Surface Mount Standard Recovery Power Rectifier

SMB Power Surface Mount Package

MRS1504T3G, NRVS1504T3G

Features mesa epitaxial construction with glass passivation. Ideally suited for high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

Features

- Compact Package with J−Bend Leads Ideal for Automated Handling
- Stable, High Temperature, Glass Passivated Junction
- AEC−Q101 Qualified and PPAP Capable
- NRVS Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb-Free*

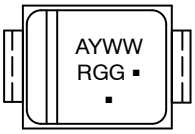
Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight: 95 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Maximum Temperature of 260°C / 10 Seconds for Soldering
- Polarity: Notch and/or Band in Plastic Body Indicates Cathode Lead
- ESD Ratings:
  - Machine Model = C
  - Human Body Model = 3A

STANDARD RECOVERY RECTIFIER 1.5 AMPERES, 400 VOLTS

SMB
CASE 403A
PLASTIC

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
RGG = Device Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MRS1504T3G	SMB (Pb−Free)	2,500 / Tape & Reel
NRVS1504T3G	SMB (Pb−Free)	2,500 / Tape & Reel

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

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

MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V_{RRM} V_{RWM} V_R	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	400	V
I_O	Average Rectified Forward Current (At Rated V_R, T_l = 118°C)	1.5	A
I_{FRM}	Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_l = 118°C)	3.0	A
I_{FSM}	Non−Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	50	A
T_{stg}, T_C	Storage/Operating Case Temperature Range	−55 to 150	°C
T_J	Operating Temperature Range	−55 to 150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Symbol	Rating	Value	Unit
R_{tjl}	Thermal Resistance, Junction−to−Lead (Note 1)	18	°C/W
R_{tja}	Thermal Resistance, Junction−to−Ambient (on 1″ sq. Cu. PCB pattern)	79	°C/W

1. Minimum pad size.

ELECTRICAL CHARACTERISTICS

Symbol	Rating	T_J = 25°C	T_J = 100°C	Unit
V_F	Maximum Instantaneous Forward Voltage (Note 2), see Figure 2 (I_F = 1.5 A) (I_F = 2.25 A)	 1.04 1.10	 0.96 1.02	V
I_R	Maximum Instantaneous Reverse Current, see Figure 4 (V_R = 400 V) (V_R = 200 V)	 1.0 0.5	 340 180	μA

