1	2.00	5.5	7.9	8.00	TSOP-5, SC70-8A
M74VHC1GT08	Single 2-Input AND Gate, TTL Level	1	3.00	5.5	7.9	8.00	TSOP-5, SC70-8A
MC74VHC1GT08	Single 2-Input AND Gate, TTL Level	1	3.00	5.5	7.9	8.00	TSOP-5, SC70-8A

LOGIC GATES

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHC1G86	Single 2-Input Exclusive OR Gate	1	2.00	5.5	8.8	8.00	TSOP-5, SC788A
NL17SZ86	Single 2-Input Exclusive OR Gate	1	1.65	5.5	4.2	24.00	SC788A
NLU1G86	Single 2-Input Exclusive OR Gate	1	1.65	5.5	6.8	8.00	UDFN-6, ULLGA-6
M74VHC1GT86	Single 2-Input Exclusive OR Gate, TTL Level	1	3.00	5.5	8.8	8.00	TSOP-5, SC788A
MC74VHC1GT86	Single 2-Input Exclusive OR Gate, TTL Level	1	3.00	5.5	8.8	8.00	SC788A
NLU1GT86	Single 2-Input Exclusive OR Gate, TTL Level	1	1.65	5.5	6.8	8.00	UDFN-6, ULLGA-6
MC74HC1G00	Single 2-Input NAND Gate	1	2.00	6.0	20.0	2.00	TSOP-5, SC788A
MC74VHC1G00	Single 2-Input NAND Gate	1	2.00	5.5	7.5	8.00	TSOP-5, SC788A
NL17SV00	Single 2-Input NAND Gate	1	0.90	3.6	2.3	50.00	SOT2553
NL17SZ00	Single 2-Input NAND Gate	1	1.65	5.5	4.3	24.00	SC788A, SOT2553
NLU1G00	Single 2-Input NAND Gate	1	1.65	5.5	3.5	8.00	ULLGA-6
MC74VHC1G01	Single 2-Input NAND Gate, Open Drain	1	2.00	5.5	7.5	8.00	TSOP-5, SC788A
M74VHC1G132	Single 2-Input NAND Gate, Schmitt	1	2.00	5.5	9.7	8.00	TSOP-5, SC788A
MC74VHC1G132	Single 2-Input NAND Gate, Schmitt	1	2.00	5.5	9.7	8.00	TSOP-5, SC788A
M74VHC1G135	Single 2-Input NAND Gate, Schmitt ,Open Drain	1	2.00	5.5	9.7	8.00	TSOP-5, SC788A
M74VHC1GT00	Single 2-Input NAND Gate, TTL level	1	3.00	5.5	7.9	8.00	TSOP-5, SC788A
MC74VHC1GT00	Single 2-Input NAND Gate, TTL level	1	3.00	5.5	7.9	8.00	TSOP-5, SC788A
MC74HC1G02	Single 2-Input NOR Gate	1	2.00	6.0	20.0	2.00	TSOP-5, SC788A
MC74VHC1G02	Single 2-Input NOR Gate	1	2.00	5.5	7.5	8.00	TSOP-5, SC788A
NL17SV02	Single 2-Input NOR Gate	1	0.90	3.6	3.3	50.00	SOT2553
NL17SZ02	Single 2-Input NOR Gate	1	1.65	5.5	4.3	24.00	SC788A, SOT2553
MC74VHC1GT02	Single 2-Input NOR Gate TTL Level	1	3.00	5.5	7.7	8.00	SC788A
MC74VHC1G03	Single 2-Input NOR Gate, Open Drain	1	2.00	5.5	7.5	8.00	TSOP-5, SC788A
M74VHC1GT02	Single 2-Input NOR Gate, TTL Level	1	3.00	5.5	7.7	8.00	TSOP-5, SC788A
MC74HC1G32	Single 2-Input OR Gate	1	2.00	6.0	20.0	2.00	TSOP-5, SC788A
MC74VHC1G32	Single 2-Input OR Gate	1	2.00	5.5	7.5	8.00	TSOP-5, SC788A
NL17SV32	Single 2-Input OR Gate	1	0.90	3.6	3.3	50.00	SOT2553
NL17SZ32	Single 2-Input OR Gate	1	1.65	5.5	4.5	24.00	SC788A, SOT2553
NLU1G32	Single 2-Input OR Gate	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
M74VHC1GT32	Single 2-Input OR Gate, TTL Level	1	3.00	5.5	7.5	8.00	TSOP-5, SC788A
NLU1GT32	Single 2-Input OR Gate, TTL Level	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NL17SV04	Single Inverter	1	0.09	3.6	2.3	50.00	SOT2553

