MUR2100E

Preferred Device

SWITCHMODE™ Power Rectifier

Ultrafast “E” Series with High Reverse Energy Capability

. . . designed for use in switching power supplies, inverters and as free wheeling diodes, these state−of−the−art devices have the following features:

- 20 mjoules Avalanche Energy Guaranteed
- Excellent Protection Against Voltage Transients in Switching Inductive Load Circuits
- Ultrafast 75 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- These are Pb−Free Devices

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16″ from case
- Polarity: Cathode Indicated by Polarity Band

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	1000	V
Average Rectified Forward Current (Note 1)	$I_{F(AV)}$	2.0 @ T_A = 35°C	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	35	A
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	−65 to +175	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	(Note 1)	°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.

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

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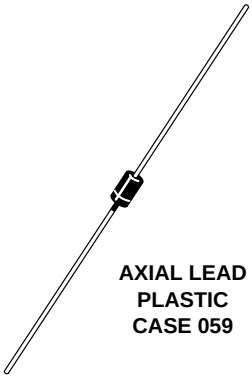
ULTRAFAST RECTIFIER 2 AMPS 1000 VOLTS



AXIAL LEAD PLASTIC CASE 059

MARKING DIAGRAM

MUR2100E = Device Code

ORDERING INFORMATION

Device	Package	Shipping†
MUR2100E	Axial Lead (Pb−Free)	1000 Units/Bag
MUR2100ERL	Axial Lead (Pb−Free)	5000/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 2) (I_F = 2.0 A, T_J = 150°C) (I_F = 2.0 A, T_J = 25°C)	V_F	 1.75 2.20	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 100°C) (Rated dc Voltage, T_J = 25°C)	i_R	 600 10	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_{REC} = 0.25 A)	t_{rr}	 100 75	ns
Maximum Forward Recovery Time (I_F = 1.0 A, di/dt = 100 A/μs, I_{REC} to 1.0 V)	t_{fr}	75	ns
Controlled Avalanche Energy (See Test Circuit in Figure 6)	W_{AVAL}	10	mJ

