MURS120T3 Series

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

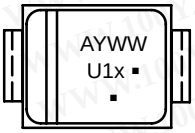
ON Semiconductor®

http://onsemi.com

ULTRAFAST RECTIFIERS
1.0 AMPERE, 50−600 VOLTS

SMB
CASE 403A

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
U1 = 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

Rating	Symbol	MURS 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 = 150°C 2.0 @ T_L = 125°C		A
Non−Repetitive Peak Surge Current, (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	40				35		A
Operating Junction Temperature	T_J	−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

Rating	Symbol	MURS 105T3	110T3	115T3	120T3	140T3	160T3	Unit
Thermal Resistance, Junction−to−Lead (T_L = 25°C)	$R_{\theta JL}$	13						°C/W

ELECTRICAL CHARACTERISTICS

				Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 1.0 A, T_J = 25°C) (i_F = 1.0 A, T_J = 150°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	μA
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 A/μs) (i_F = 0.5 A, i_R = 1.0 A, I_R to 0.25 A)	t_{rr}	35 25	75 50	ns
Maximum Forward Recovery Time (i_F = 1.0 A, di/dt = 100 A/μs, Rec. to 1.0 V)	t_{fr}	25	50	ns

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Package	Shipping†
MURS105T3	U1A	SMB	2500 Units / Tape & Reel
MURS105T3G		SMB (Pb−Free)	
MURS110T3	U1B	SMB	
MURS110T3G		SMB (Pb−Free)	
MURS115T3	U1C	SMB	
MURS115T3G		SMB (Pb−Free)	
MURS120T3	U1D	SMB	
MURS120T3G		SMB (Pb−Free)	
MURS140T3	U1G	SMB	
MURS140T3G		SMB (Pb−Free)	
MURS160T3	U1J	SMB	
MURS160T3G		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