LOGIC GATES

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
NL17SV16	Single Noninverting Buffer	1	0.90	4.6	3.3	50.00	SOT23-5
NLU1GT126	Single Noninverting Buffer With High Enable, 3-State Outputs, TTL Level	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NLU1GT125	Single Noninverting Buffer With Low Enable, 3-State Outputs, TTL Level	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NLU1G14	Single Schmitt-Trigger Inverter	1	1.65	5.5	8.6	8.00	UDFN-6, ULLGA-6
NLU1GU04	Single Unbuffered Inverter	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
MC14073B	Triple 3-Input AND Gate	3	3.00	18.0	130.0	2.25	SOIC-14, PDIP-14, EIAJ-14
MC74AC11	Triple 3-Input AND Gate	3	2.00	6.0	8.0	24.00	SOIC-14, PDIP-14, EIAJ-14
MC74ACT11	Triple 3-Input AND Gate, TTL Level	3	4.50	5.5	9.5	24.00	SOIC-14, PDIP-14, EIAJ-14
MC14023B	Triple 3-Input NAND Gate	3	3.00	18.0	130.0	2.25	SOIC-14, PDIP-14, EIAJ-14
MC74AC10	Triple 3-Input NAND Gate	3	2.00	6.0	7.0	24.00	SOIC-14, PDIP-14
MC74ACT10	Triple 3-Input NAND Gate, TTL Level	3	4.50	5.5	9.0	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC14025B	Triple 3-Input NOR Gate	3	3.00	18.0	130.0	2.25	SOIC-14, PDIP-14, EIAJ-14
NLU3G16	Triple Buffer	3	1.65	5.5	5.5	8.00	UDFN-8, ULLGA-8
NLU3G17	Triple Noninverting Schmitt Trigger Buffer	3	1.65	5.5	8.6	8.00	UDFN-8, ULLGA-8
NLU3G14	Triple Schmitt-Trigger Inverter	3	1.65	5.5	8.6	8.00	UDFN-8, ULLGA-8

INVERTERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
NLX1G99	Configurable Multifunction Logic	1	1.65	5.5	6.7	32.00	ULLGA-8
MC14007UB	Dual Comparator Pair Plus Inverter	3	3.00	18.0	75.0	2.50	SOIC-14, PDIP-14, EIAJ-14
NL27WZ04	Dual Inverter	2	1.65	5.5	3.6	32.00	TSOP-6, SC-88
NLU2G04	Dual Inverter	2	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NLX2G04	Dual Inverter	2	1.65	5.5	1.8	24.00	ULLGA-6
NL27WZ06	Dual Inverter, Open Drain	2	1.65	5.5	3.0	32.00	TSOP-6, SC-88
NLX2G06	Dual Inverter, Open Drain	2	1.65	5.5	3.0	32.00	ULLGA-6
NL27WZ14	Dual Inverter, Schmitt	2	1.65	5.5	4.9	32.00	TSOP-6, SC-88
NLX2G14	Dual Inverter, Schmitt	2	1.65	5.5	4.9	32.00	ULLGA-6
NLU2G14	Dual Schmitt-Trigger Inverter	2	1.65	5.5	8.6	8.00	UDFN-6, ULLGA-6
NL27WZU04	Dual Unbuffered Inverter	2	1.65	5.5	5.6	32.00	TSOP-6, SC-88
NLU2GU04	Dual Unbuffered Inverter	2	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NLX2GU04	Dual Unbuffered Inverter	2	1.65	5.5	2.7	16.00	ULLGA-6
MC14049B	Hex Buffer	6	3.00	18.0	80.0	16.00	SOIC-16, PDIP-16, EIAJ-16
MC14049UB	Hex Buffer	6	3.00	18.0	65.0	16.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14050B	Hex Buffer	6	3.00	18.0	80.0	16.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14572UB	Hex Gate	6	3.00	18.0	100.0	2.25	SOIC-16, PDIP-16
MC14069UB	Hex Inverter	6	3.00	18.0	100.0	2.25	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74AC04	Hex Inverter	6	2.00	6.0	7.0	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74HC04A	Hex Inverter	6	2.00	6.0	15.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74LCX04	Hex Inverter	6	2.00	3.6	5.2	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX04	Hex Inverter	6	2.00	3.6	9.7	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHC04	Hex Inverter	6	2.00	5.5	7.5	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVXU04	Hex Inverter (Unbuffered)	6	2.00	3.6	9.7	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74AC05	Hex Inverter Open-Drain	6	2.00	6.0	6.0	24.00	SOIC-14, PDIP-14, EIAJ-14
MC74AC14	Hex Inverter Schmitt Trigger	6	2.00	6.0	10.0	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74ACT14	Hex Inverter Schmitt Trigger, TTL Level	6	4.50	5.5	11.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74LCX06	Hex Inverter, Open Drain Outputs	6	2.00	3.6	3.7	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74ACT05	Hex Inverter, Open-Drain Outputs, TTL Level	6	4.50	5.5	8.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
74HCT04	Hex Inverter, TTL Level	6	4.50	5.5	7.7	8.00	TSSOP-14, SOIC-14
MC74ACT04	Hex Inverter, TTL Level	6	4.50	5.5	8.5	24.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74HCT04A	Hex Inverter, TTL Level	6	4.50	5.5	17.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14

INVERTERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHCT04A	Hex Inverter, TTL Level	6	4.50	5.5	7.7	8.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LCX14	Hex Schmitt Inverter	6	2.00	3.6	6.5	24.00	TSSOP-14, SOIC-14, EIAJ-14
MC74LVX14	Hex Schmitt Inverter	6	2.00	3.6	14.1	4.00	TSSOP-14, SOIC-14, EIAJ-14
MC74VHC14	Hex Schmitt Inverter	6	2.00	5.5	10.6	8.00	TSSOP-14, SOIC-14
MC14106B	Hex Schmitt Trigger	6	3.00	18.0	100.0	2.25	TSSOP-14, SOIC-14, PDIP-14
MC14584B	Hex Schmitt Trigger	6	3.00	18.0	100.0	2.25	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
74HC14	Hex Schmitt-Trigger Inverter	6	2.00	5.5	10.6	8.00	TSSOP-14, SOIC-14
MC74HC14A	Hex Schmitt-Trigger Inverter	6	2.00	6.0	15.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
74HCT14	Hex Schmitt-Trigger Inverter, TTL Level	6	4.50	5.5	9.6	8.00	TSSOP-14, SOIC-14
MC74HCT14A	Hex Schmitt-Trigger Inverter, TTL Level	6	4.50	5.5	32.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74VHCT14A	Hex Schmitt-Trigger Inverter, TTL Level	6	4.50	5.5	9.6	8.00	TSSOP-14, SOIC-14, EIAJ-14
74HCU04	Hex Unbuffered Inverter	6	2.00	5.5	7.0	8.00	TSSOP-14, SOIC-14
MC74HCU04A	Hex Unbuffered Inverter	6	2.00	6.0	14.0	4.00	TSSOP-14, SOIC-14, PDIP-14, EIAJ-14
MC74VHCU04	Hex Unbuffered Inverter	6	2.00	5.5	7.0	8.00	TSSOP-14, SOIC-14, EIAJ-14
NLU1GT04	Inverting Buffer TTL Level	1	1.65	5.5	6.7	8.00	UDFN-6, ULLGA-6
NLU1GT14	Schmitt-Trigger Inverter, TTL Level	1	1.65	5.5	8.6	8.00	UDFN-6, ULLGA-6
MC74HC1G04	Single Inverter	1	2.00	6.0	20.0	2.00	TSOP-5, SC7288A
MC74VHC1G04	Single Inverter	1	2.00	5.5	7.5	8.00	TSOP-5, SC7288A
NL17SZ04	Single Inverter	1	1.65	5.5	4.3	24.00	SC7288A, SOT23-5
NLU1G04	Single Inverter	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
MC74VHC1G05	Single Inverter, Open Drain	1	2.00	5.5	7.5	8.00	TSOP-5, SC7288A
NL17SZ06	Single Inverter, Open Drain	1	1.65	5.5	3.0	24.00	SC7288A, SOT23-5
MC74HC1G14	Single Inverter, Schmitt Input	1	2.00	6.0	20.0	2.00	TSOP-5, SC7288A
MC74VHC1G14	Single Inverter, Schmitt Input	1	2.00	5.5	10.6	8.00	TSOP-5, SC7288A
NL17SZ14	Single Inverter, Schmitt Input	1	1.65	5.5	5.9	24.00	SC7288A, SOT23-5
M74VHC1GT14	Single Inverter, Schmitt Input, TTL Level	1	3.00	5.5	10.6	8.00	TSOP-5, SC7288A
MC74VHC1GT14	Single Inverter, Schmitt Input, TTL Level	1	3.00	5.5	10.6	8.00	TSOP-5, SC7288A
M74VHC1GT04	Single Inverter, TTL Level	1	3.00	5.5	7.7	8.00	TSOP-5, SC7288A
MC74VHC1GT04	Single Inverter, TTL Level	1	3.00	5.5	7.7	8.00	TSOP-5, SC7288A
NLU1G14	Single Schmitt-Trigger Inverter	1	1.65	5.5	8.6	8.00	UDFN-6, ULLGA-6
M74VHC1GU04	Single Unbuffered Inverter	1	2.00	5.5	7.0	8.00	TSOP-5, SC7288A
MC74HC1GU04	Single Unbuffered Inverter	1	2.00	6.0	20.0	2.00	TSOP-5, SC7288A

INVERTERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHC1GU04	Single Unbuffered Inverter	1	2.00	5.5	7.0	8.00	SC788A
NL17SZU04	Single Unbuffered Inverter	1	1.65	5.5	5.0	24.00	SC788A, SOT553
NLU1GU04	Single Unbuffered Inverter	1	1.65	5.5	5.5	8.00	UDFN-6, ULLGA-6
NLV17SZU04	Single Unbuffered Inverter	1	1.65	5.5	5.0	24.00	SC788A
NL37WZ04	Triple Inverter	3	1.65	5.5	3.6	32.00	US-8
NL37WZ06	Triple Inverter, Open Drain	3	1.65	5.5	3.0	32.00	US-8
NL37WZ14	Triple Inverter, Schmitt	3	1.65	5.5	4.9	32.00	US-8
NLU3G14	Triple Schmitt-Trigger Inverter	3	1.65	5.5	8.6	8.00	UDFN-8, ULLGA-8
MC74LCXU04	Unbuffered Hex Inverter	6	2.00	3.6	3.6	16.00	TSSOP-14, SOIC-14, EIAJ-14