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

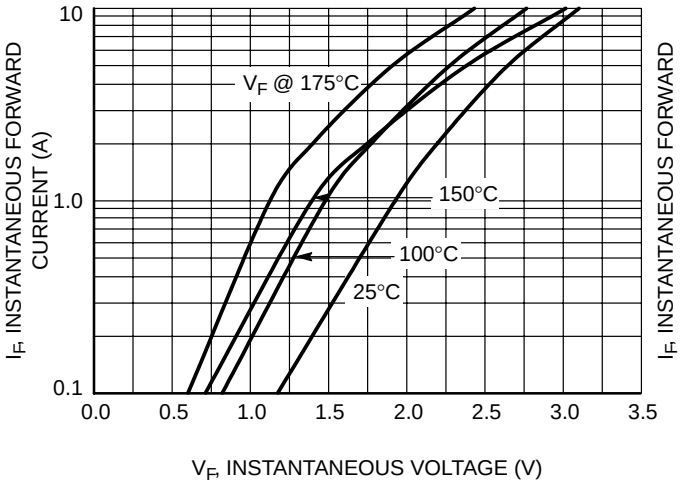


Figure 1. Maximum Forward Voltage

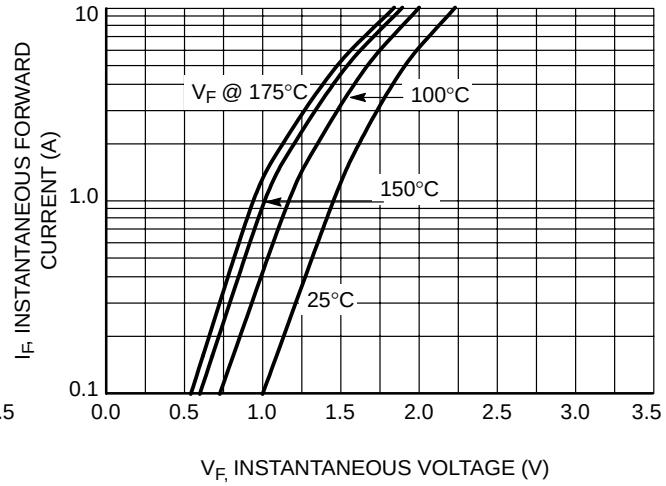


Figure 2. Typical Forward Voltage

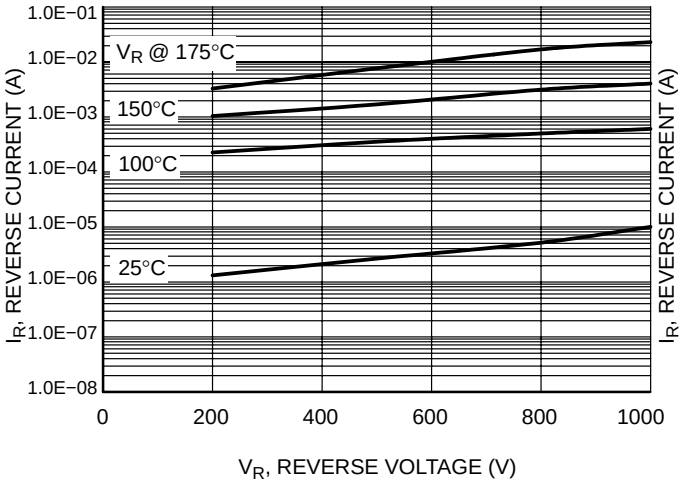


Figure 3. Maximum Reverse Current

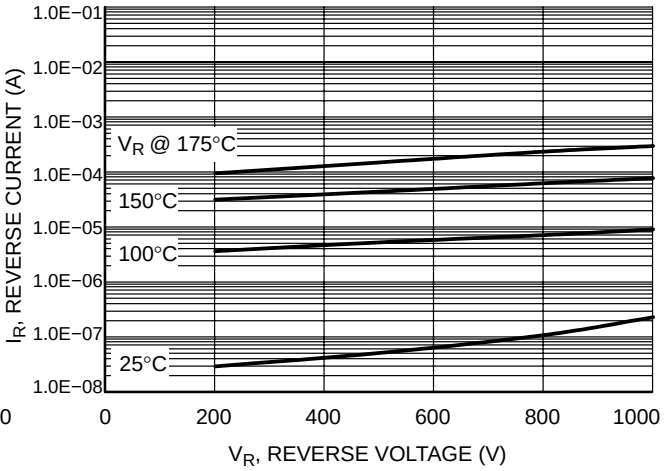


Figure 4. Typical Reverse Current

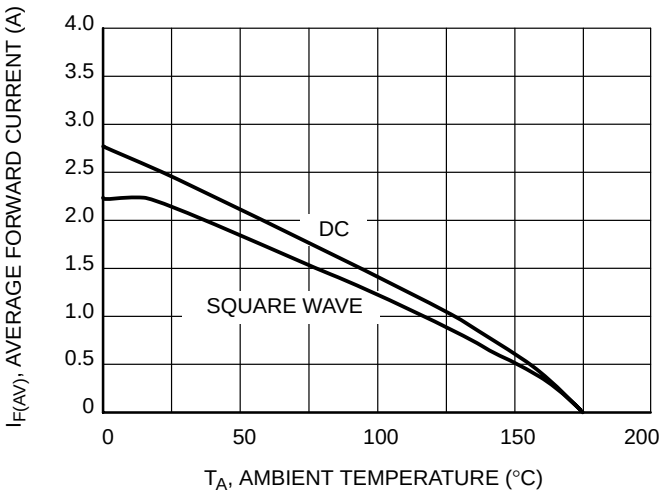


Figure 5. Current Derating

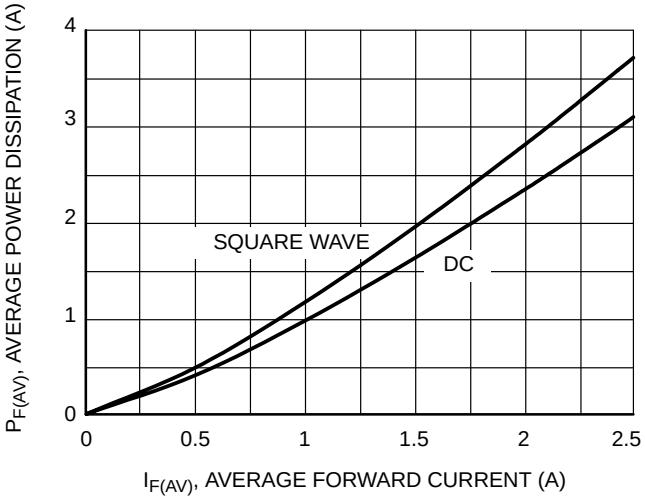


Figure 6. Power Dissipation

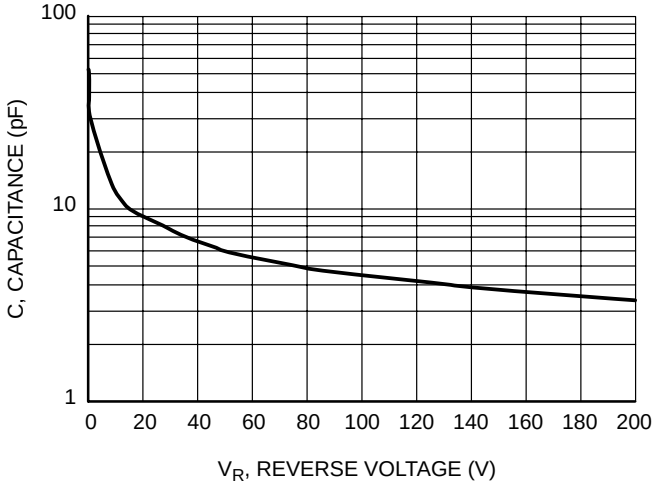


Figure 7. Typical Capacitance

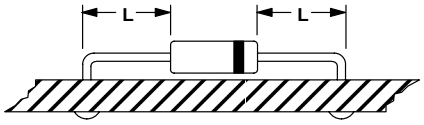
NOTE 1 — AMBIENT MOUNTING DATA

Data shown for thermal resistance junction to ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

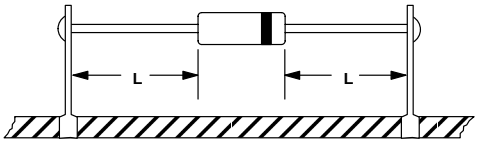
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

Mounting Method		Lead Length, L			Units
