

MURA160T3G, SURA8160T3G

Surface Mount Ultrafast Power Rectifier

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 (1.05 V Max @ 1.0 A, $T_J = 150^\circ\text{C}$)
- AEC-Q101 Qualified and PPAP Capable
- SURA8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb-Free*

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 70 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
- ESD Protection:
 - ♦ Human Body Model > 4000 V (Class 3)
 - ♦ Machine Model > 400 V (Class C)



ON Semiconductor®

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ULTRAFAST RECTIFIER 1 AMPERE, 600 VOLTS



**SMA
CASE 403D
PLASTIC**

MARKING DIAGRAM



U4J = Device Code
A = Assembly Location
Y = Year
WW = Work Week
■ = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
MURA160T3G	SMA (Pb-Free)	5,000/Tape & Reel
SURA8160T3G	SMA (Pb-Free)	5,000/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.

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	600	V
Average Rectified Forward Current @ $T_L = 145^{\circ}\text{C}$ @ $T_L = 110^{\circ}\text{C}$	$I_{F(AV)}$	1.0 2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	30	A
Operating Junction Temperature Range	T_J	-65 to +175	$^{\circ}\text{C}$

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

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead ($T_L = 25^{\circ}\text{C}$) (Note 1)	Ψ_{iJL} (Note 2)	24	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	216	

- Rating applies when surface mounted on the minimum pad size recommended, PC Board FR-4.
- In compliance with JEDEC 51, these values (historically represented by $R_{\theta JL}$) are now referenced as Ψ_{iJL} .

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 3) ($I_F = 1.0\text{ A}$, $T_J = 25^{\circ}\text{C}$) ($I_F = 1.0\text{ A}$, $T_J = 150^{\circ}\text{C}$)	V_F	1.25 1.05	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$) (Rated dc Voltage, $T_J = 150^{\circ}\text{C}$)	i_R	5.0 150	μA
Maximum Reverse Recovery Time ($I_F = 1.0\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$)	t_{rr}	75	ns

- Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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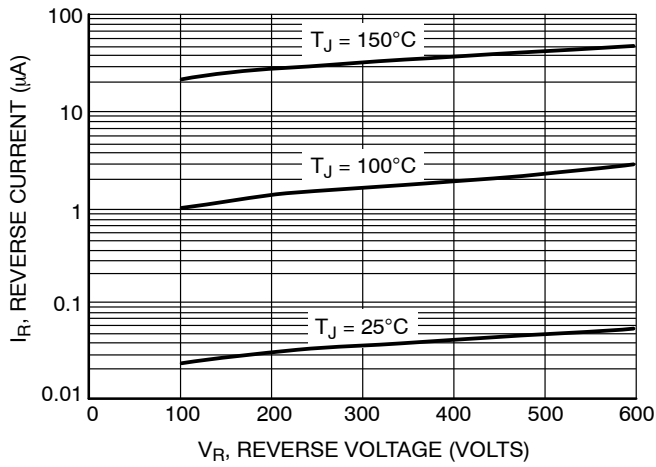


