MURS205T3, MURS210T3

Preferred Device

Surface Mount Ultrafast Power Rectifiers

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 (0.74 V Max @ 2.0 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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MURA205T3 MURA210T3	V_{RRM} V_{RWM} V_R	 50 100	V
Average Rectified Forward Current @ T_L = 150°C @ T_L = 125°C	$I_{F(AV)}$	 1.0 2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	50	A
Operating Junction Temperature	T_J	−60 to +175	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Lead (T_L = 25°C)	$R_{\theta JL}$	13	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

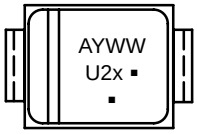
ON Semiconductor®

http://onsemi.com

ULTRAFAST RECTIFIERS 2 AMPERES, 50−100 VOLTS

SMB
CASE 403A

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
U2x = Device Code
x= A for MURS205T3
= B for MURS210T3
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MURS205T3	SMB	2500 Tape & Reel
MURS205T3G	SMB (Pb−Free)	2500 Tape & Reel
MURS210T3	SMB	2500 Tape & Reel
MURS210T3G	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.

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

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 2.0 A, T_J = 25°C) (i_F = 2.0 A, T_J = 150°C)	v_F	 0.94 0.74	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	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}	 30 20	ns
Maximum Forward Recovery Time (i_F = 1.0 A, di/dt = 100 A/μs, Rec. to 1.0 V)	t_{fr}	20	ns

