Power Rectifier, Ultra-Fast Recovery, 1 A, 300-400 V

MURA130, SURA8130, MURA140, NRVUA140V, SURA8140

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 (0.89 V Max @ 1.0 A, T_J = 150°C)
- NRVUA and SURA8 Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable*
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

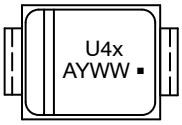
Mechanical Characteristics:

- 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)
  - ♦ Charged Device Model > 1000 V (Class C5)

ULTRAFAST RECTIFIERS
1 AMPERE, 300−400 VOLTS

SMA
CASE 403D

MARKING DIAGRAM



U4x = Device Code
x = F for MURA130
= G for MURA140
A = Assembly Location**
Y = Year
WW = Work Week
▪ = Pb−Free Package

** The Assembly Location Code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
SURA8130T3G−VF01*	SMA (Pb−Free)	5,000 / Tape & Reel
SURA8130T3G−GA01*		
MURA140T3G		
NRVUA140VT3G*		
NRVUA140VT3G−GA01*		

DISCONTINUED (Note 1)

MURA130T3G	SMA (Pb−Free)	5,000 / Tape & Reel
SURA8130T3G*		
SURA8140T3G*		

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

1. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

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MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V_{RRM} V_{RWM} V_R	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MURA130T3G/SURA8130T3G/SURA8130T3G−VF01/SURA8130T3G−GA01 MURA140T3G/SURA8140T3G/NRVUA140VT3G/NRVUA140VT3G−GA01	 300 400	V
$I_{F(AV)}$	Average Rectified Forward Current @ T_L = 150°C @ T_L = 125°C	 1.0 2.0	A
I_{FSM}	Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Condtions Halfwave, Single Phase, 60 Hz)	 35	A
T_J	Operating Junction Temperature Range	−65 to +175	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
Psi_{JL} (Note 2) $R_{\theta JA}$	Thermal Resistance, Junction−to−Lead (T_L = 25°C) (Note 1) Thermal Resistance, Junction−to−Ambient (Note 1)	24 216	°C/W
Ψ_{JCT}	Thermal Resistance, Junction−to−Case Top (Note 1)	16	°C/W

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

ELECTRICAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
v_F	Maximum Instantaneous Forward Voltage (Note 3) (i_F = 1.0 A, T_J = 25°C) (i_F = 1.0 A, T_J = 150°C)	 1.1 0.89	V
i_R	Maximum Instantaneous Reverse Current (Note 3) (Rated DC Voltage, T_J = 25°C) (Rated DC Voltage, T_J = 150°C)	 5.0 150	μA
t_{rr}	Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 A/μs)	 65	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

