

# MRS1504T3

## Surface Mount Standard Recovery Power Rectifier

### SMB Power Surface Mount Package

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
- Pb-Free Package is Available

#### 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

#### MAXIMUM RATINGS

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

#### THERMAL CHARACTERISTICS

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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Minimum pad size.



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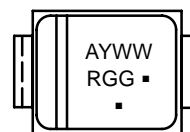
<http://onsemi.com>

### 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

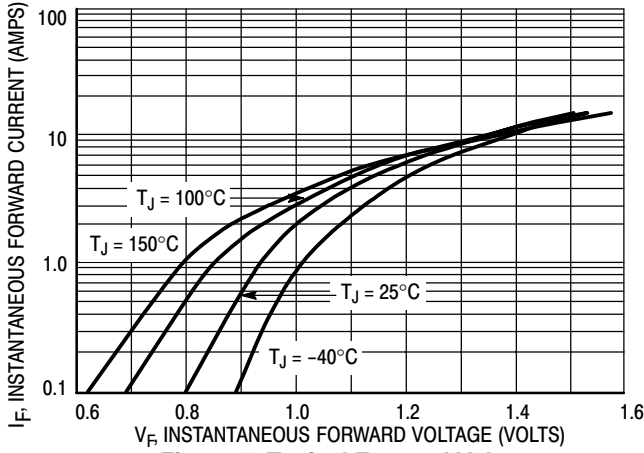
Device	Package	Shipping†
MRS1504T3	SMB	2500/Tape & Reel
MRS1504T3G	SMB (Pb-Free)	2500/Tape & Reel

†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.

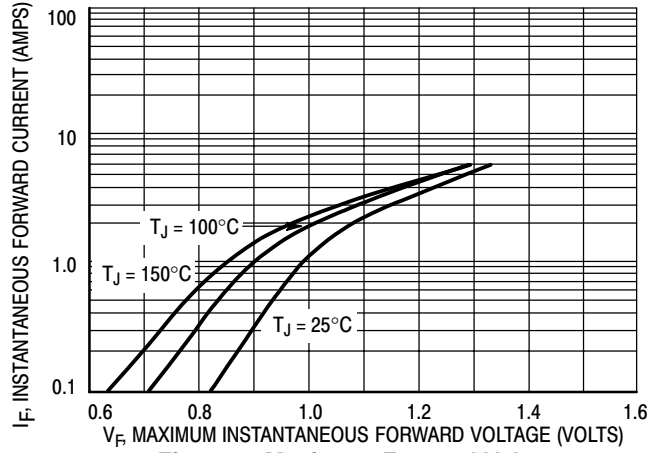
**ELECTRICAL CHARACTERISTICS**

Rating	Symbol	T <sub>J</sub> = 25°C	T <sub>J</sub> = 100°C	Unit
Maximum Instantaneous Forward Voltage (Note 2), see Figure 2 (I <sub>F</sub> = 1.5 A) (I <sub>F</sub> = 2.25 A)	V <sub>F</sub>	1.04 1.10	0.96 1.02	V
Maximum Instantaneous Reverse Current, see Figure 4 (V <sub>R</sub> = 400 V) (V <sub>R</sub> = 200 V)	I <sub>R</sub>	1.0 0.5	340 180	μA

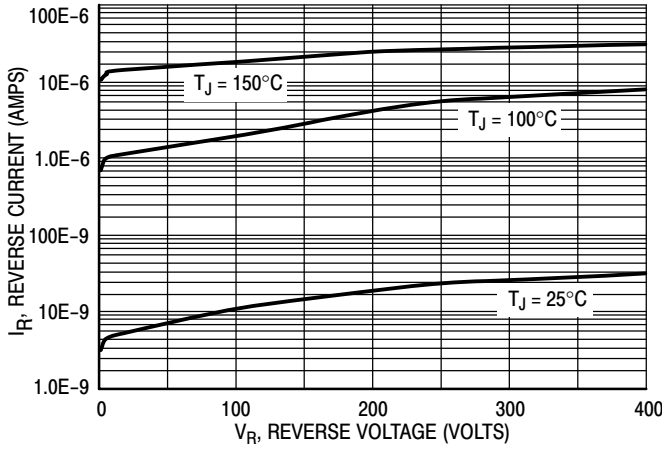
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%



