Preferred Devices

Surface Mount Ultrafast Power Rectifiers

MURS105T3, MURS110T3, MURS115T3, MURS120T3, MURS140T3, MURS160T3

Ideally suited for high voltage, high frequency rectification, or as free wheeling and protection diodes in surface mount applications where compact size and weight are critical to the system.

Features

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- High Temperature Glass Passivated Junction
- Low Forward Voltage Drop (0.71 to 1.05 V Max @ 1.0 A, $T_J = 150$ °C)
- Pb-Free Packages are Available

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 95 mg (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
- Polarity: Polarity Band Indicates Cathode Lead



ON Semiconductor®

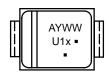
http://onsemi.com

ULTRAFAST RECTIFIERS 1.0 AMPERE, 50–600 VOLTS



SMB CASE 403A

MARKING DIAGRAM



A = Assembly Location

Y = Year

WW = Work Week

= Device Code x = A, B, C, D, G, or J

= Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the table on page 2 of this data sheet.

DEVICE MARKING INFORMATION

See general marking information in the device marking table on page 2 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

MAXIMUM RATINGS

		MURS						
Rating	Symbol	105T3	110T3	115T3	120T3	140T3	160T3	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	50	100	150	200	400	600	V
Average Rectified Forward Current	I _{F(AV)}	1.0 @ T _L = 155°C 2.0 @ T _L = 145°C			1.0 @ T _L 2.0 @ T _L	= 150°C = 125°C	Α	
Non-Repetitive Peak Surge Current, (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	40			35		Α	
Operating Junction Temperature	TJ	- 65 to +175					°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

			MURS					
Rating	Symbol	105T3	110T3	115T3	120T3	140T3	160T3	Unit
Thermal Resistance, Junction-to-Lead (T _L = 25°C	R _{θJL}	13			°C/W			
ELECTRICAL CHARACTERISTICS								
Maximum Instantaneous Forward Voltage (Note 1) ($i_F = 1.0 \text{ A}, \text{ T}_J = 25^{\circ}\text{C}$)	٧F	0.875 1.25		-	V			

Maximum Instantaneous Forward Voltage (Note 1) ($i_F = 1.0 \text{ A}, T_J = 25^{\circ}\text{C}$) ($i_F = 1.0 \text{ A}, T_J = 150^{\circ}\text{C}$)	V _F	0.875 0.71	1.25 1.05	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, T _J = 25°C) (Rated DC Voltage, T _J = 150°C)	i _R	2.0 50	5.0 150	μА
Maximum Reverse Recovery Time $ (i_F = 1.0 \text{ A, di/dt} = 50 \text{ A/}\mu\text{s}) $ $ (i_F = 0.5 \text{ A, i}_R = 1.0 \text{ A, I}_R \text{ to } 0.25 \text{ A}) $	t _{rr}	35 25	75 50	ns
Maximum Forward Recovery Time (i _F = 1.0 A, di/dt = 100 A/ μ s, Rec. to 1.0 V)	t _{fr}	25	50	ns

^{1.} Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Package	Shipping [†]			
MURS105T3		SMB				
MURS105T3G	U1A	SMB (Pb-Free)				
MURS110T3		SMB				
MURS110T3G	U1B	SMB (Pb-Free)				
MURS115T3		SMB				
MURS115T3G	U1C	SMB (Pb-Free)	OFOO Heite / Tana & Baal			
MURS120T3		SMB	2500 Units / Tape & Reel			
MURS120T3G	U1D	SMB (Pb-Free)				
MURS140T3		SMB				
MURS140T3G	U1G	SMB (Pb-Free)				
MURS160T3	RS160T3]			
MURS160T3G	U1J	SMB (Pb-Free)				

[†]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.

MURS105T3, MURS110T3, MURS115T3, MURS120T3

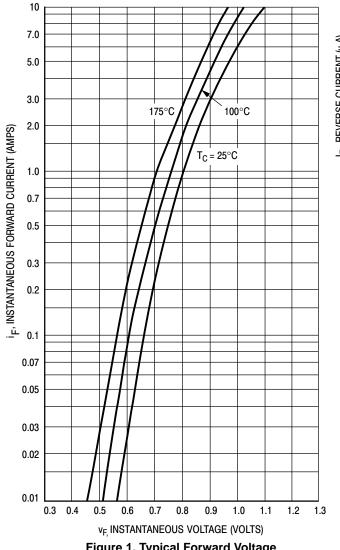


Figure 1. Typical Forward Voltage

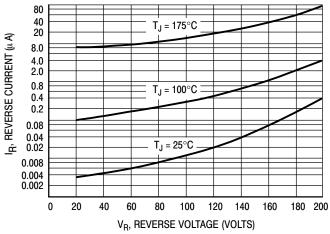


Figure 2. Typical Reverse Current*

*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if applied V_R is sufficiently below rated V_R.