LATCHES AND REGISTERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC14557B	1 To 64 Bit Variable Length Shift Register	1	3.0	18.0	260.0	2.25	SOIC-16, PDIP-16
M74LCX16373	16-Bit Transparent Latch	16	2.0	3.6	5.4	24.00	TSSOP-48
MC74LCX16373	16-Bit Transparent Latch	16	2.0	3.6	5.4	24.00	TSSOP-48
MC14076B	4-Bit D-Type Register, Three-State Outputs	4	3.0	18.0	250.0	2.25	SOIC-16, PDIP-16
MC74HC589A	8/Bit Shift Register	1	2.0	6.0	40.0	6.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74AC259DG	8-Bit Addressable Latch	8	2.0	6.0	10.0	24.00	SOIC-16, PDIP-16, EIAJ-16
MC74ACT259	8-Bit Addressable Latch, TTL Level	8	4.5	5.5	11.0	24.00	SOIC-16, PDIP-16
MC74LVX259	8-Bit Addressable Latch/1-of-8 Decoder CMOS Logic Level Shifter	1	2.0	3.6	12.0	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74VHC259	8-Bit Addressable Latch/1-of-8 Decoder CMOS Logic Level Shifter	1	2.0	5.5	10.0	8.00	TSSOP-16, SOIC-16, EIAJ-16
MC74VHCT259A	8-Bit Addressable Latch/1-of-8 Decoder, TTL Level	1	4.5	5.5	10.0	8.00	TSSOP-16, SOIC-16, EIAJ-16
MC14099B	8-Bit Addressable Latches	1	3.0	18.0	150.0	2.25	SOIC-16, PDIP-16
NLV14099B	8-Bit Addressable Latches	1	3.0	18.0	150.0	2.25	SOIC-16
MC74HC165A	8-Bit Serial or Parallel-Input/Serial Output Shift Register	1	2.0	6.0	30.0	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC164A	8-Bit Serial-Input/Parallel-Output Shift Register	1	2.0	6.0	32.0	4.00	TSSOP-14, SOIC-14, PDIP-14
74HC595	8-Bit Shift Register w/Output Storage Register (3-State)	1	2.0	6.0	28.0	6.00	TSSOP-16, SOIC-16
MC74VHC595	8-Bit Shift Register w/Output Storage Register (3-State)	1	2.0	5.5	10.0	8.00	SOIC-16
MC14094B	8-Bit Shift/Store Register, Three-State Outputs	1	3.0	18.0	250.0	2.25	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC14014B	8-Bit Static S/R	1	3.0	18.0	340.0	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14021B	8-Bit Static Shift Register	1	3.0	18.0	340.0	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14598B	9-Bit Bus-Compatible Latches	8	3.0	18.0	250.0	6.00	PDIP-18
MC14015B	Dual 4-Bit Static Shift Register	2	3.0	18.0	250.0	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14517B	Dual 64-Bit Static Shift Register	2	3.0	18.0	300.0	2.25	SOIC-16, PDIP-16
MC74HCT573A	Octal 3-State Inverter Transceiver/Latch, TTL Level	8	4.5	5.5	30.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74VHC573	Octal 3-State Non-Inverting D-Type Latch	8	2.0	5.5	8.8	8.00	TSSOP-20, SOIC-20, EIAJ-20
74HC373	Octal 3-State Non-Inverting Transparent Latch	8	2.0	5.5	9.2	8.00	TSSOP-20
MC74HC373A	Octal 3-State Non-Inverting Transparent Latch	8	2.0	6.0	25.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74HC573A	Octal 3-State Non-Inverting Transparent Latch	8	2.0	6.0	30.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74AC573	Octal Buffer/Line Driver, 3-State Outputs	8	2.0	6.0	10.0	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74ACT573	Octal Buffer/Line Driver, 3-State Outputs, TTL Level	8	4.5	5.5	10.5	24.00	TSSOP-20, SOIC-20, PDIP-20
MC74LVX573	Octal D-Type Latch 3-State Outputs	8	2.0	3.6	12.8	4.00	TSSOP-20, SOIC-20, EIAJ-20
MC74ACT564	Octal D-Type Latch, 3-State Outputs, TTL Level	8	4.5	5.5	10.5	24.00	SOIC-20, PDIP-20

LATCHES AND REGISTERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHCT573A	Octal D-Type Latch, 3-State Outputs, TTL Level	8	4.5	5.5	9.5	8.00	TSSOP-20, SOIC-20
MC74HCT373A	Octal Latch, TTL Level	8	4.5	5.5	28.0	6.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74LCX373	Octal Transparent Latch	8	2.0	3.6	8.0	24.00	TSSOP-20, SOIC-20, EIAJ-20
MC74LVX373	Octal Transparent Latch 3-State	8	2.0	3.6	12.8	4.00	TSSOP-20, SOIC-20, EIAJ-20
MC74VHC373	Octal Transparent Latch 3-State	8	2.0	5.5	9.2	8.00	TSSOP-20, SOIC-20, EIAJ-20
MC74LCX573	Octal Transparent Latch Flow Through Pinout	8	2.0	3.6	8.0	24.00	TSSOP-20, SOIC-20, EIAJ-20
MC74AC373	Octal Transparent Latch, 3-State Outputs	8	2.0	6.0	9.5	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74ACT373	Octal Transparent Latch, 3-State Outputs, TTL Level	8	4.5	5.5	10.0	24.00	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74VHCT373A	Octal Transparent Latch, 3-State Outputs, TTL Level	8	4.5	5.5	9.5	8.00	TSSOP-20, SOIC-20
MC14043B	Quad R-S Latches	4	3.0	18.0	175.0	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14044B	Quad R-S Latches	4	3.0	18.0	175.0	2.25	SOIC-16, PDIP-16
MC14042B	Quad Transparent Latch	4	3.0	18.0	180.0	2.25	SOIC-16, PDIP-16
MC74HC595A	Shift Register 3-State	1	2.0	6.0	28.0	6.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74VHC595	Shift Register 3-State	1	2.0	5.5	10.0	8.00	TSSOP-16
MC74HC595A	Shift Register 3-State	1	2.0	6.0	28.0	6.00	TSSOP-16
MC14549B	Successive Approximation Registers	1	3.0	18.0	420.0	2.25	SOIC-16, PDIP-16

MULTIPLEXERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
NL7SZ18	1:2 Digital Demultiplexer Non-Inverting, 3-State Outputs	2	1.65	5.5	4.00	32.00	UDFN-6, SC788
NL7SZ19	1:2 Digital Multiplexer / Demultiplexer	2	1.65	5.5	4.00	50.00	UDFN-6, SC788
74HC138	1-of-8 Decoder/Demultiplexer	1	2.00	5.5	10.10	8.00	TSSOP-16, SOIC-16
MC74AC138	1-of-8 Decoder/Demultiplexer	1	2.00	6.0	9.50	24.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC138A	1-of-8 Decoder/Demultiplexer	1	2.00	6.0	27.00	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74ACT138	1-of-8 Decoder/Demultiplexer, TTL Level	1	4.50	5.5	10.50	24.00	TSSOP-16, SOIC-16, PDIP-16
MC74HCT138A	1-of-8 Decoder/Demultiplexer, TTL Level	1	4.50	5.5	30.00	4.00	PDIP-16
MC74LCX138	3-to-8 Decoder/Demultiplexer	1	2.00	3.6	6.00	24.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVX138	3-To-8 Line Decoder	1	2.00	3.6	12.30	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74VHC138	3-To-8 Line Decoder	1	2.00	5.5	10.10	8.00	TSSOP-16, SOIC-16
MC74VHCT138A	3-To-8 Line Decoder, TTL Level	1	3.00	5.5	11.40	8.00	TSSOP-16, SOIC-16
MC14514B	4-Bit Transparent Latch/4-to-16 Line Decoder	1	3.00	18.0	450.00	2.25	SOIC-24
MC14515B	4-Bit Transparent Latch/4-to-16 Line Decoder	1	3.00	18.0	450.00	2.25	SOIC-24
MC14532B	8-Bit Priority Encoder	1	3.00	18.0	220.00	2.25	SOIC-16, PDIP-16
MC14512B	8-Channel Data Selector	1	3.00	18.0	250.00	2.25	SOIC-16, PDIP-16
MC74LVX4051	Analog Multiplexer/ Demultiplexer	1	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVX4052	Analog Multiplexer/ Demultiplexer	2	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVX4053	Analog Multiplexer/ Demultiplexer	3	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVXT4051	Analog Multiplexer/ Demultiplexer	1	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVXT4052	Analog Multiplexer/ Demultiplexer	2	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVXT4053	Analog Multiplexer/ Demultiplexer	3	2.50	6.0	23.00	4.00	TSSOP-16, SOIC-16, EIAJ-16
MC74VHC4052	Analog Multiplexer/ Demultiplexer	1	2.00	6.0	49.00	8.00	TSSOP-16, SOIC-16, EIAJ-16
MC74VHC4053	Analog Multiplexer/ Demultiplexer	1	2.00	6.0	49.00	8.00	TSSOP-16, SOIC-16, EIAJ-16
NLAS4053	Analog Multiplexers/Demultiplexers	2	2.50	5.5	40.00	50.00	TSSOP-16, SOIC-16
MC14028B	BCD-to-Decimal Decoder	1	3.00	18.0	260.00	2.25	SOIC-16, PDIP-16, EIAJ-16
MC74VHC157	Data Selector/Multiplexer 2-Input	4	2.00	5.5	8.40	8.00	TSSOP-16, SOIC-16
MC74HC157A	Data Selector/Multiplexer 2-Input Q	4	2.00	6.0	21.00	6.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC139A	Dual 1-of-4 Decoder / Demultiplexer	2	2.00	6.0	23.00	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74AC139	Dual 1-of-4 Decoder/Demultiplexer	2	2.00	6.0	8.50	24.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74ACT139	Dual 1-of-4 Decoder/Demultiplexer, TTL Level	2	4.50	5.5	9.50	24.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74LCX139	Dual 2-of-4 Decoder/Demultiplexer	2	2.00	3.6	6.20	24.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LVX139	Dual 2-to-4 Decoder/ Demultiplexer	2	2.00	3.6	13.00	4.00	TSSOP-16, SOIC-16

MULTIPLEXERS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC74VHC139	Dual 2-to-4 Decoder/Demultiplexer	2	2.00	5.5	9.20	8.00	TSSOP-16, SOIC-16
MC74VHCT139A	Dual 2-to-4 Decoder/Demultiplexer, TTL Level	2	4.50	5.5	9.20	8.00	TSSOP-16, SOIC-16, EIAJ-16
MC74ACT253	Dual 4-Input Multiplexer, 3-State Outputs, TTL Level	2	4.50	5.5	13.00	24.00	SOIC-16
MC74ACT153	Dual 4-Input Multiplexer, TTL Level	2	4.50	5.5	11.50	24.00	SOIC-16
MC14555B	Dual Binary to 1-of-4 Decoder/Demultiplexer	2	3.00	18.0	190.00	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14556B	Dual Binary to 1-of-4 Decoder/Demultiplexer	2	3.00	18.0	190.00	2250.00	SOIC-16, PDIP-16, EIAJ-16
74FST3257	Quad 2:1 Multiplexer/Demultiplexer Bus Switch	4	4.00	5.5	0.25	–	TSSOP-16, SOIC-16
MC74LVX157	Quad 2-Channel Multiplexer	4	2.00	3.6	11.40	4.00	TSSOP-16, SOIC-16, EIAJ-16
74HCT157	Quad 2-Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	TSSOP-16, SOIC-16
M74VHCT157A	Quad 2-Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	TSSOP-16
MC74VHCT157A	Quad 2-Channel Multiplexer, TTL Level	4	4.50	5.5	8.40	8.00	EIAJ-16
MC74AC157	Quad 2-Input Multiplexer	4	2.00	6.0	9.00	24.00	TSSOP-16, SOIC-16, PDIP-16
MC74LCX157	Quad 2-Input Multiplexer	2	2.00	3.6	5.80	24.00	TSSOP-16, SOIC-16
MC74LCX158	Quad 2-Input Multiplexer	4	2.00	3.6	6.50	24.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LCX257	Quad 2-Input Multiplexer	4	2.00	3.6	6.00	24.00	TSSOP-16, SOIC-16, EIAJ-16
MC74LCX258	Quad 2-Input Multiplexer	4	2.00	3.6	6.50	24.00	TSSOP-16, SOIC-16, EIAJ-16
MC74AC257	Quad 2-Input Multiplexer 3-State Output	4	2.00	6.0	7.50	24.00	SOIC-16, PDIP-16, EIAJ-16
MC74ACT257	Quad 2-Input Multiplexer, 3-State Outputs, TTL Level	4	4.50	5.5	10.50	24.00	SOIC-16, PDIP-16, EIAJ-16
MC74ACT157	Quad 2-Input Multiplexer, TTL Level	4	4.50	5.5	9.50	24.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74VHC4316	Quad Analog Multiplexer / Demultiplexer	4	2.00	6.0	8.00	–	TSSOP-16, SOIC-16, EIAJ-16
NLAS4053	Triple 2:1 Analog Switch – Multiplexer	2	2.50	5.5	40.00	50.00	TSSOP-16

