

MSRD620CT

SWITCHMODE™ Soft Ultrafast Recovery Power Rectifier

Plastic DPAK Package

State of the art geometry features epitaxial construction with glass passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies, free wheeling diode and polarity protection diodes.

- Soft Ultrafast Recovery (35 ns typ.)
- Highly Stable Oxide Passivated Junction
- Matched Dual Die Construction — May Be Paralleled for High Current Output
- Short Heat Sink Tab Manufactured — Not Sheared
- Epoxy Meets UL94, V_O at 1/8"

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 0.4 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 75 units per plastic tube
- Available in 16 mm Tape and Reel, 2500 units per Reel, Add "T4" to Suffix part number
- Marking: S620T

MAXIMUM RATINGS

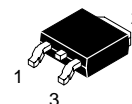
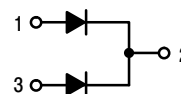
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	200	V
Average Rectified Forward Current (At Rated V _R , T _C = 137°C) Per Leg Per Package	I _O	3.0 6.0	A
Peak Repetitive Forward Current (At Rated V _R , Square Wave, 20 kHz, T _C = 138°C) Per Leg	I _{FRM}	6.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) Per Package	I _{FSM}	50	A
Storage/Operating Case Temperature Range	T _{stg} , T _C	-55 to +175	°C
Operating Junction Temperature Range	T _J	-55 to +175	°C



ON Semiconductor™

<http://onsemi.com>

SOFT ULTRAFAST RECTIFIER 6.0 AMPERES 200 VOLTS



DPAK
CASE 369A
PLASTIC

MARKING DIAGRAM



S620T = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MSRD620CT	DPAK	75 Units/Rail
MSRD620CTT4	DPAK	2500/Tape & Reel

MSRD620CT

THERMAL CHARACTERISTICS

Rating		Symbol	Value	Unit
Thermal Resistance – Junction to Case	Per Leg	$R_{\theta JC}$	9.0	$^{\circ}\text{C/W}$
– Junction to Ambient	Per Leg	$R_{\theta JA}$	80	

ELECTRICAL CHARACTERISTICS

Rating		Symbol	Value		Unit
Maximum Instantaneous Forward Voltage (Note 1.), see Figure 2. (I _F = 3.0 A) (I _F = 6.0 A)	Per Leg	V _F	T _J = 25°C	T _J = 150°C	V
			1.15	1.05	
			1.35	1.30	
Maximum Instantaneous Reverse Current, see Figure 4. (V _R = 200 V) (V _R = 100 V)	Per Leg	I _R	T _J = 25°C	T _J = 150°C	μA
			5.0	200	
			2.0	100	
Maximum Reverse Recovery Time (Note 2.) (V _R = 30 V, I _F = 1.0 A, di/dt = 50 A/μs) (V _R = 30 V, I _F = 3.0 A, di/dt = 50 A/μs)	Per Leg	t _{rr}			ns
			45		
			55		
Maximum Peak Reverse Recovery Current (V _R = 30 V, I _F = 1.0 A, di/dt = 50 A/μs) (V _R = 30 V, I _F = 3.0 A, di/dt = 50 A/μs)	Per Leg	I _{RM}			A
			2.0		
			3.0		

1. Pulse Test: Pulse Width $\leq 250\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.
2. t_{rr} measured projecting from 25% of I_{RM} to ground.