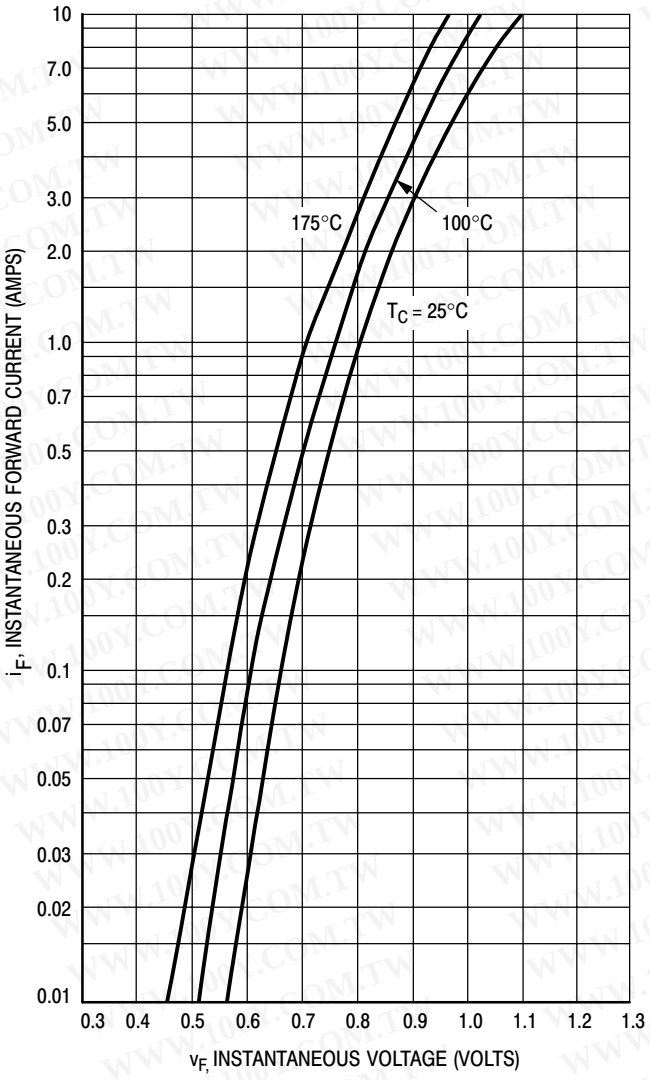


Figure 1. Typical Forward Voltage

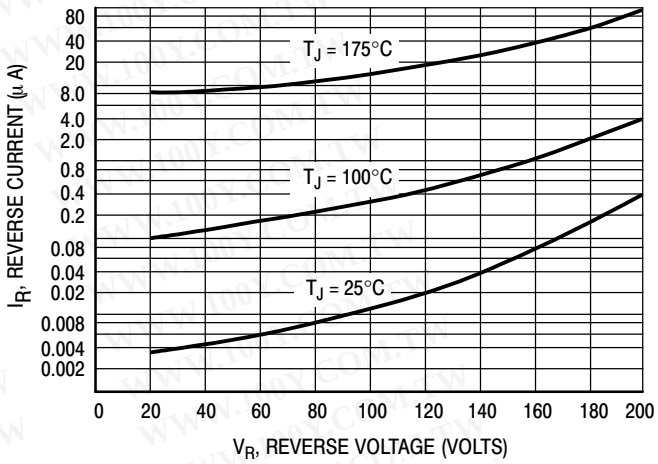


Figure 2. Typical Reverse Current*

*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.

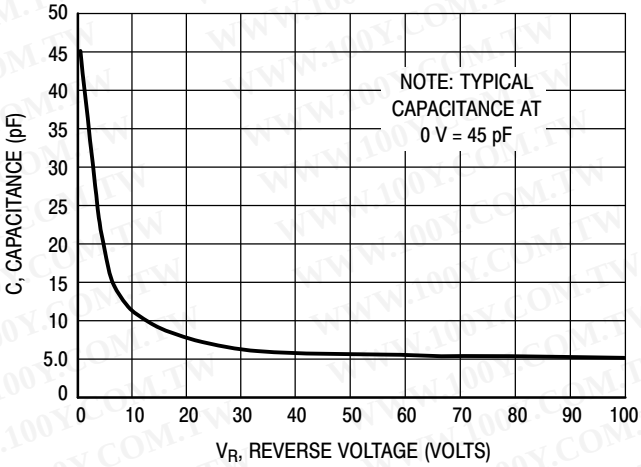


Figure 3. Typical Capacitance

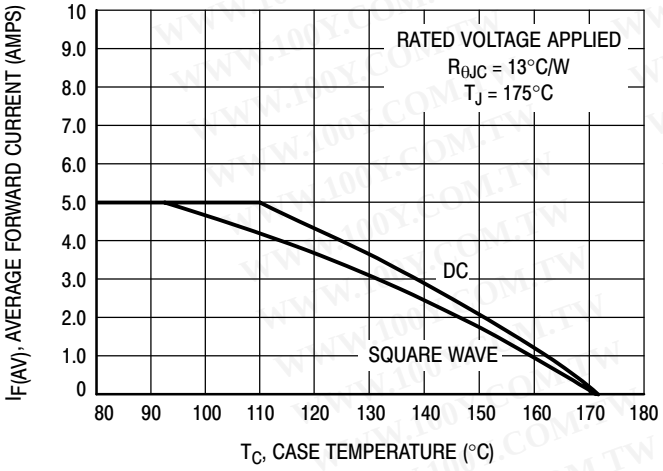


Figure 4. Current Derating, Case

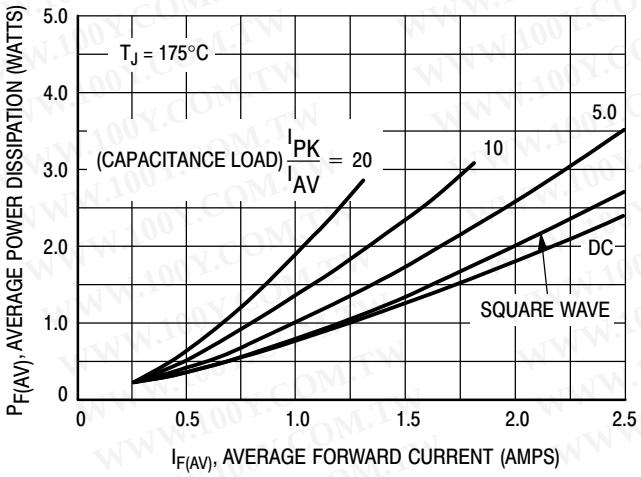


Figure 5. Power Dissipation

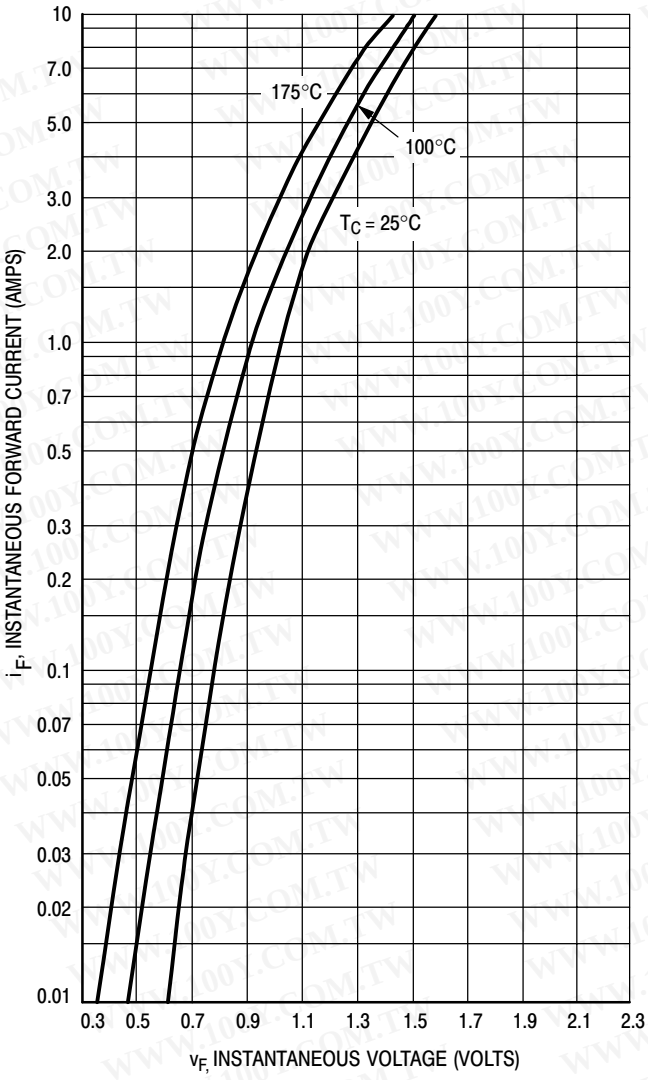


Figure 6. Typical Forward Voltage

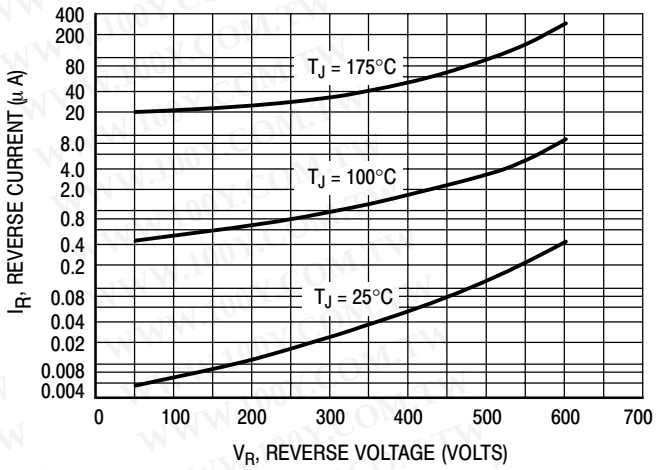


Figure 7. Typical Reverse Current*

*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.