MULTIVIBRATORS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
MC14528B	Dual Monostable Multivibrator	2	3	18	240	2.25	SOIC-16, PDIP-16, EIAJ-16
MC14538B	Dual Precision Monostable Multivibrator	2	3	18	300	2.25	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16
MC74HC4538A	Dual Precision Monostable Multivibrator	2	3	6	35	4.00	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16

TRANSCEIVER

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
74VCXH16245	16-Bit Transceiver	16	1.65	3.6	2.5	24	TSSOP-48
M74LCX16245	16-Bit Transceiver	8	2.00	3.6	5.2	24	TSSOP-48
MC74LCX16245	16-Bit Transceiver	8	2.00	3.6	5.2	24	TSSOP-48
74VCXH245	8-Bit Transceiver, Low Voltage	1	2.00	6.0	15.0	6	QFN-20
MC74LVXC3245	Configurable Dual Supply Octal Transceiver	8	2.30	3.6	9.0	24	TSSOP-24, SOIC-24
MC74LVX4245	Dual Supply Octal Translating Transceiver	8	2.70	3.6	10.0	24	TSSOP-24, SOIC-24
74HC245	Octal 3-State Non-Inverting Bus/Transceiver	1	2.00	5.5	7.5	8	TSSOP-20
MC74HC245A	Octal 3-State Non-Inverting Bus/Transceiver	1	2.00	6.0	15.0	6	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74ACT245	Octal Bidirectional Transceiver, 3-State Inputs/Outputs, TTL Level	1	4.50	5.5	8.0	24	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74AC245	Octal Bidirectional Transceiver, 3-State Outputs Inputs/Outputs	1	2.00	2.0	6.5	24	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74LVX245	Octal Bus Transceiver	1	2.00	3.6	10.1	4	TSSOP-20, SOIC-20, EIAJ-20
MC74VHC245	Octal Bus Transceiver	1	2.00	5.5	7.5	8	TSSOP-20, SOIC-20
74HCT245	Octal Bus Transceiver, 3-State Inputs/Outputs, TTL Level	1	4.50	5.5	22.0	6	TSSOP-20
MC74HCT245A	Octal Bus Transceiver, 3-State Inputs/Outputs, TTL Level	1	4.50	5.5	22.0	6	TSSOP-20, SOIC-20, PDIP-20, EIAJ-20
MC74VHCT245A	Octal Bus Transceiver, 3-State Inputs/Outputs, TTL Level	1	4.50	5.5	8.7	8	TSSOP-20, SOIC-20, EIAJ-20
MC74ACT640	Octal Inverting Transceiver, 3-State, TTL Level	1	4.50	5.5	8.0	24	SOIC-20, PDIP-20, EIAJ-20
MC74ACT646	Octal Noninverting Transceiver/Register, 3-State Outputs, TTL Level	8	4.50	5.5	14.5	24	SOIC-24, PDIP-24
MC74ACT652	Octal Noninverting Transceiver/Register, 3-State Outputs, TTL Level	8	4.50	5.5	14.5	24	SOIC-24, PDIP-24
MC74LCX245	Octal Transceiver	1	2.00	3.6	7.0	24	TSSOP-20, SOIC-20, EIAJ-20
MC74AC646	Octal Transceiver/Register, 3-State Outputs (Non-inverting)	8	2.00	6.0	12.0	24	SOIC-24
MC74AC652	Octal Transceiver/Register, 3-State Outputs (Non-inverting)	8	2.00	6.0	12.0	24	SOIC-24