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TYPICAL CHARACTERISTICS

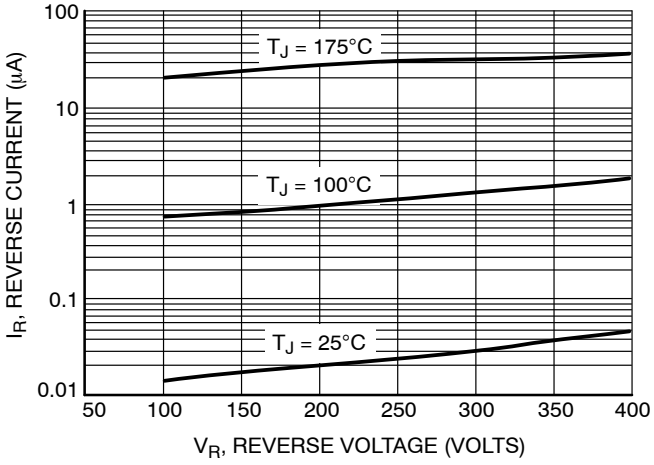

Figure 1. Typical Reverse Current

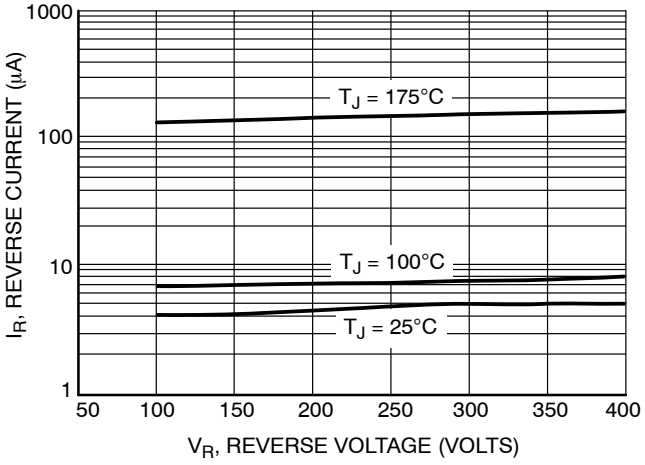

Figure 2. Maximum Reverse Current

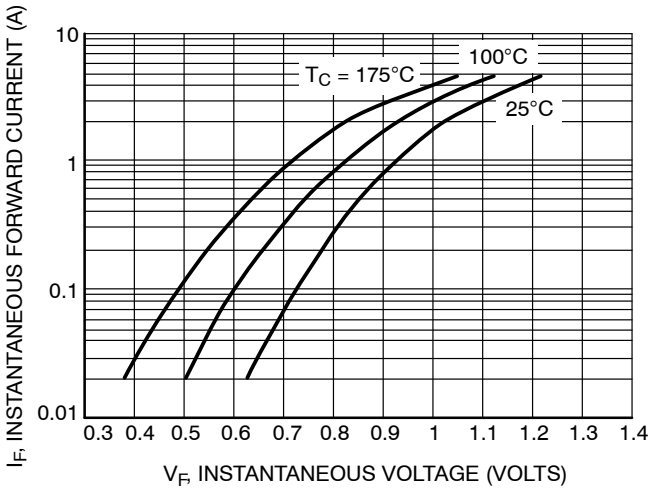

Figure 3. Typical Forward Voltage

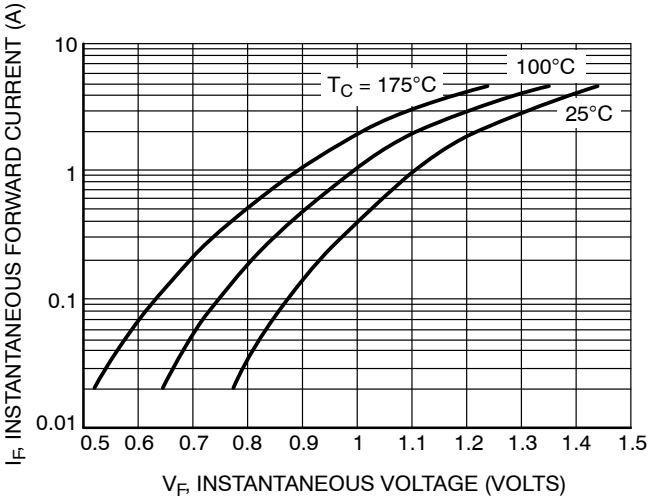

Figure 4. Maximum Forward Voltage

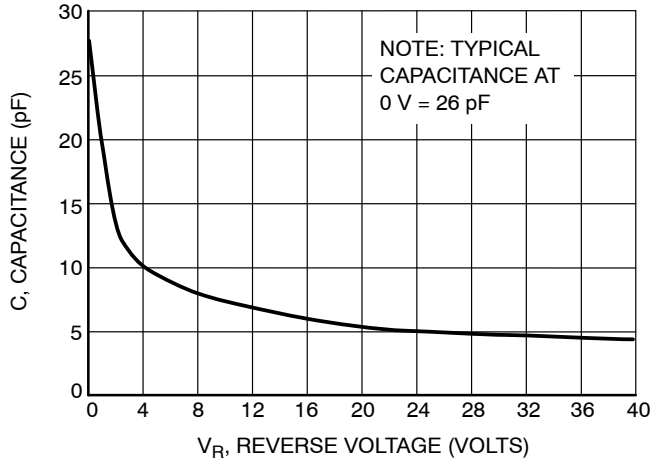

Figure 5. Typical Capacitance

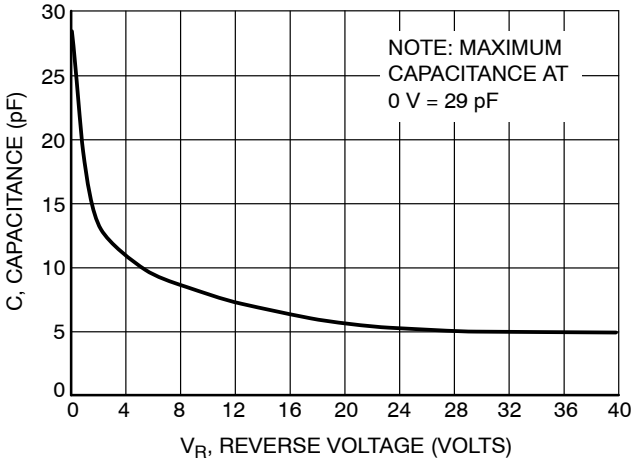

Figure 6. Maximum Capacitance

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TYPICAL CHARACTERISTICS (continued)