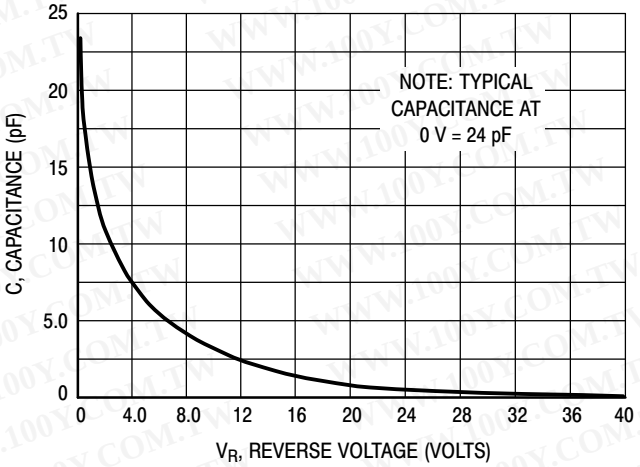


Figure 8. Typical Capacitance

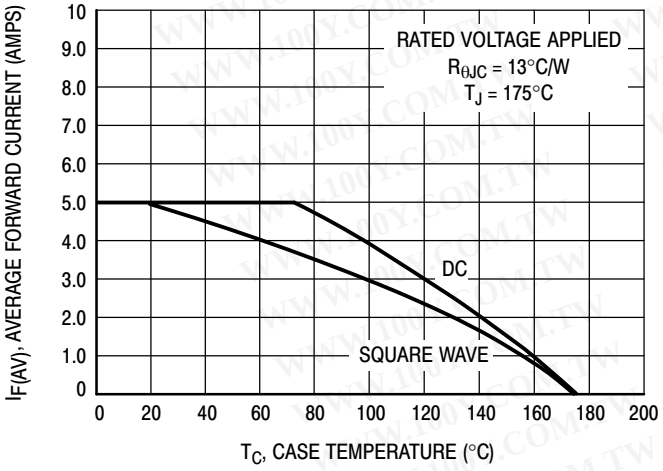


Figure 9. Current Derating, Case

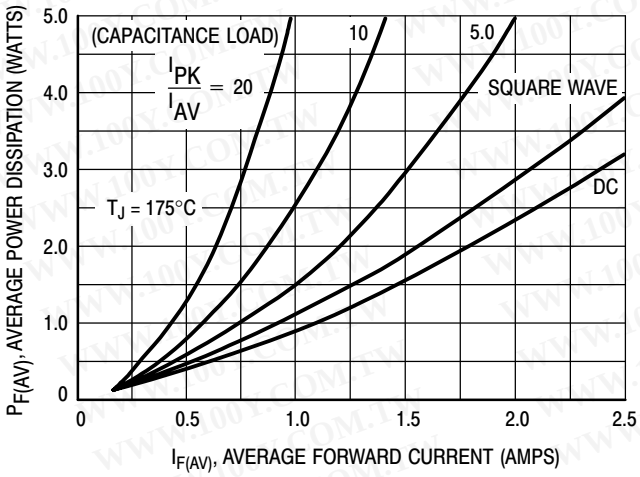
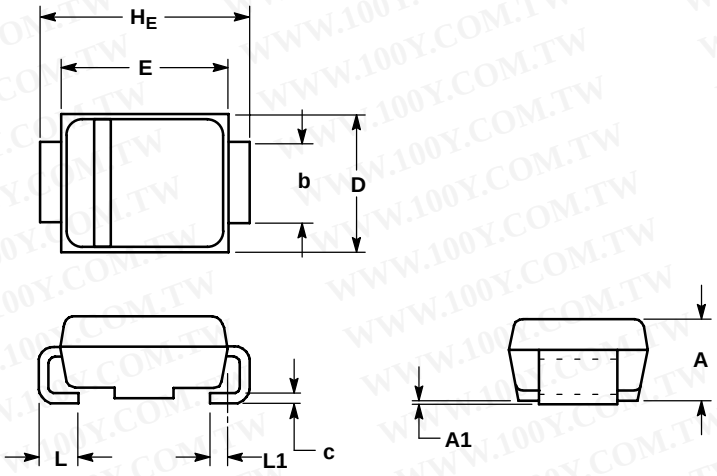


Figure 10. Power Dissipation

MURS120T3 Series

PACKAGE DIMENSIONS

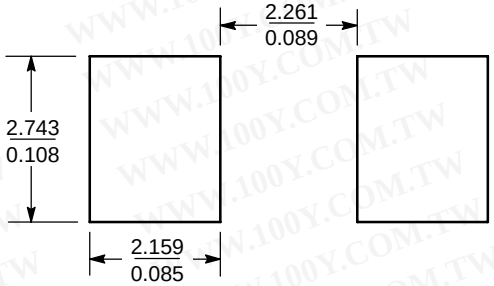
SMB
CASE 403A−03
ISSUE F



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

	MILLIMETERS			INCHES		
DIM	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
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 ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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