TRANSLATORS

Device	Description	Channels	V _{CC} Min (V)	V _{CC} Max (V)	t _{pd} Max (ns)	I _O Max (mA)	Package
NLSV1T34	1 Bit Dual Supply Unidirectional Voltage Level Translator w/o Output Enable	1	0.90	4.5	3.3	50.00	ULLGA-6, SC-88A
NLSV1T244	1-Bit Dual Supply Unidirectional Voltage Level Translator	1	0.90	4.5	3.3	50.00	UDFN-6
NLSV1T240	1-Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	1	0.90	4.5	3.3	50.00	UDFN-6
NLSX3012	2-Bit Auto Sensing Dual-Supply Voltage Level Translator	2	1.30	5.5	7.2	0.02	UDFN-8
NLSX3373	2-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	2	1.20	5.5	30.0	40.00	UDFN-8
NLSX4373	2-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	2	1.50	5.5	20.0	–	UDFN-8
NLSX4378B	2-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	4	1.50	5.5	20.0	–	uBump-12
NLSX4378	2-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	4	1.50	5.5	20.0	–	uBump-12
NLSV2T244	2-Bit Dual Supply Unidirectional Voltage Level Translator	2	0.90	4.5	3.3	50.00	UDFN-8
NLSV2T240	2-Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	2	0.90	4.5	3.3	50.00	UDFN-8
NLSX3014	4-Bit Auto Sensing Dual-Supply Voltage Level Translator	4	0.90	4.5	6.5	0.02	UQFN-12
NLSX4014	4-Bit Auto Sensing Dual-Supply Voltage Level Translator	4	1.30	4.5	17.0	–	UQFN-12
NLSX3378B	4-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	4	1.20	4.5	15.0	40.00	uBump-12
NLSX3378	4-Bit Auto Sensing Dual-Supply Voltage Level Translator, Open Drain	4	1.20	4.5	15.0	40.00	uBump-12
NLSV4T2244	4-Bit Dual Supply Unidirectional Voltage Level Translator	4	0.90	4.5	3.3	50.00	UQFN-12
NLSV4T244	4-Bit Dual Supply Unidirectional Voltage Level Translator	4	0.90	4.5	3.3	50.00	UQFN-12
NLSV4T3144	4-Bit Dual Supply Unidirectional Voltage Level Translator	4	0.90	4.5	3.3	50.00	UQFN-12
NLSV4T3234	4-Bit Dual Supply Unidirectional Voltage Level Translator, 26 ohm Output Series Resistor	4	0.90	4.5	5.6	50.00	uBump-11
NLSV4T240	4-Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	4	0.90	4.5	3.3	50.00	UQFN-12
NLSX3013B	8-Bit Auto Sensing Dual-Supply Voltage Level Translator	8	1.30	4.5	6.5	0.02	uBump-20
NLSX3013	8-Bit Auto Sensing Dual-Supply Voltage Level Translator	8	1.30	4.5	6.0	0.02	uBump-20
NLSX3018	8-Bit Auto Sensing Dual-Supply Voltage Level Translator	8	0.90	5.5	6.5	20.00	UDFN-20
NLSV8T244]	8-Bit Dual Supply Unidirectional Voltage Level Translator	8	0.90	4.5	3.3	50.00	UDFN-20
NLSV8T240	8-Bit Dual Supply Unidirectional Voltage Level Translator; Inverting	8	0.90	4.5	3.3	50.00	UDFN-20
NLSV22T244	Dual 2-Bit Dual-Supply Non-Inverting Level Translator	4	1.65	3.6	3.3	50.00	UQFN-12
MC74LVX4245	Dual Supply Octal Translating Transceiver	8	2.70	3.6	10.0	24.00	TSSOP-24, SOIC-24
MC14504B	Hex Level Shifter	1	3.00	18.0	340.0	2.25	TSSOP-16, SOIC-16, PDIP-16, EIAJ-16

DATA TRANSMISSION

Device	Description	V _{CC} Min (V)	V _{CC} Max (V)	t _{PLH} Max (μs)	I _{IH} Max (mA)	I _O Max (μA)	Package
JLC1562B	I ² C Bus I/O Expander	4.2	6	1	25	4000	PDIP-16, EIAJ-16

Interfaces

Interfaces

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DATA TRANSMITTERS**HART, MAU, and RF Transceivers**

Device	Description	Data Transmission Standard	V _{CC} Min (V)	V _{CC} Max (V)	t _{PLH} Max (μs)	I _O Max (μA)	I _{IH} Max (mA)	Package
A5191HRT	Industrial HART–Protocol Modem	HART	3	5.5	0.02	670	0.0005	LQFP–32
AMIS–49200	Fieldbus Phys Layer Medium Access Unit (MAU)	MAU	4.75	6.2	4.7	30000	0.001	LQFP–44
AMIS–52150	Low Power RF Transceiver, 350–448 MHz, CDR	–	2.3	3.6	100	1000	0.001	SSOP–14

LIN AND CAN TRANSCEIVERS

Device	Description	Data Transmission Standard	V _{CC} Min (V)	V _{CC} Max (V)	t _{PLH} Max (μs)	I _O Max (μA)	I _{IH} Max (mA)	Package
AMIS–30600	LIN Transceiver	LIN	7.3	18	50	40000	0.7	SOIC–8
AMIS–30660	CAN High–Speed Transceiver	CAN	4.75	5.25	1	45000	8	SOIC–8
AMIS–30663	CAN High–Speed Transceiver	CAN	4.75	5.25	1	45000	8	SOIC–8
AMIS–41682	Fault Tolerant CAN Transceiver	CAN	4.75	5.25	8	45000	6.3	SOIC–14
AMIS–41683	Fault Tolerant CAN Transceiver	CAN	4.75	5.25	8	45000	6.3	SOIC–14
AMIS–42665	High–Speed Low Power CAN Transceiver	CAN	4.75	5.25	1	45000	8	SOIC–14
AMIS–42671I	High–Speed CAN Transceiver for Long Networks	CAN	4.75	5.25	1	45000	8	SOIC–8
AMIS–42673	High–Speed CAN Transceiver for Long Networks	CAN	4.75	5.25	1	45000	8	SOIC–8
AMIS–42675	High–Speed Low Power CAN Transceiver	CAN	4.75	5.25	1	45000	8	SOIC–8
AMIS–42770	Dual High–Speed Can Transceiver for Long Networks	CAN	4.75	5.25	1	45000	19.5	SOIC–20
NCV7356D1	Single Wire CAN	CAN	–0.3	18	6.3	350000	0.05	SOIC–8
NCV7356D2	Single Wire CAN	CAN	–0.3	18	6.3	350000	0.05	SOIC–14
NCV7361AD	Voltage Regulator with Integrated LIN Transceiver	LIN	5.25	18	6	120000	0.11	SOIC–8
NCV7382D	Enhanced LIN Transceiver	LIN	7	40	50	20	0.024	SOIC–8