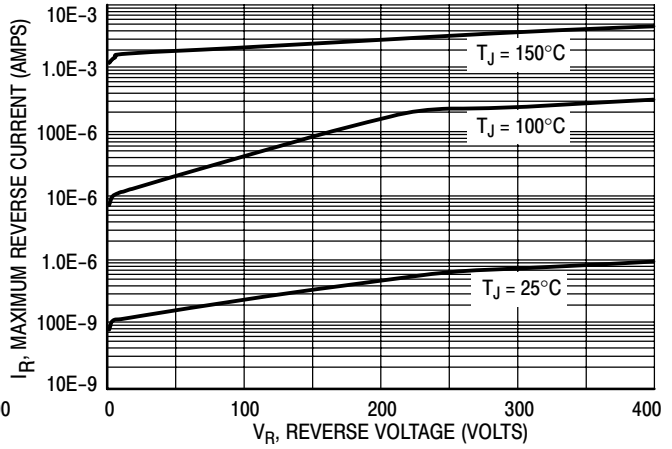
**Figure 1. Typical Forward Voltage**



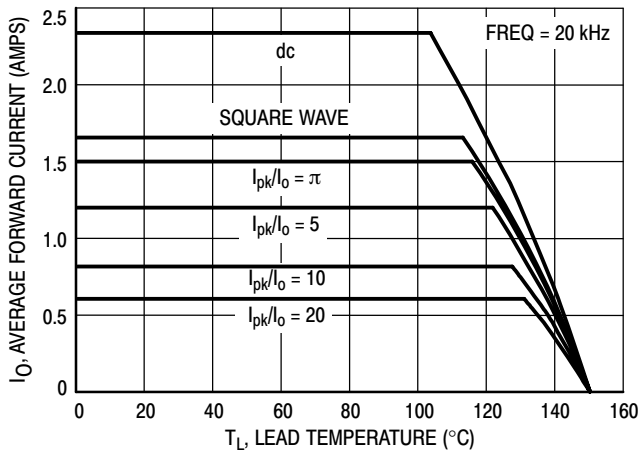
**Figure 2. Maximum Forward Voltage**



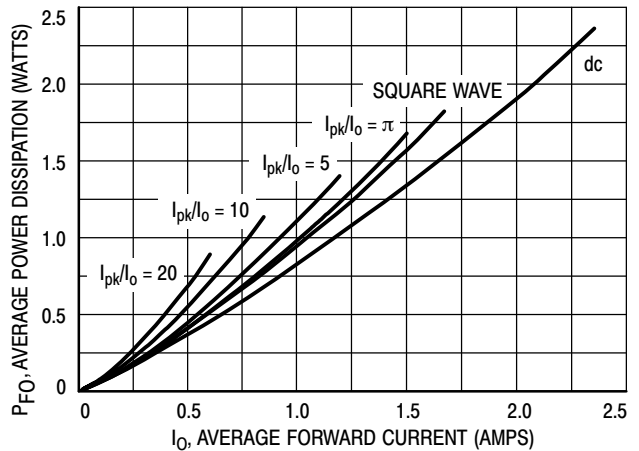
**Figure 3. Typical Reverse Current**



**Figure 4. Maximum Reverse Current**



**Figure 5. Current Derating**



**Figure 6. Forward Power Dissipation**

# MRS1504T3

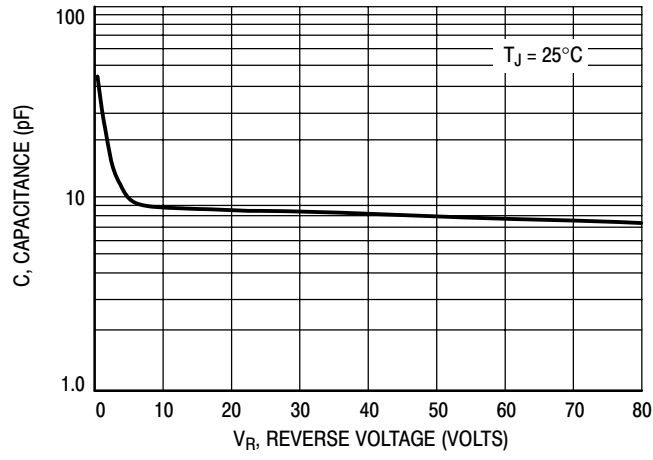


Figure 7. Capacitance

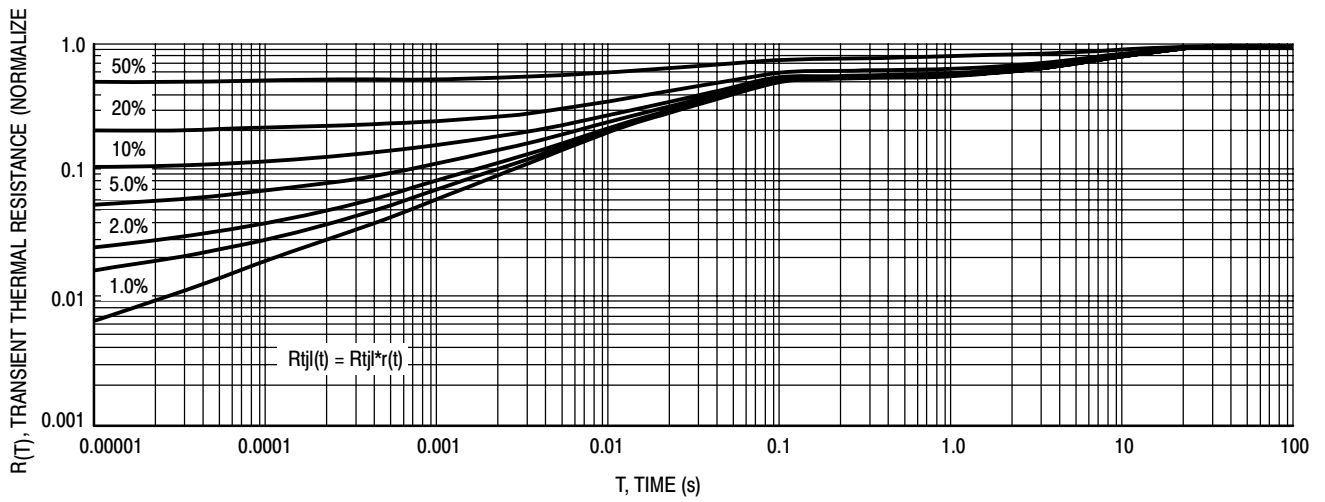


Figure 8. Thermal Response, Junction-to-Lead

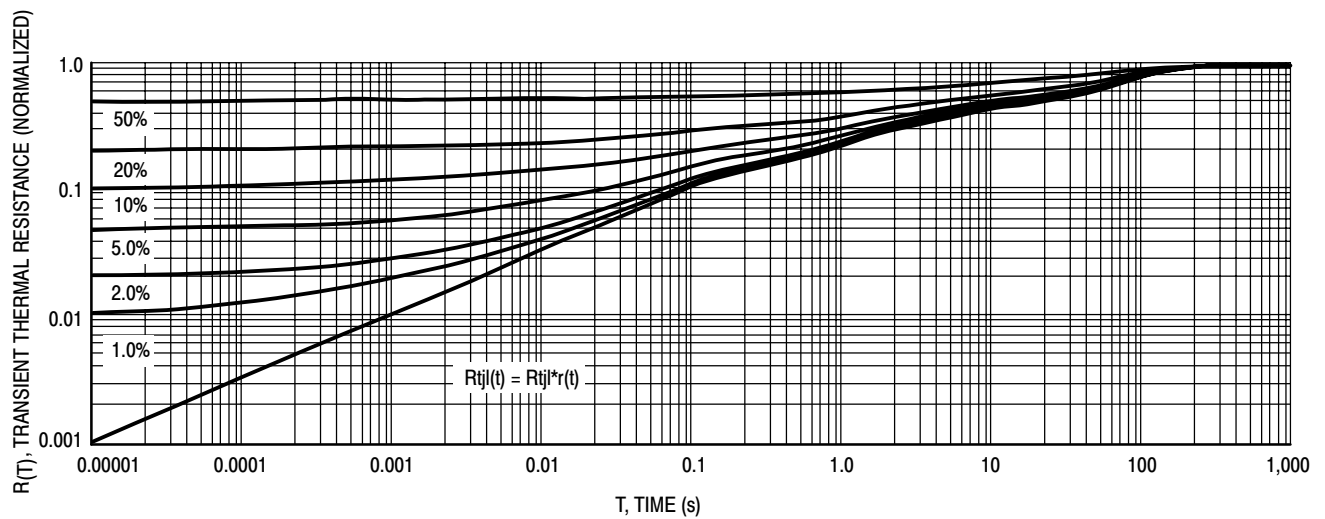