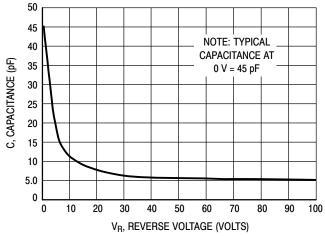


Figure 3. Typical Capacitance

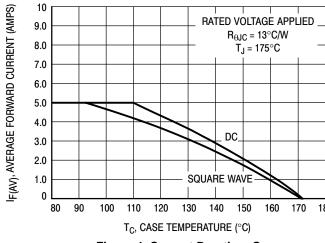


Figure 4. Current Derating, Case

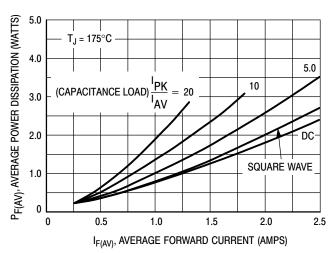
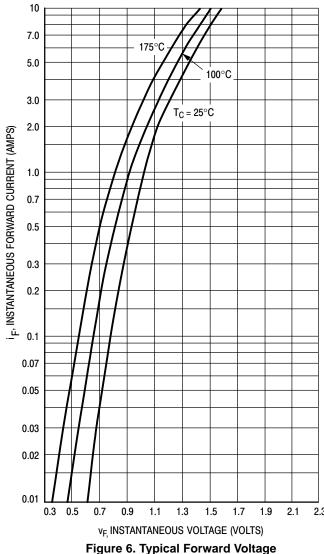
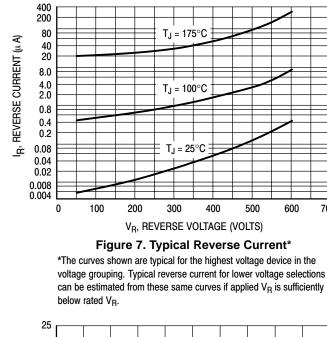


Figure 5. Power Dissipation

MURS140T3, MURS160T3





700

600

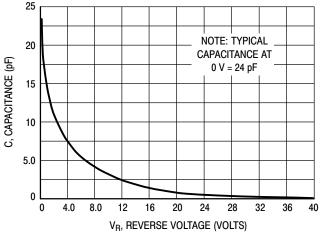


Figure 8. Typical Capacitance

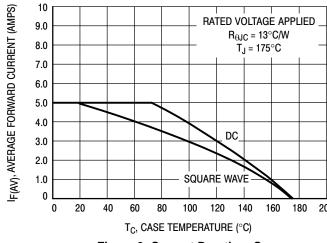


Figure 9. Current Derating, Case

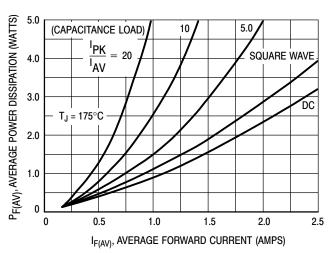
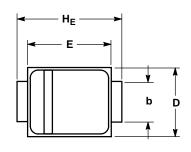
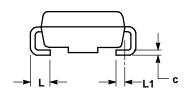


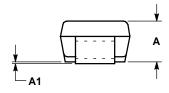
Figure 10. Power Dissipation

PACKAGE DIMENSIONS

SMB CASE 403A-03 ISSUE F





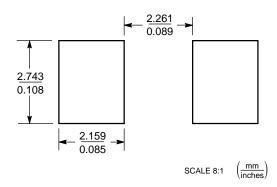


NOTES:

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

	MILLIMETERS			INCHES			
DIM	MIN	NOM	MAX	MIN	NOM	MAX	
Α	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	
С	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 un are registered 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. 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: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative