

# MC34268

## 800 mA, 2.85 V, SCSI-2 Active Terminator, Low Dropout Voltage Regulator

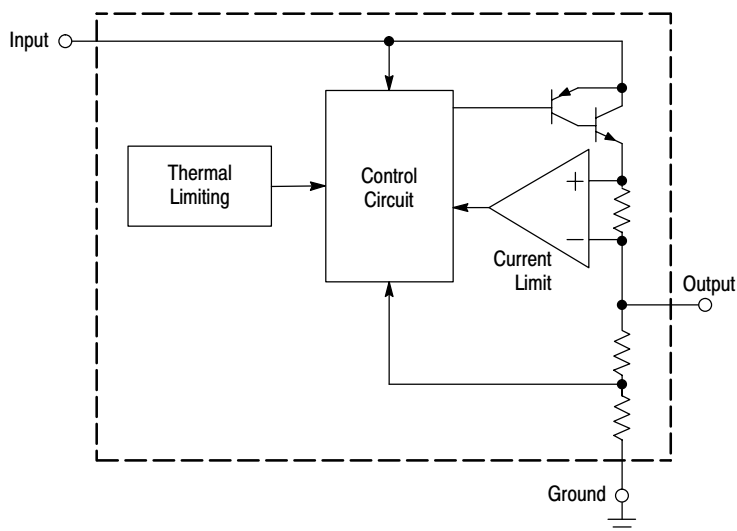
The MC34268 is a medium current, low dropout positive voltage regulator specifically designed for use in SCSI-2 active termination circuits. This device offers the circuit designer an economical solution for precision voltage regulation, while keeping power losses to a minimum. The regulator consists of a 1.0 V dropout composite PNP/NPN pass transistor, current limiting, and thermal limiting. These devices are packaged in the SOIC-8 and DPAK-3 and SOT-223 surface mount power packages.

Applications include active SCSI-2 terminators and post regulation of switching power supplies.

### Features

- 2.85 V Output Voltage for SCSI-2 Active Termination
- 1.0 V Dropout
- Output Current in Excess of 800 mA
- Thermal Protection
- Short Circuit Protection
- Output Trimmed to 1.4% Tolerance
- No Minimum Load Required
- Space Saving DPAK-3, SOT-223 and SOIC-8 Surface Mount Power Packages
- Pb-Free Packages are Available

Simplified Block Diagram



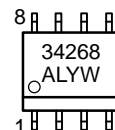
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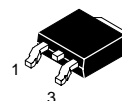
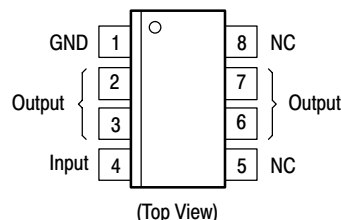
### MARKING DIAGRAMS



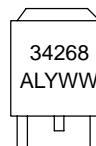
SOIC-8  
D SUFFIX  
CASE 751



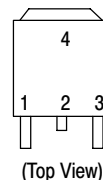
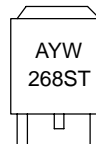
A = Assembly Location  
L = Wafer Lot  
Y = Year  
W = Work Week



DPAK-3  
DT SUFFIX  
CASE 369A



SOT-223  
ST SUFFIX  
CASE 318E



Heatsink surface (shown as terminal 4 in case outline drawing) is connected to Pin 2.

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Supply Input Voltage	$V_{in}$	15	V
Power Dissipation and Thermal Characteristics			
DT Suffix, Plastic Package, Case 369A			
$T_A = 25^\circ\text{C}$ , Derate Above $T_A = 25^\circ\text{C}$	$P_D$	Internally Limited	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.0	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Air	$R_{\theta JA}$	87	$^\circ\text{C/W}$
D Suffix, Plastic Package, Case 751			
$T_A = 25^\circ\text{C}$ , Derate Above $T_A = 25^\circ\text{C}$	$P_D$	Internally Limited	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	22	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Air	$R_{\theta JA}$	140	$^\circ\text{C/W}$
ST Suffix, Plastic Package, Case 318E			
$T_A = 25^\circ\text{C}$ , Derate Above $T_A = 25^\circ\text{C}$	$P_D$	Internally Limited	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	15	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Air	$R_{\theta JA}$	245	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_J$	0 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS

( $V_{in} = 4.25\text{ V}$ ,  $C_O = 10\text{ }\mu\text{F}$ , for typical values  $T_J = 25^\circ\text{C}$ , for min/max values  $T_J = 0^\circ\text{C}$  to  $+125^\circ\text{C}$ , unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Output Voltage ( $T_J = 25^\circ\text{C}$ , $I_O = 0\text{ mA}$ )	$V_O$	2.81	2.85	2.89	V
Output Voltage, over Line, Load, and Temperature ( $V_{in} = 3.9\text{ V}$ to $15\text{ V}$ , $I_O = 0\text{ mA}$ to $490\text{ mA}$ )		2.76	2.85	2.93	
Line Regulation ( $V_{in} = 4.25\text{ V}$ to $15\text{ V}$ , $I_O = 0\text{ mA}$ , $T_J = 25^\circ\text{C}$ )	$\text{Reg}_{line}$	—	—	0.3	%
Load Regulation ( $I_O = 0\text{ mA}$ to $800\text{ mA}$ , $T_J = 25^\circ\text{C}$ )	$\text{Reg}_{load}$	—	—	0.5	%
Dropout Voltage ( $I_O = 490\text{ mA}$ )	$V_{in} - V_O$	—	0.95	1.1	V
Ripple Rejection ( $f = 120\text{ Hz}$ )	RR	55	—	—	dB
Maximum Output Current ( $V_{in} = 5.0\text{ V}$ )	$I_{(max)}$	800	—	—	mA
Bias Current ( $V_{in} = 4.25\text{ V}$ , $I_O = 0\text{ mA}$ )	$I_B$	—	5.0 to 3.0	8.0	mA
Minimum Load Current to maintain Regulation ( $V_{in} = 15\text{ V}$ )	$I_{L(min)}$	—	—	0	mA

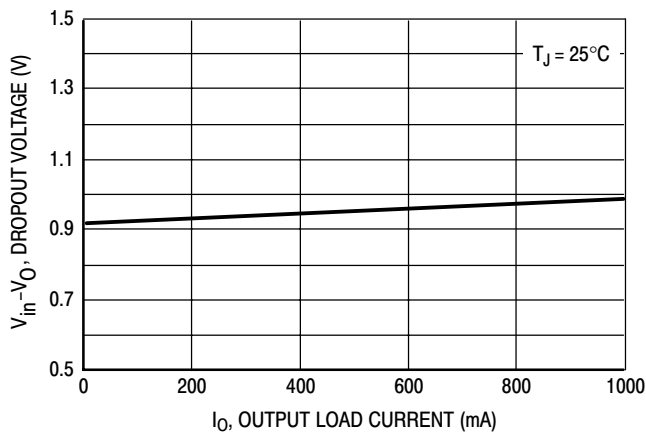


Figure 1. Dropout Voltage versus Output Load Current

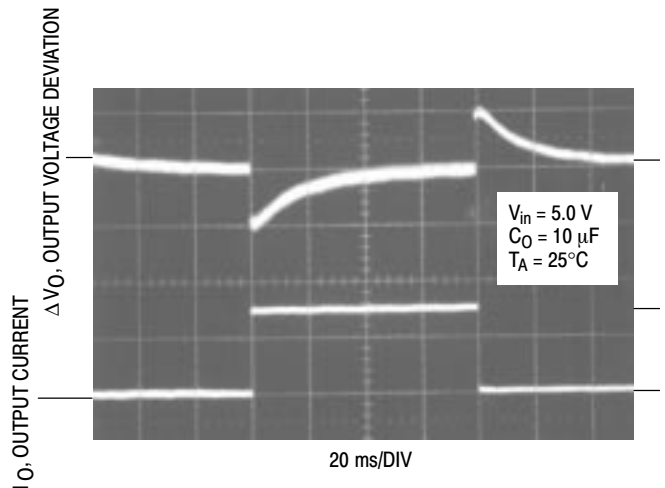


Figure 2. Transient Load Regulation

## MC34268

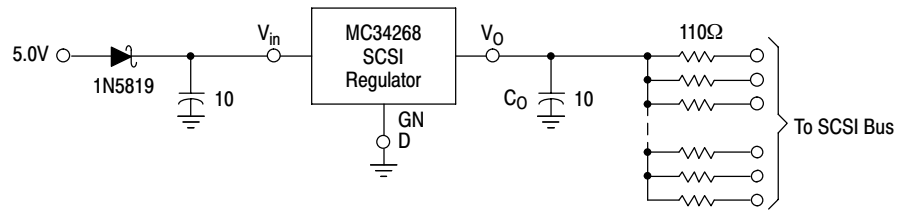


Figure 3. Typical SCSI Application

Figure 3 is a circuit of a typical SCSI terminator application. The MC34268 is designed specifically to provide 2.85 V required to drive a SCSI-2 bus. The output current capability of the regulator is in excess of 800 mA; enough to drive standard SCSI-2, fast SCSI-2, and some wide SCSI-2 applications. The typical dropout voltage is less than 1.0 V, allowing the IC to regulate to input voltages less than 4.0 V. Internal protective features include current and thermal limiting.