		1/8	1/4	1/2	
1	$R_{\theta JA}$	52	65	72	°C/W
2		67	80	87	°C/W
3		50			°C/W

MOUNTING METHOD 1

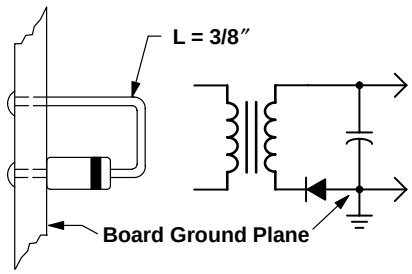


MOUNTING METHOD 2



Vector Pin Mounting

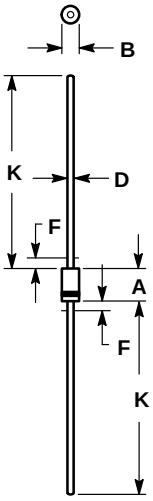
MOUNTING METHOD 3



P.C. Board with
1−1/2″ X 1−1/2″ Copper Surface

PACKAGE DIMENSIONS

AXIAL LEAD (DO−41)
CASE 59−10
ISSUE S



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 59−04 OBSOLETE, NEW STANDARD 59−09.
4. 59−03 OBSOLETE, NEW STANDARD 59−10.
5. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO−41 OUTLINE SHALL APPLY
6. POLARITY DENOTED BY CATHODE BAND.
7. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.161	0.205	4.10	5.20
B	0.079	0.106	2.00	2.70
D	0.028	0.034	0.71	0.86
F	---	0.050	---	1.27
K	1.000	---	25.40	---

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
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