Figure 1. Typical Reverse Current

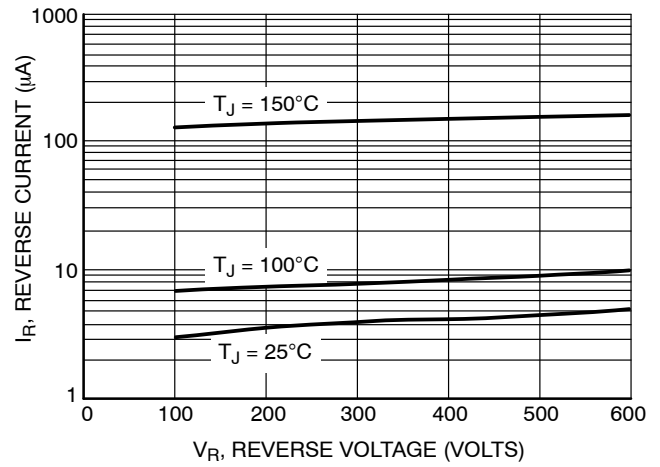


Figure 2. Maximum Reverse Current

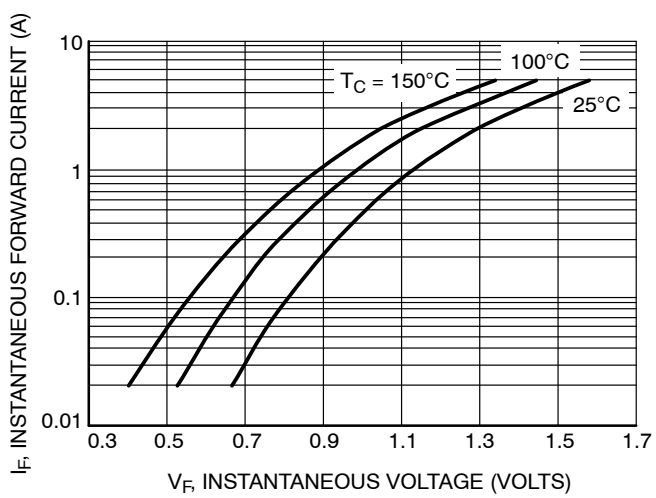


Figure 3. Typical Forward Voltage

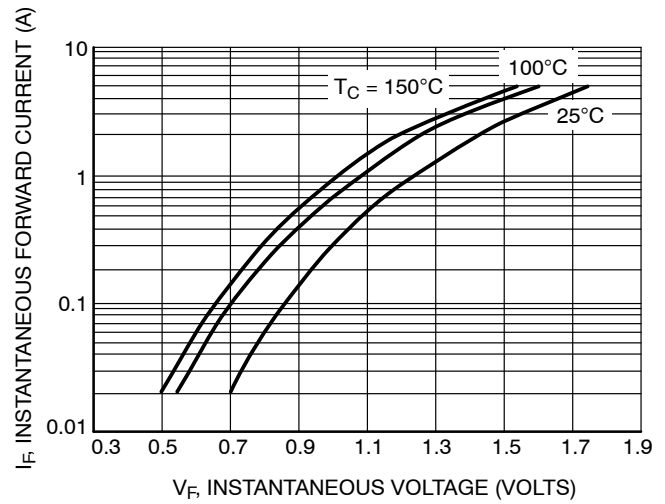


Figure 4. Maximum Forward Voltage

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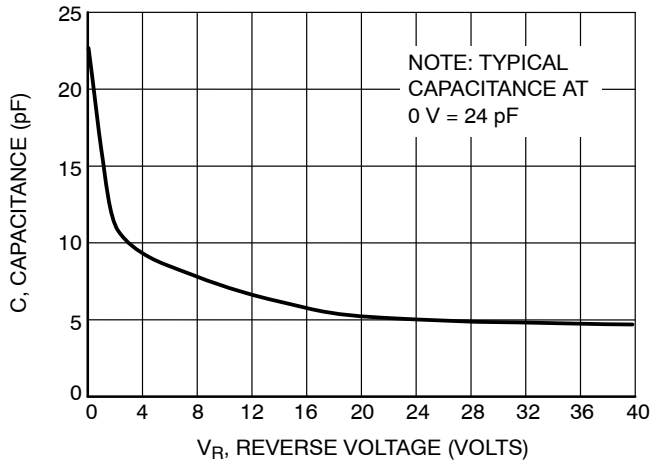


Figure 5. Typical Capacitance

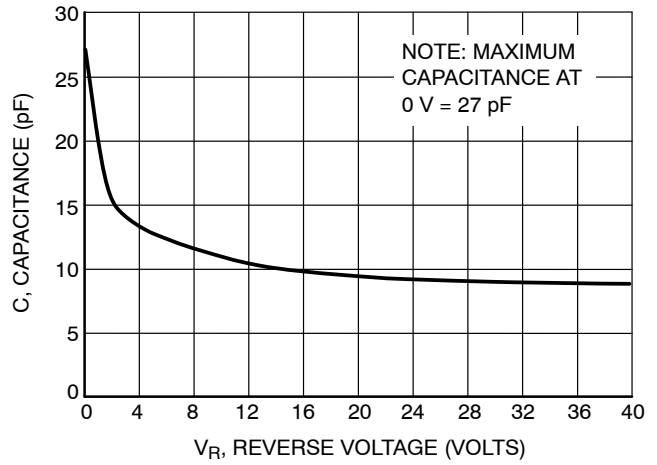


Figure 6. Maximum Capacitance

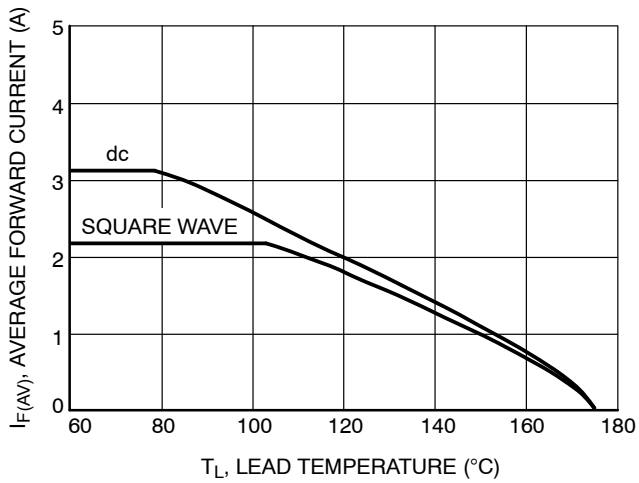
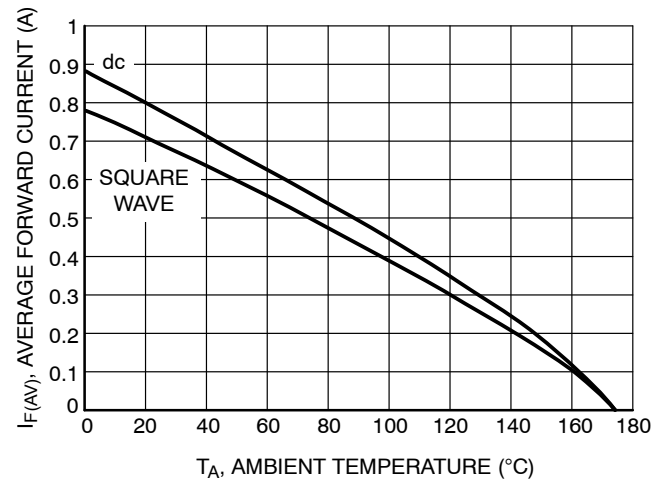


Figure 7. Current Derating, Lead



**Figure 8. Current Derating, Ambient
(FR-4 Board with Minimum Pad)**

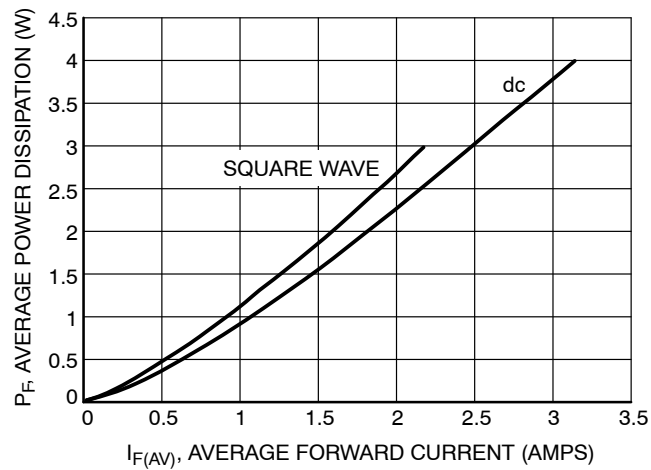
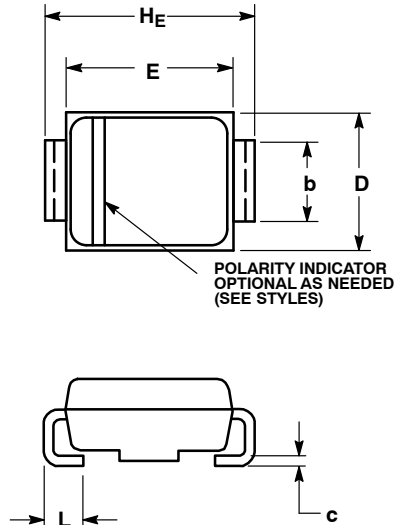


Figure 9. Power Dissipation

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PACKAGE DIMENSIONS

SMA CASE 403D-02 ISSUE F

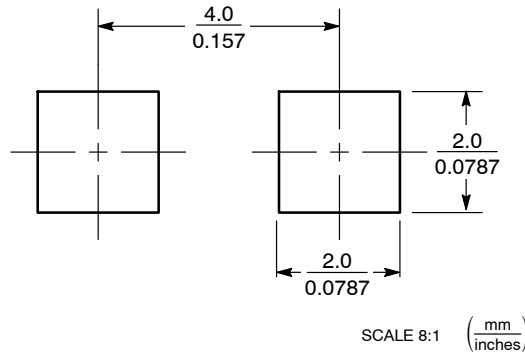


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 403D-01 OBSOLETE, NEW STANDARD IS 403D-02.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.97	2.10	2.20	0.078	0.083	0.087
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	1.27	1.45	1.63	0.050	0.057	0.064
c	0.15	0.28	0.41	0.006	0.011	0.016
D	2.29	2.60	2.92	0.090	0.103	0.115
E	4.06	4.32	4.57	0.160	0.170	0.180
HE	4.83	5.21	5.59	0.190	0.205	0.220
L	0.76	1.14	1.52	0.030	0.045	0.060

- STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

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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