The MC34268 requires an external 10 µF capacitor with an ESR of less than 10 Ω for stability over temperature. With economical electrolytic capacitors, cold temperature operation can pose a stability problem. As temperature decreases, the capacitance also decreases and the ESR increases, which could cause the circuit to oscillate. Tantalum capacitors may be a better choice if small size is a requirement. Also, the capacitance and ESR of a tantalum capacitor is more stable over temperature.

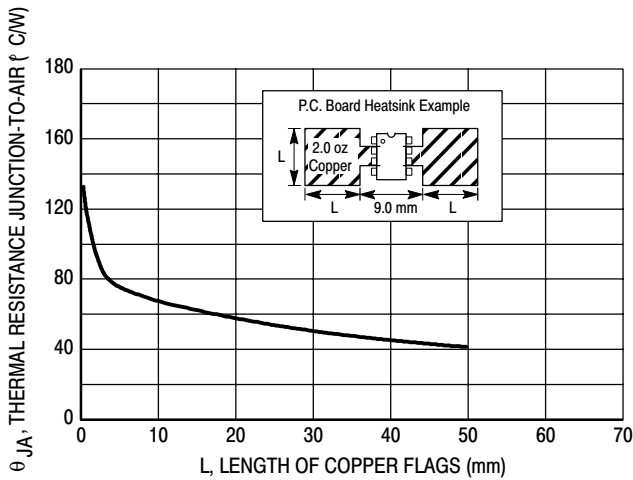


Figure 4. SOIC-8 Thermal Resistance versus P.C.B. Copper Length

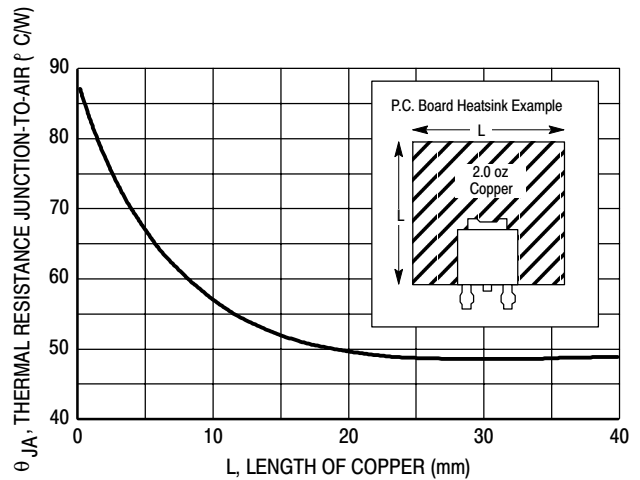


Figure 5. DPAK-3 Thermal Resistance versus P.C.B. Copper Length

### ORDERING INFORMATION

Device	Package	Shipping Information†
MC34268D	SOIC-8	98 Units / Rail
MC34268DG	SOIC-8 (Pb-Free)	98 Units / Rail
MC34268DR2	SOIC-8	2500 Units / Tape & Reel
MC34268DT	DPAK-3	75 Units / Rail
MC34268DTRK	DPAK-3	2500 Units / Tape & Reel
MC34268STT3	SOT-223	4000 Units / Tape & Reel

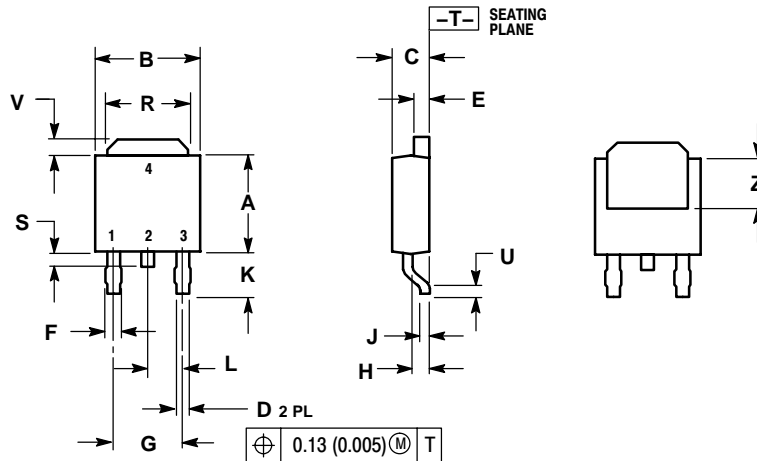
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