2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%

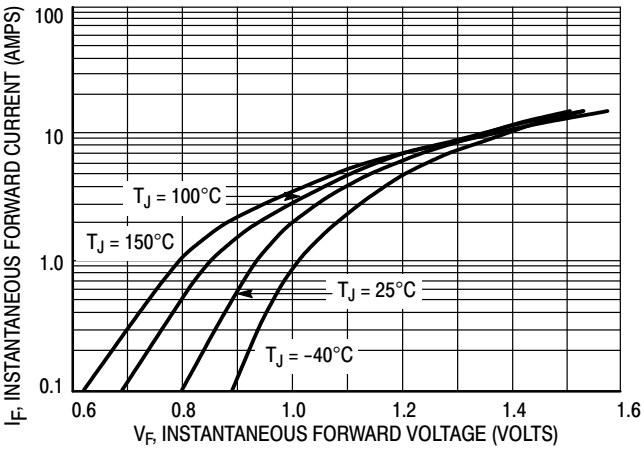


Figure 1. Typical Forward Voltage

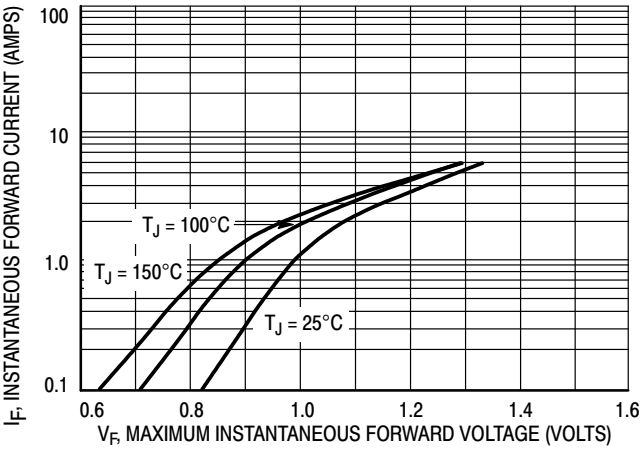


Figure 2. Maximum Forward Voltage

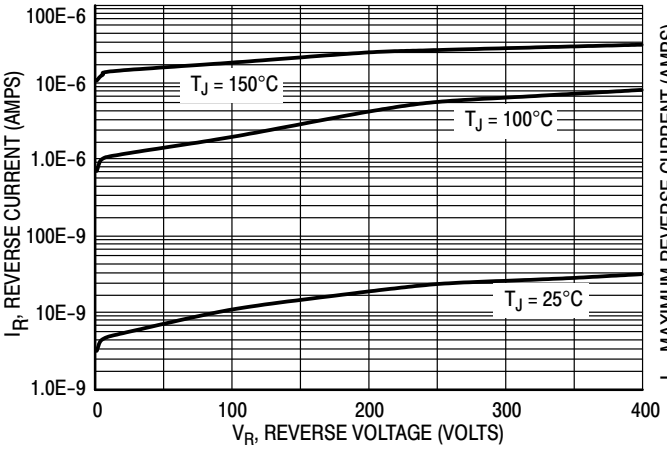


Figure 3. Typical Reverse Current

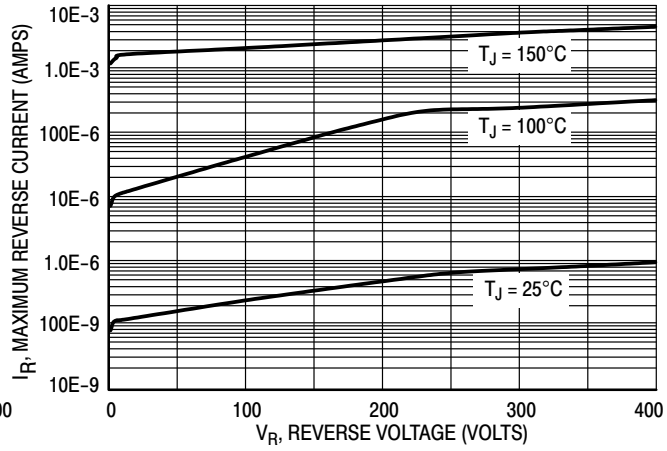


Figure 4. Maximum Reverse Current

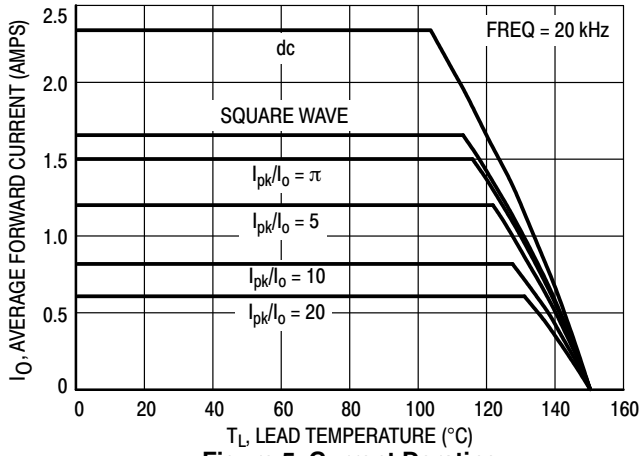


Figure 5. Current Derating

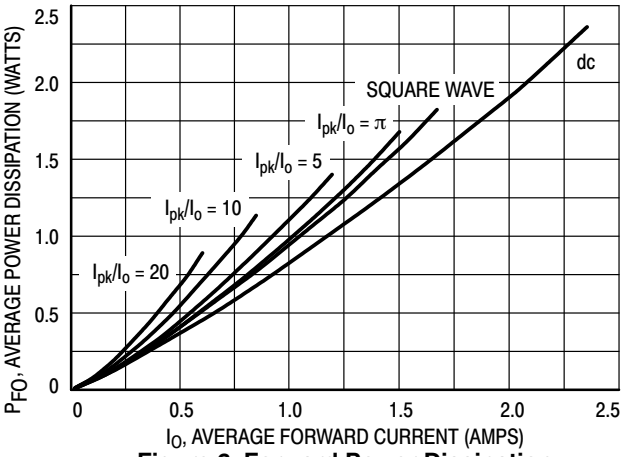


Figure 6. Forward Power Dissipation

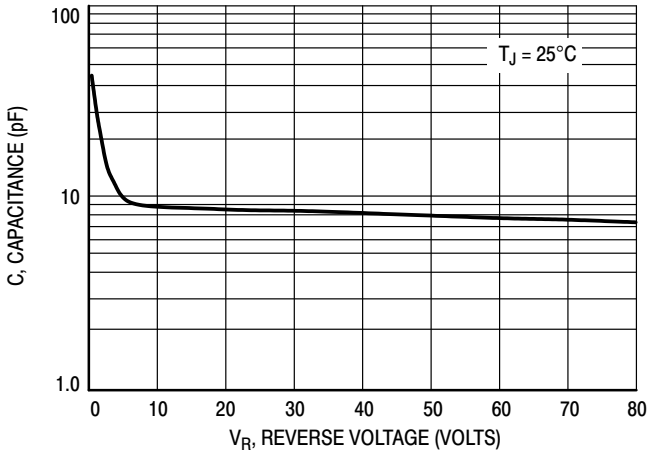