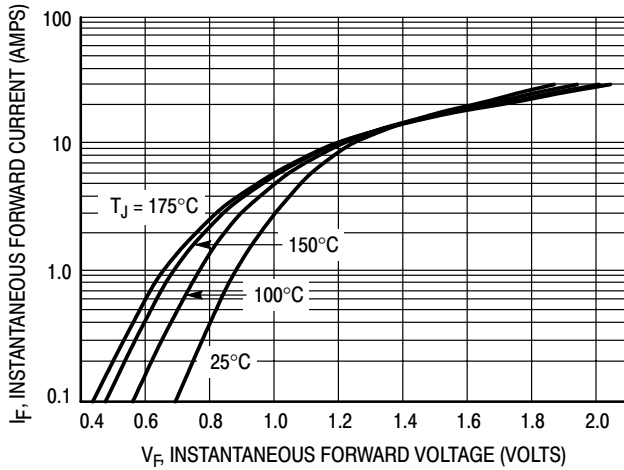


Figure 1. Typical Forward Voltage, Per Leg

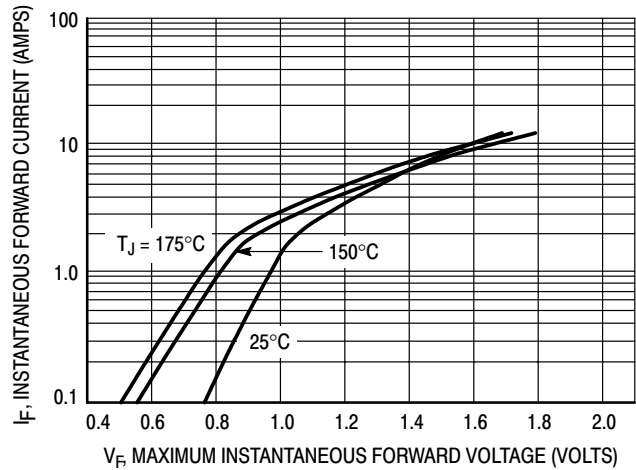


Figure 2. Maximum Forward Voltage, Per Leg

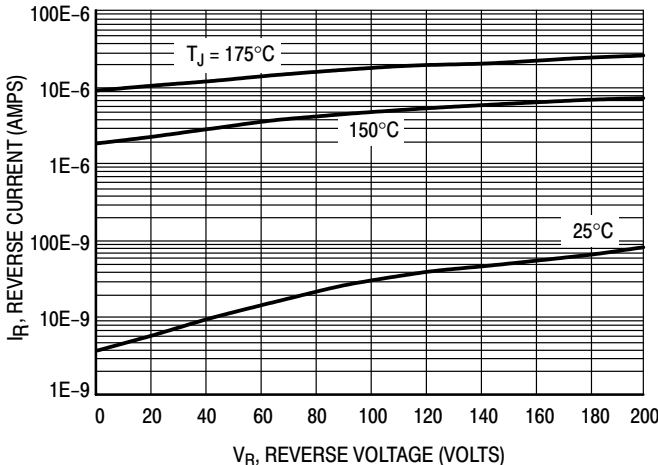


Figure 3. Typical Reverse Current, Per Leg

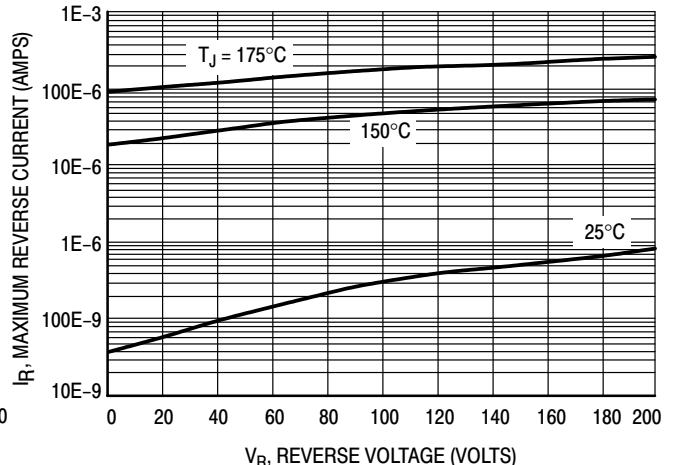


Figure 4. Maximum Reverse Current, Per Leg

MSRD620CT

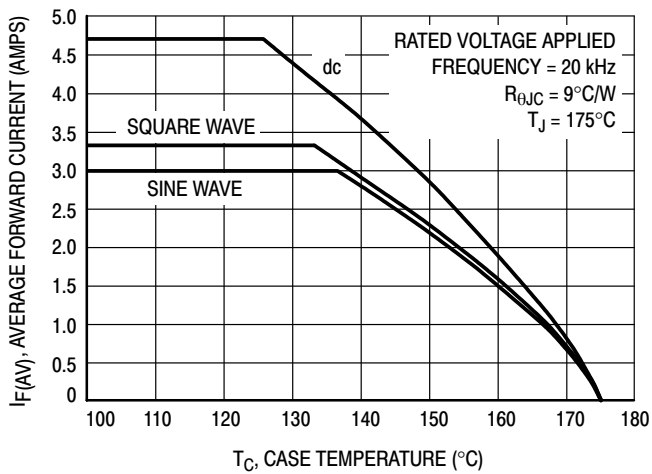


Figure 5. Current Derating, Case (Per Leg)