# MC34268

## PACKAGE DIMENSIONS

**DPAK-3**  
**DT SUFFIX**  
 CASE 369A-13  
 ISSUE AB

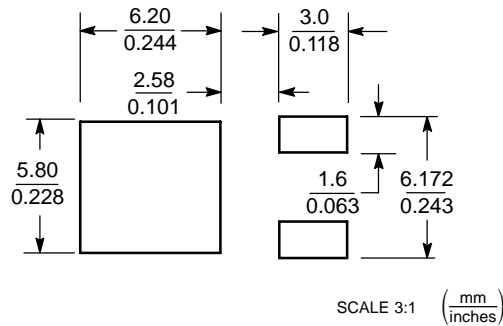


### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.250	5.97	6.35
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.033	0.040	0.84	1.01
F	0.037	0.047	0.94	1.19
G	0.180 BSC		4.58 BSC	
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.175	0.215	4.45	5.46
S	0.020	0.050	0.51	1.27
U	0.020	---	0.51	---
V	0.030	0.050	0.77	1.27
Z	0.138	---	3.51	---

## SOLDERING FOOTPRINT\*



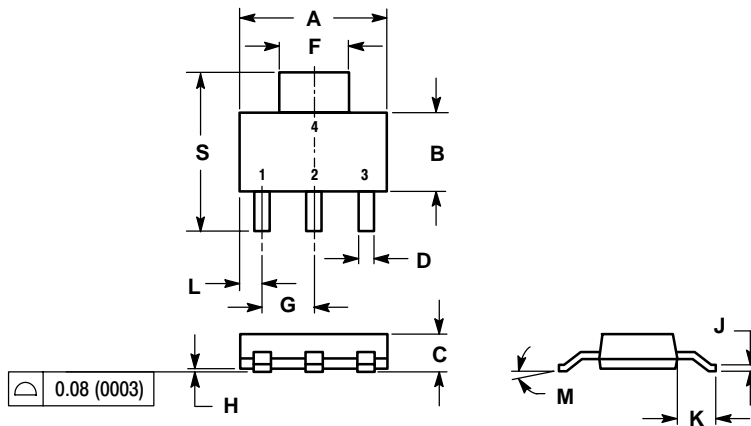
## DPAK-3

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MC34268

## PACKAGE DIMENSIONS

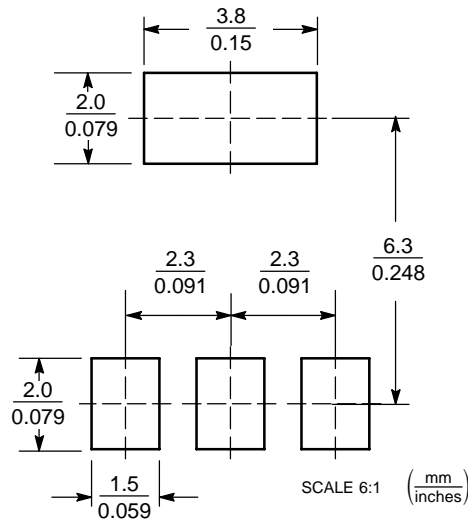
**SOT-223**  
**ST SUFFIX**  
CASE 318E-04  
ISSUE K



- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.249	0.263	6.30	6.70
B	0.130	0.145	3.30	3.70
C	0.060	0.068	1.50	1.75
D	0.024	0.035	0.60	0.89
F	0.115	0.126	2.90	3.20
G	0.087	0.094	2.20	2.40
H	0.0008	0.0040	0.020	0.100
J	0.009	0.014	0.24	0.35
K	0.060	0.078	1.50	2.00
L	0.033	0.041	0.85	1.05
M	0°	10°	0°	10°
S	0.264	0.287	6.70	7.30

### SOLDERING FOOTPRINT\*



### SOT-223

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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