Figure 7. Capacitance

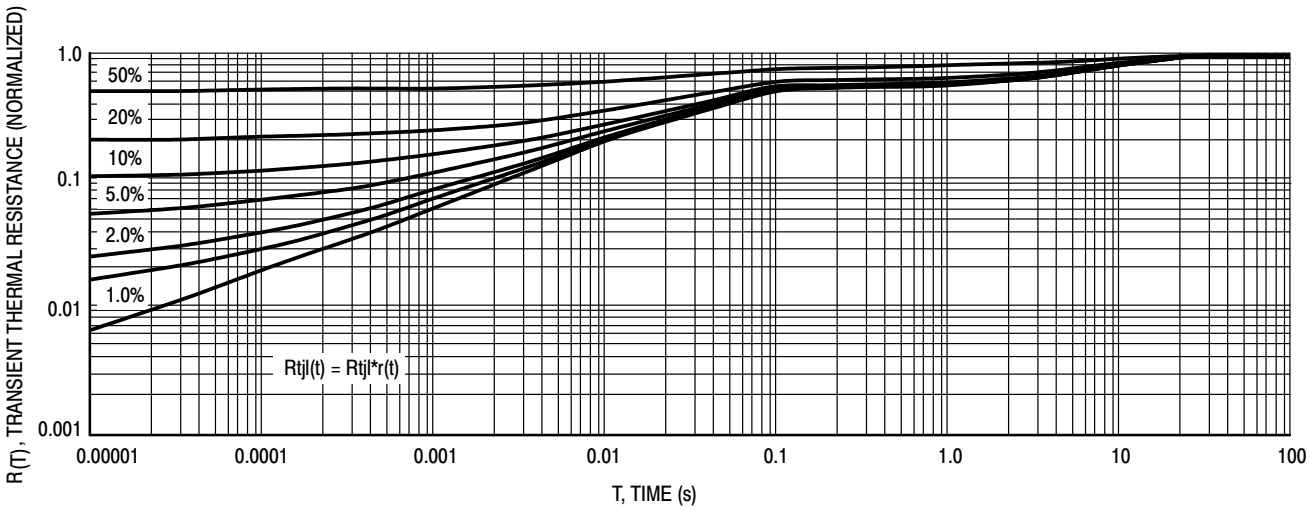


Figure 8. Thermal Response, Junction−to−Lead

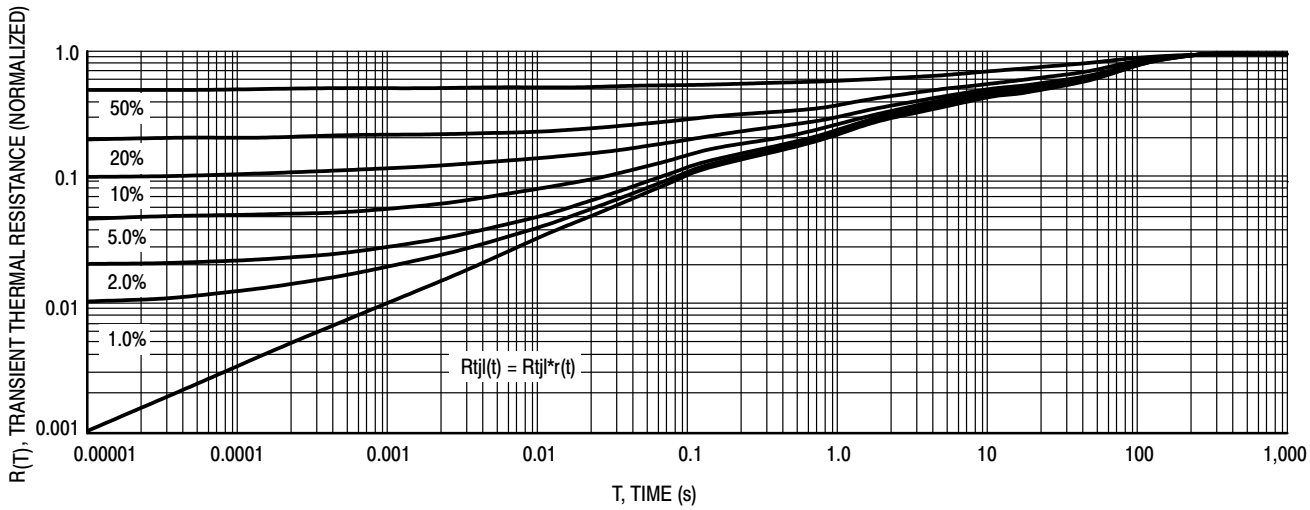


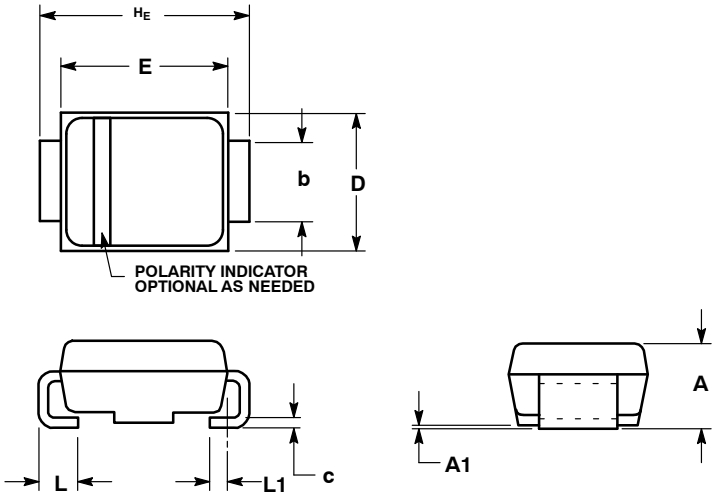
Figure 9. Thermal Response, Junction−to−Ambient

SMB
CASE 403A−03
ISSUE J

DATE 19 JUL 2012

SCALE 1:1
Polarity Band

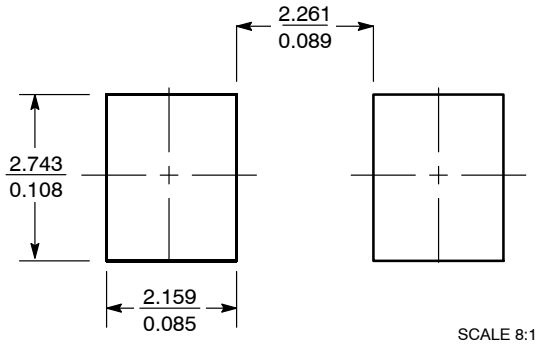
SCALE 1:1
Non−Polarity Band



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L1.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.95	2.30	2.47	0.077	0.091	0.097
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
H_E	5.21	5.44	5.60	0.205	0.214	0.220
L	0.76	1.02	1.60	0.030	0.040	0.063
L1	0.51 REF			0.020 REF		

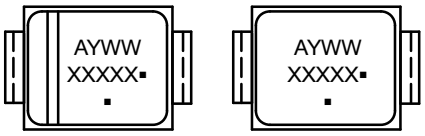
SOLDERING FOOTPRINT*



SCALE 8:1 (mm / inches)

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

GENERIC MARKING DIAGRAM*



Polarity Band **Non−Polarity Band**

XXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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DESCRIPTION:	**SMB**	**PAGE 1 OF 1**

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