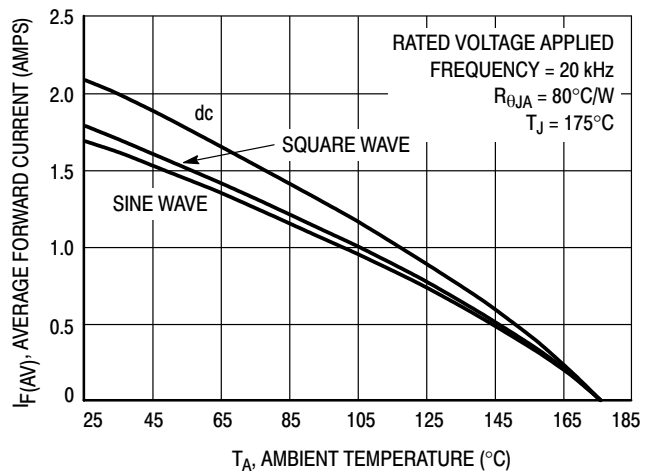


Figure 6. Current Derating, Ambient (Per Leg)

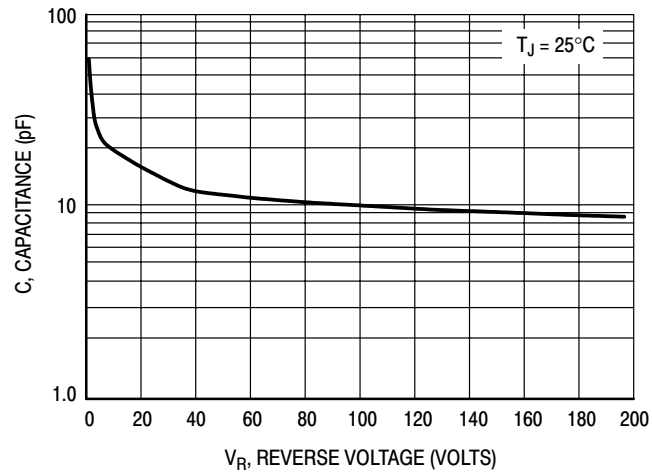


Figure 7. Typical Capacitance (Per Leg)

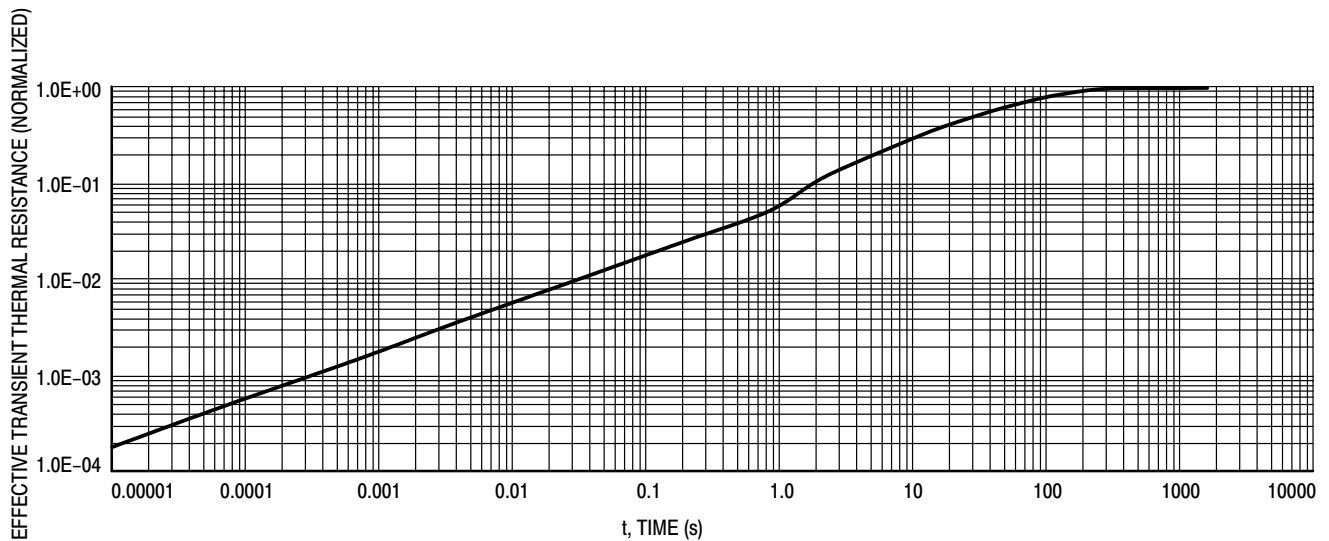


Figure 8. Transient Thermal Response ($R_{\theta JA}$)

