

MRS1504T3G, NRVS1504T3G

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
- 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



ON Semiconductor®

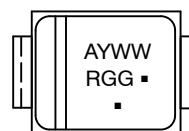
<http://onsemi.com>

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 [†]
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 Specifications Brochure, BRD8011/D.

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

MRS1504T3G, NRVS1504T3G

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	$^\circ\text{C}$
Operating Temperature Range	T_J	-55 to 150	$^\circ\text{C}$

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.

THERMAL CHARACTERISTICS

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

1. Minimum pad size.

ELECTRICAL CHARACTERISTICS

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

2. Pulse Test: Pulse Width $\leq 250\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

MRS1504T3G, NRVS1504T3G

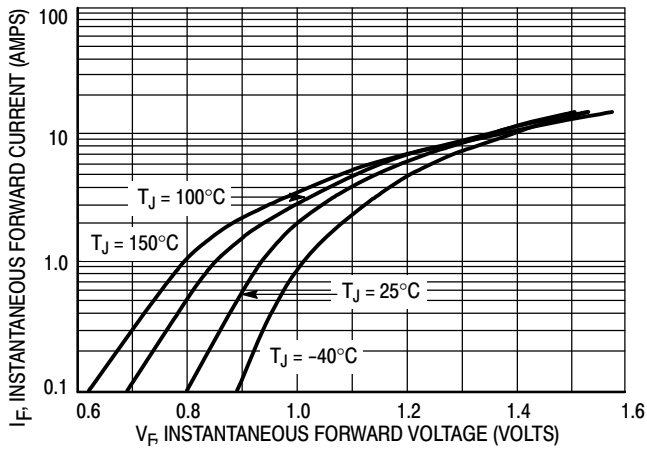


Figure 1. Typical Forward Voltage

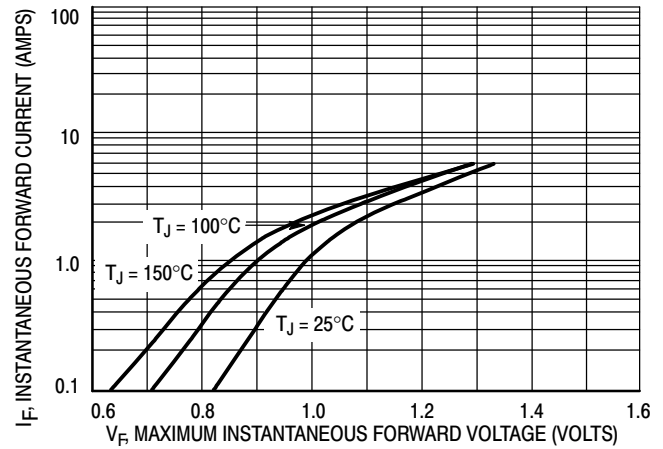


Figure 2. Maximum Forward Voltage

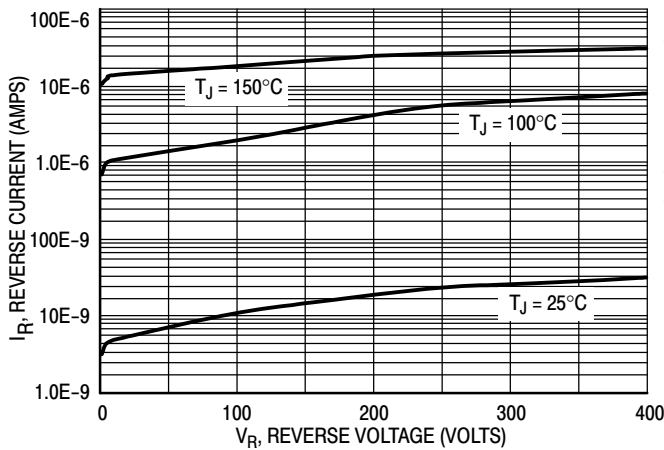


Figure 3. Typical Reverse Current

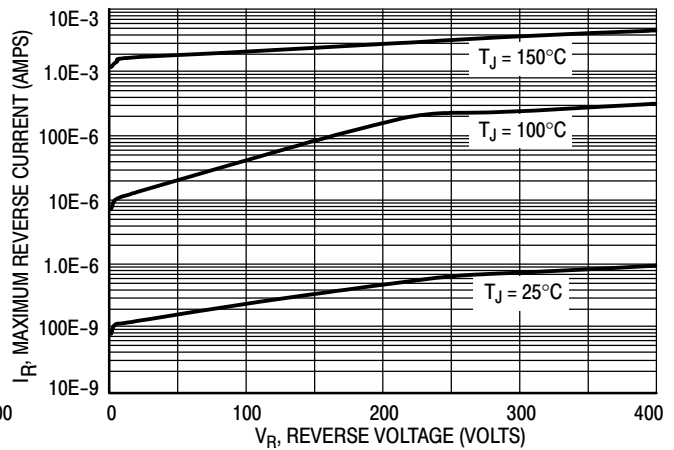


Figure 4. Maximum Reverse Current

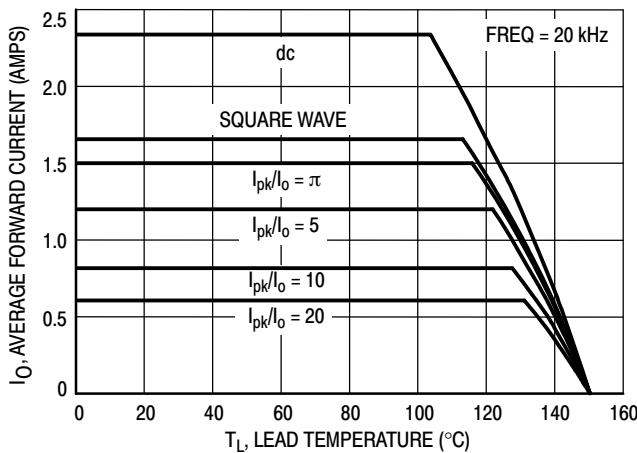


Figure 5. Current Derating

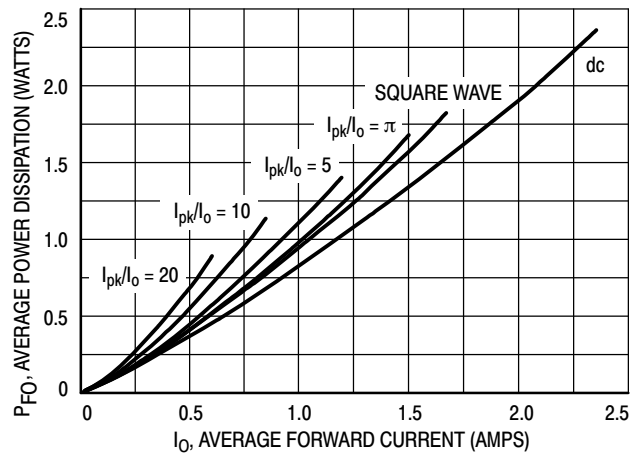


Figure 6. Forward Power Dissipation

MRS1504T3G, NRVS1504T3G

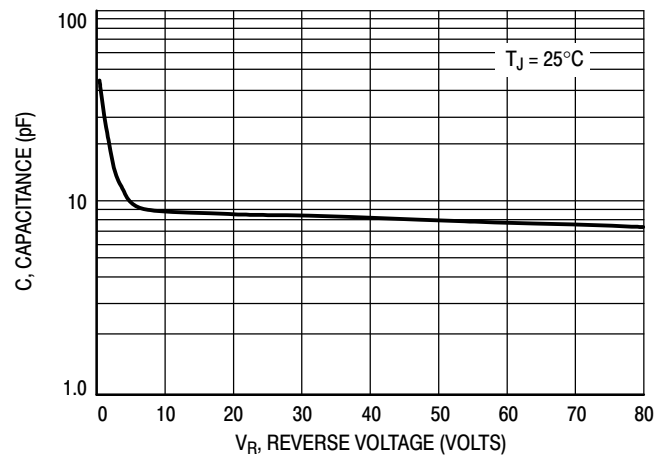


Figure 7. Capacitance

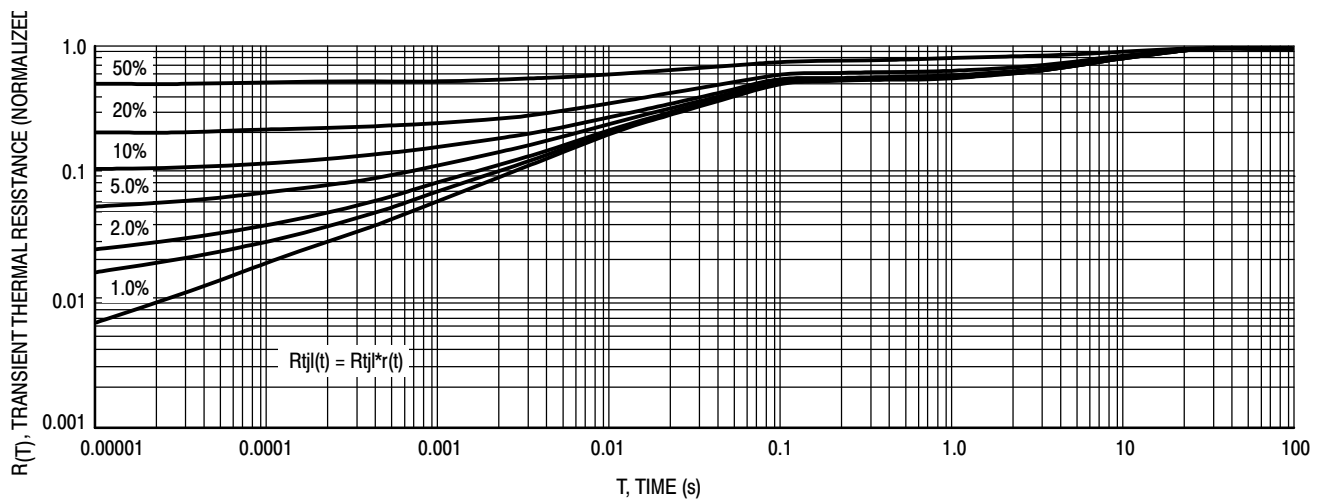