DATA TRANSMITTERS (continued)

EIA TRANSCEIVERS

Device	Data Transmission Standard	Number of Drivers	Number of Receivers	V _{CC} Min (V)	V _{CC} Max (V)	t _{PLH} Max (μs)	I _O Max (μA)	I _{IH} Max (mA)	Package
MC1488D	EIA-232D	4	–	9	15	0.35	12000	0.01	SOIC-14
MC1488M	EIA-232D	4	–	9	15	0.35	12000	0.01	SOEIAJ-14
MC1488P	EIA-232D	4	–	9	15	0.35	12000	0.01	PDIP-14
MC1489AD	EIA-232D	–	4	2.5	10	0.085	4000	8.3	SOIC-14
MC1489AM	EIA-232D	–	4	2.5	10	0.083	4000	8.3	SOEIAJ-14
MC1489AP	EIA-232D	–	4	2.5	10	0.085	4000	8.3	PDIP-14
MC1489D	EIA-232D	–	4	2.5	10	0.085	4000	8.3	SOIC-14
MC1489M	EIA-232D	–	4	2.5	10	0.085	4000	8.3	SOEIAJ-14
MC1489P	EIA-232D	–	4	2.5	10	0.085	4000	8.3	PDIP-14
MC26LS30D	EIA-422/423	–	4	–0.5	7	0.01	65000	0.04	SOIC-16
MC3488AD	EIA-423 / EIA-232D	2	–	10.8	13.2	140	150000	0.1	SOIC-8
MC3488AP1	EIA-423 / EIA-232D	2	–	10.8	13.2	140	150000	0.1	PDIP-8
MC75172BDW	EIA-485	4	–	4.75	5.25	0.03	65000	0.02	SOIC-20
MC75174BDW	EIA-485	4	–	4.75	5.25	0.03	65000	0.02	SOIC-20
MC75174BP	EIA-485	4	–	4.75	5.25	0.03	65000	0.02	PDIP-16

MODULATORS/DEMODULATORS

Device	z _{is} Typ (kΩ)	z _{os} Typ (kΩ)	V _{CFT} Typ (μV)	V _{CS} Typ (mV)	A _{VS} Typ (V)	BW Typ (MHz)	I _B Typ (μA)	ACM Typ (dB)	T _A Min (°C)	T _A Max (°C)	Package
MC1496	200	40	20	65	3.5	300	12	85	0	70	SOIC-14
MC1496B	200	40	20	65	3.5	300	12	85	–40	125	SOIC-14

SENSOR INTERFACES

Device	Channels	V _{CC} Min (V)	V _{CC} Max (V)	I _T Max (mA)	V _I Typ (V)	T _A Min (°C)	T _A Max (°C)	Package
NCV1124	2	4.5	5.5	5	250	–40	125	SOIC-8
NCV7001	4	4.5	5.5	–	–	–40	125	SOIC-24

SMART AND SIM CARD INTERFACES

Device	Description	V _{CC} Min (V)	V _{CC} Max (V)	I _T Typ (mA)	I _{I(standby)} Max (μA)	f _{Clock} Max (MHz)	Package
NCN4555	SIM Card Power Supply/Level Translator	1.8	5.5	0.03	4	5	QFN-16
NCN4557	Dual SIM / Smart Card Interface	1.8	5.5	0.03	3	5	QFN-16
NCN6000	Compact Smart Card Interface	2.7	6	5	15	40	TSSOP-20
NCN6001	Compact Smart Card Interface	2.7	6	0.5	60	40	TSSOP-20
NCN6004A	Dual Asynchronous/Synchronous Smart Card Interface	1.8	5.5	–	50	–	TQFP-48
NCN6010	SIM Card Supply and Level Shifter	2.7	6	20	2	10	TSSOP-14
NCN6804	Dual Smart Card Interface	2.7	5.5	0.1	100	40	QFN-32

TIMERS

Device	Type	E _T Max (%)	I _{CC} Typ (mA)	V _{CC} Min (V)	V _{CC} Max (V)	T _A Min (°C)	T _A Max (°C)	Package
MC14536BCP	Programmable Timer	–	–	3	18	–55	125	PDIP-16
MC14536BDW	Programmable Timer	–	–	3	18	–55	125	SOIC-16
MC14536BF	Programmable Timer	–	–	3	18	–55	125	SOEIAJ-16
MC14541BCP	Programmable Oscillator–Timer	–	–	3	18	–55	125	PDIP-14
MC14541BD	Programmable Oscillator–Timer	–	–	3	18	–55	125	SOIC-14
MC14541BDT	Programmable Oscillator–Timer	–	–	3	18	–55	125	TSSOP-14
MC14541BF	Programmable Oscillator–Timer	–	–	3	18	–55	125	SOEIAJ-14
MC1455BD	Timing Circuit	1	3	4.5	16	–40	85	SOIC-8
MC1455BP	Timing Circuit	1	3	4.5	16	–40	85	PDIP-8
MC1455D	Timing Circuit	1	3	4.5	16	0	70	SOIC-8
MC1455P	Timing Circuit	1	3	4.5	16	0	70	PDIP-8
NCV1455BD	Timing Circuit	1	3	4.5	16	–40	125	SOIC-8

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