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

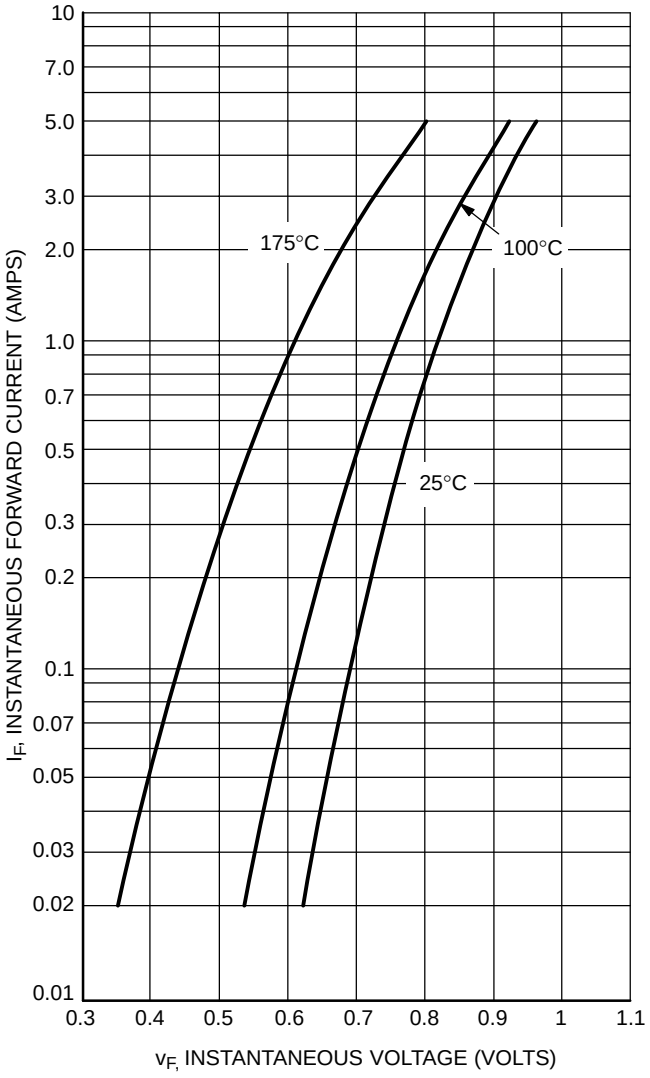


Figure 1. Typical Forward Voltage

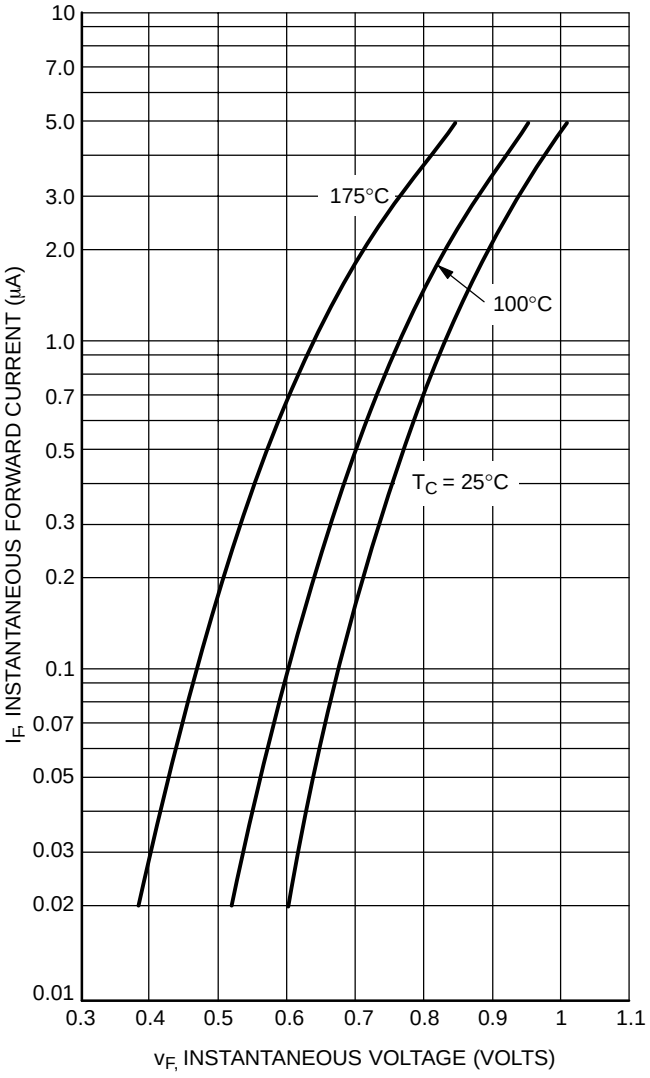


Figure 2. Maximum Forward Voltage

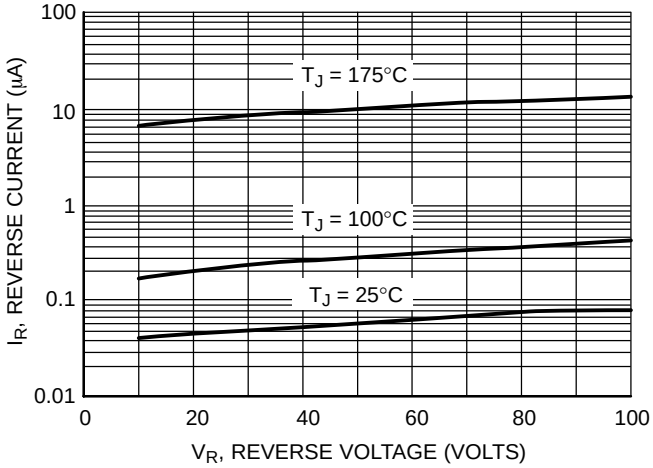


Figure 3. Typical Reverse Current*

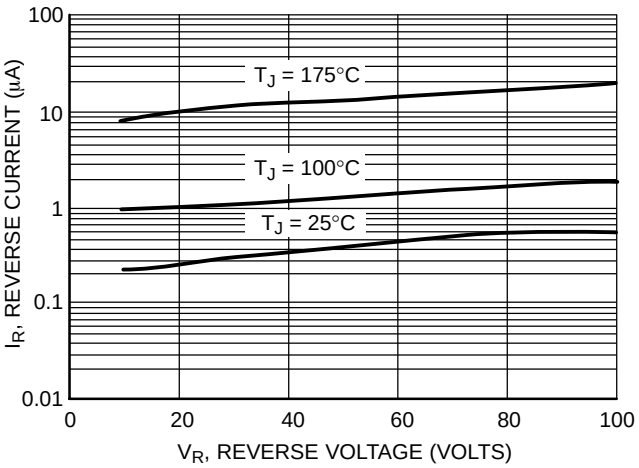


Figure 4. Maximum Reverse Current*

* 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.