Figure 8. Thermal Response, Junction-to-Lead

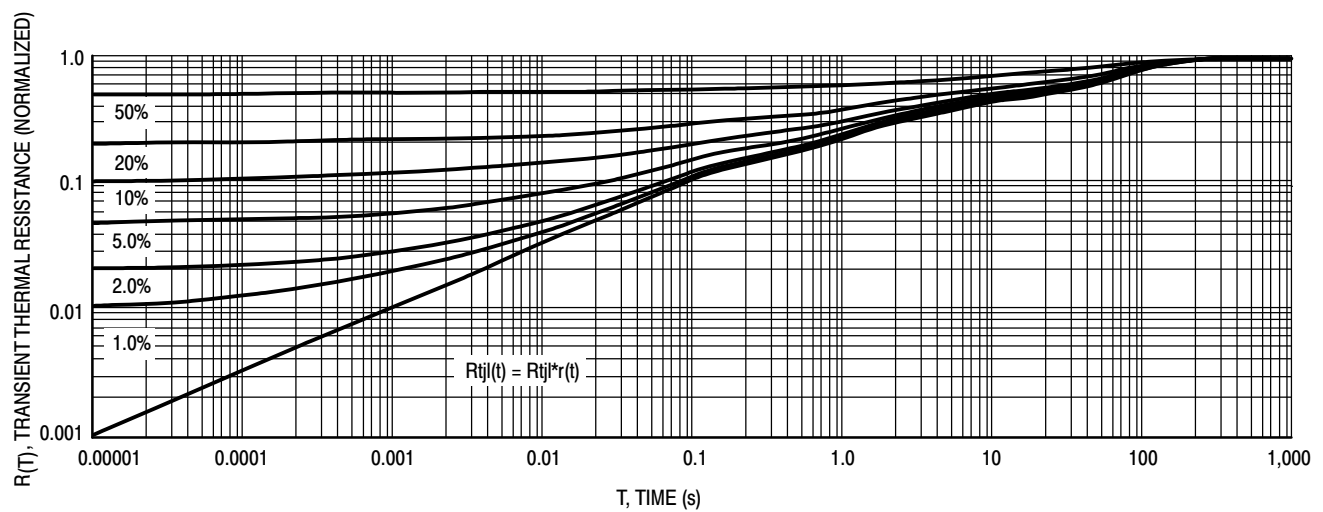
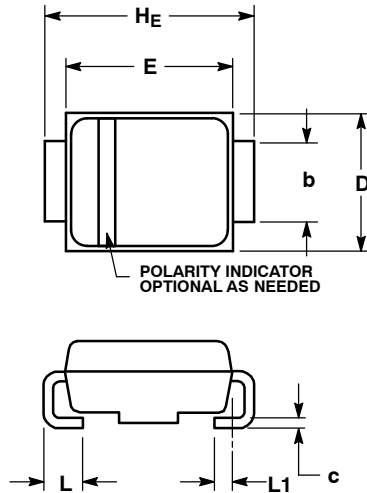


Figure 9. Thermal Response, Junction-to-Ambient

MRS1504T3G, NRVS1504T3G

PACKAGE DIMENSIONS

SMB
CASE 403A-03
ISSUE J

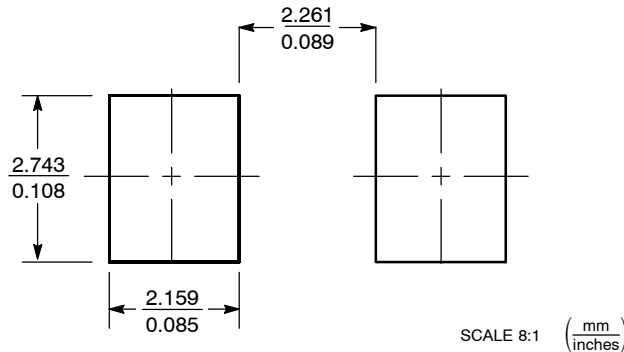


NOTES:

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

DIM	MILLIMETERS			INCHES		
	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
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.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. 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. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

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: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative

MRS1504T3/D