MSRD620CT

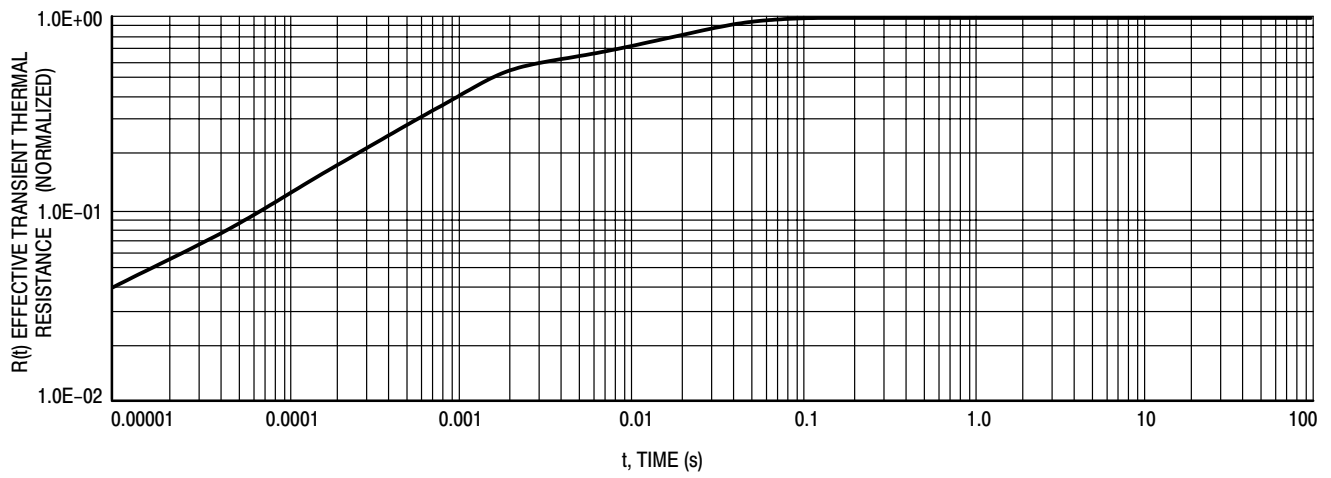
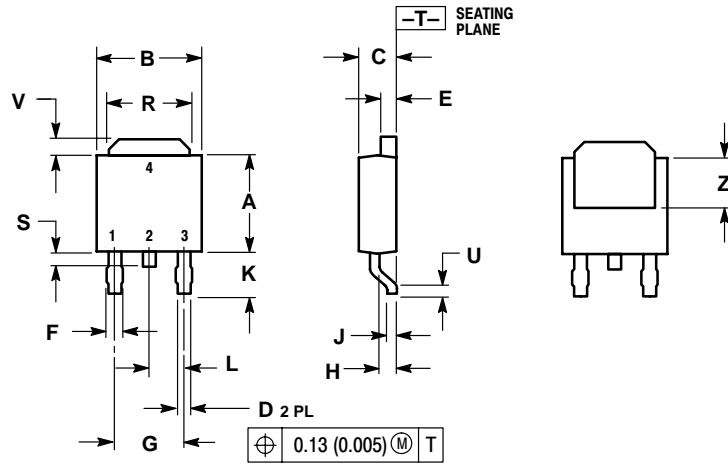


Figure 9. Transient Thermal Response ($R_{\theta JC}$)

MSRD620CT

PACKAGE DIMENSIONS

DPAK
CASE 369A-13
ISSUE AA



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	---

Notes

Notes

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

NORTH AMERICA Literature Fulfillment:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: ONlit@hibbertco.com
Fax Response Line: 303-675-2167 or 800-344-3810 Toll Free USA/Canada

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

EUROPE: LDC for ON Semiconductor – European Support

German Phone: (+1) 303-308-7140 (Mon-Fri 2:30pm to 7:00pm CET)
Email: ONlit-german@hibbertco.com

French Phone: (+1) 303-308-7141 (Mon-Fri 2:00pm to 7:00pm CET)
Email: ONlit-french@hibbertco.com

English Phone: (+1) 303-308-7142 (Mon-Fri 12:00pm to 5:00pm GMT)
Email: ONlit@hibbertco.com

EUROPEAN TOLL-FREE ACCESS*: 00-800-4422-3781

*Available from Germany, France, Italy, UK, Ireland

CENTRAL/SOUTH AMERICA:

Spanish Phone: 303-308-7143 (Mon-Fri 8:00am to 5:00pm MST)
Email: ONlit-spanish@hibbertco.com

Toll-Free from Mexico: Dial 01-800-288-2872 for Access –
then Dial 866-297-9322

ASIA/PACIFIC: LDC for ON Semiconductor – Asia Support

Phone: 303-675-2121 (Tue-Fri 9:00am to 1:00pm, Hong Kong Time)
Toll Free from Hong Kong & Singapore:
001-800-4422-3781

Email: ONlit-asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center

4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031
Phone: 81-3-5740-2700
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local
Sales Representative.