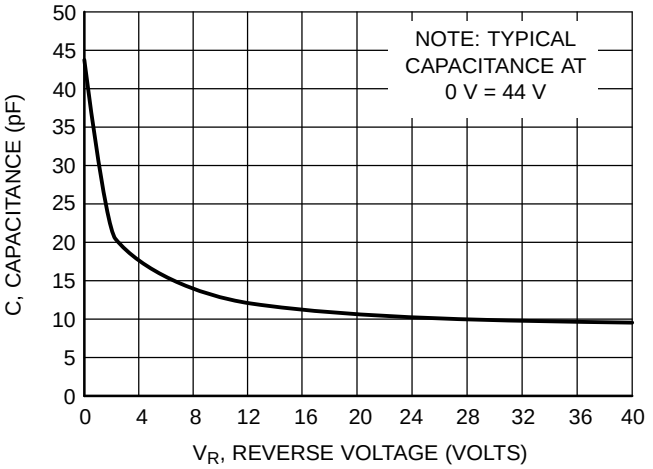


Figure 5. Typical Capacitance

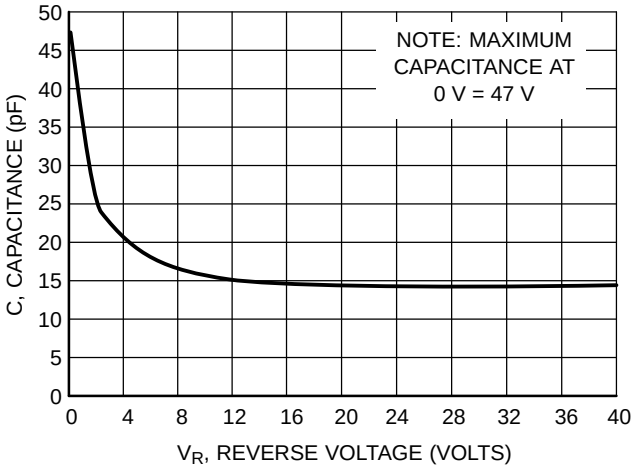


Figure 6. Maximum Capacitance

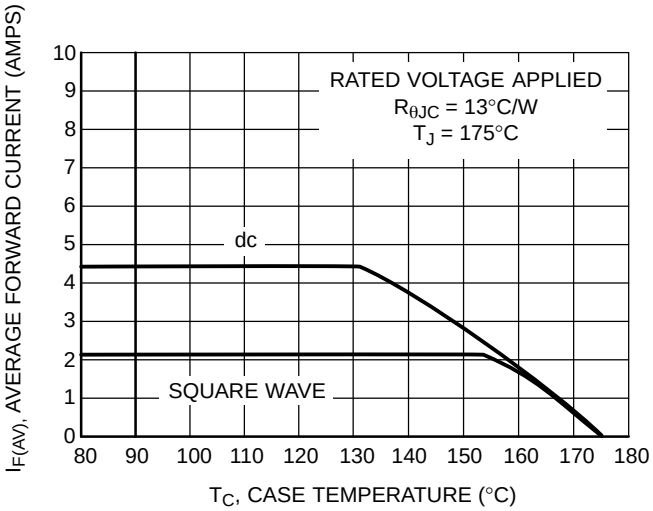


Figure 7. Current Derating, Case

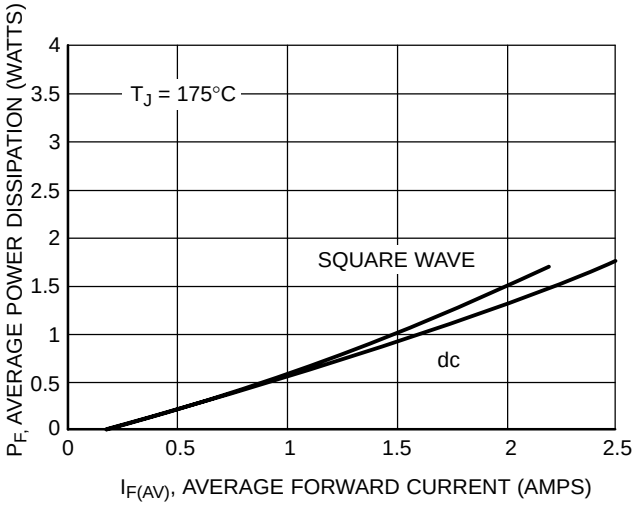
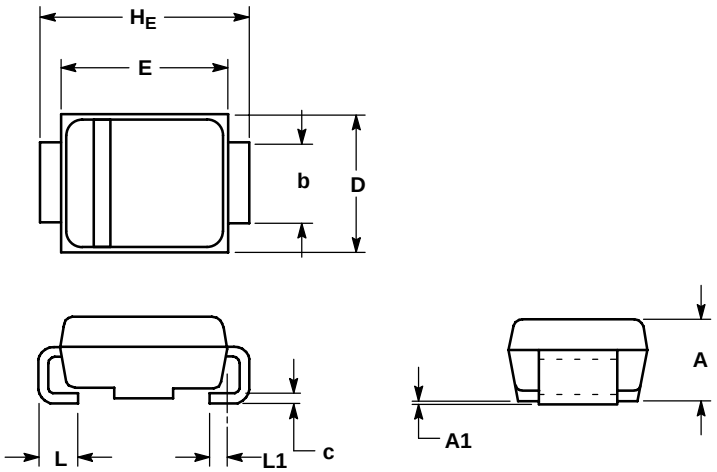


Figure 8. Power Dissipation

PACKAGE DIMENSIONS

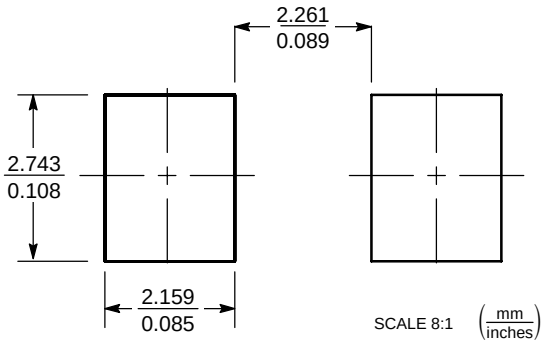
SMB
CASE 403A−03
ISSUE F



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*



*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:
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For additional information, please contact your local Sales Representative.

MURS205T3/D