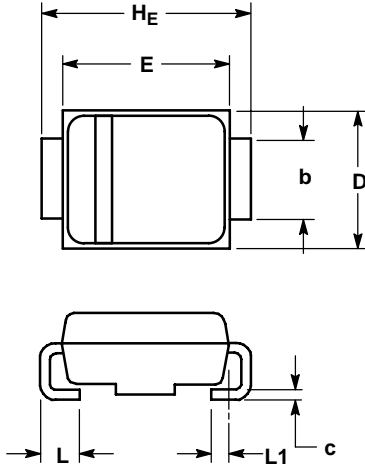


Figure 9. Thermal Response, Junction-to-Ambient

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## PACKAGE DIMENSIONS

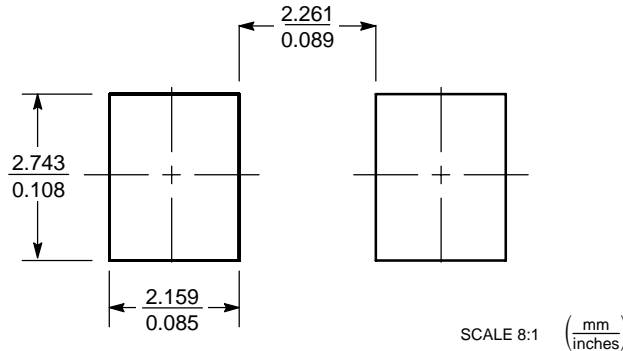
**SMB**  
CASE 403A-03  
ISSUE F



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

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.90	2.13	2.45	0.075	0.084	0.096
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
HE	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\*



\*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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