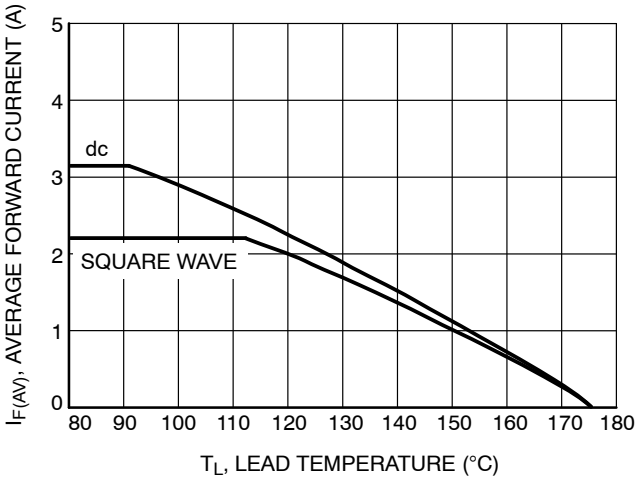

Figure 7. Current Derating, Lead

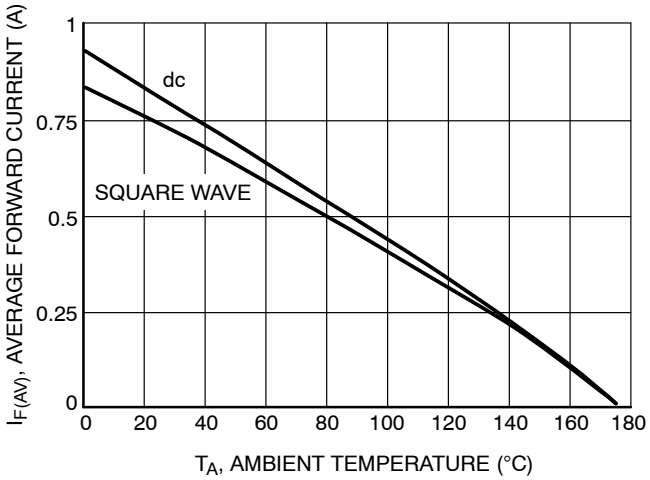

Figure 8. Current Derating, Ambient
(FR−4 Board with Minimum Pad)

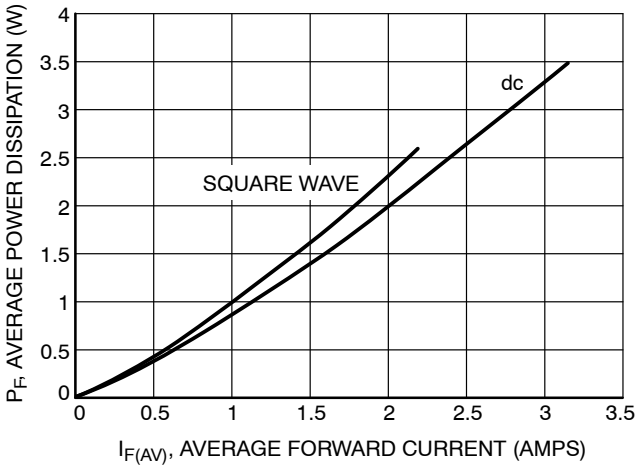

Figure 9. Power Dissipation

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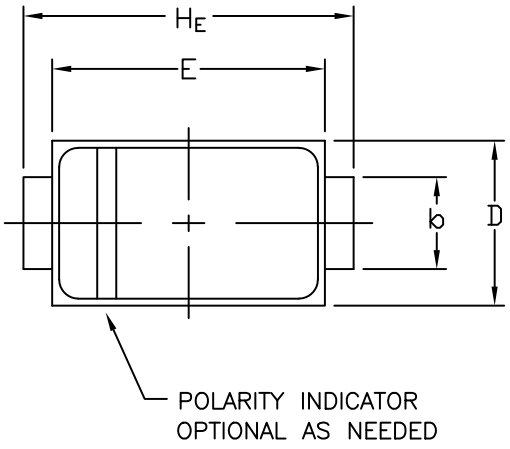
ISSUE J

DATE 22 OCT 2021

STYLE 1 STYLE 2

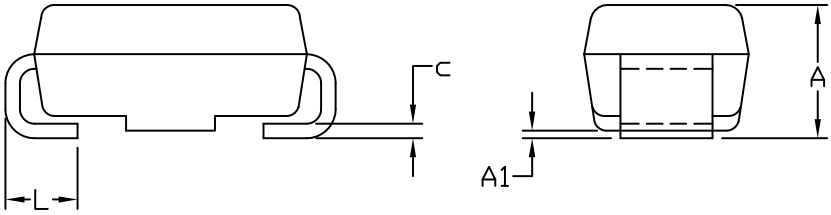
SCALE 1:1



NOTES:

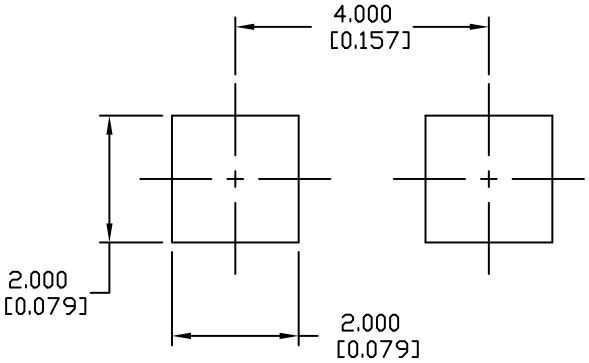
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L.

	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.97	2.10	2.20	0.078	0.083	0.087
A1	0.05	0.10	0.20	0.002	0.004	0.008
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



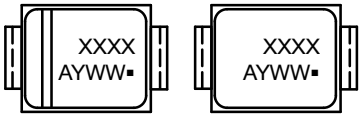
STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY



RECOMMENDED
MOUNTING FOOTPRINT

GENERIC MARKING DIAGRAM*



STYLE 1 STYLE 2

XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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