

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

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
- Shipped in plastic bags, 1000 per bag
- Available Tape and Reeled, 5000 per reel, by adding a “RL” suffix to the part number
- Polarity: Cathode Indicated by Polarity Band
- Marking: MUR2100E

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	1000	Volts
Average Rectified Forward Current (Note 1) (Square Wave Mounting Method #3 Per Note 1)	$I_{F(AV)}$	2.0 @ $T_A = 35^\circ\text{C}$	Amps
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	35	Amps
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	- 65 to +175	°C

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



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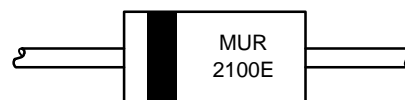
<http://onsemi.com>

ULTRAFAST
RECTIFIER
2 AMPERES
1000 VOLTS



AXIAL LEAD
CASE 059-10
PLASTIC

MARKING DIAGRAM



MUR2100E = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MUR2100E	Axial Lead	1000 Units/Bag
MUR2100ERL	Axial Lead	5000/Tape & Reel

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

MUR2100E

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	See Note 1	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 2.0 \text{ Amp}$, $T_J = 150^{\circ}\text{C}$) ($I_F = 2.0 \text{ Amp}$, $T_J = 25^{\circ}\text{C}$)	V_F	1.75 2.20	Volts
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_J = 100^{\circ}\text{C}$) (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$)	i_R	600 10	μA
Maximum Reverse Recovery Time ($I_F = 1.0 \text{ Amp}$, $di/dt = 50 \text{ Amp}/\mu\text{s}$) ($I_F = 0.5 \text{ Amp}$, $I_R = 1.0 \text{ Amp}$, $I_{REC} = 0.25 \text{ A}$)	t_{rr}	100 75	ns
Maximum Forward Recovery Time ($I_F = 1.0 \text{ A}$, $di/dt = 100 \text{ A}/\mu\text{s}$, 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 $\leq 2.0\%$.

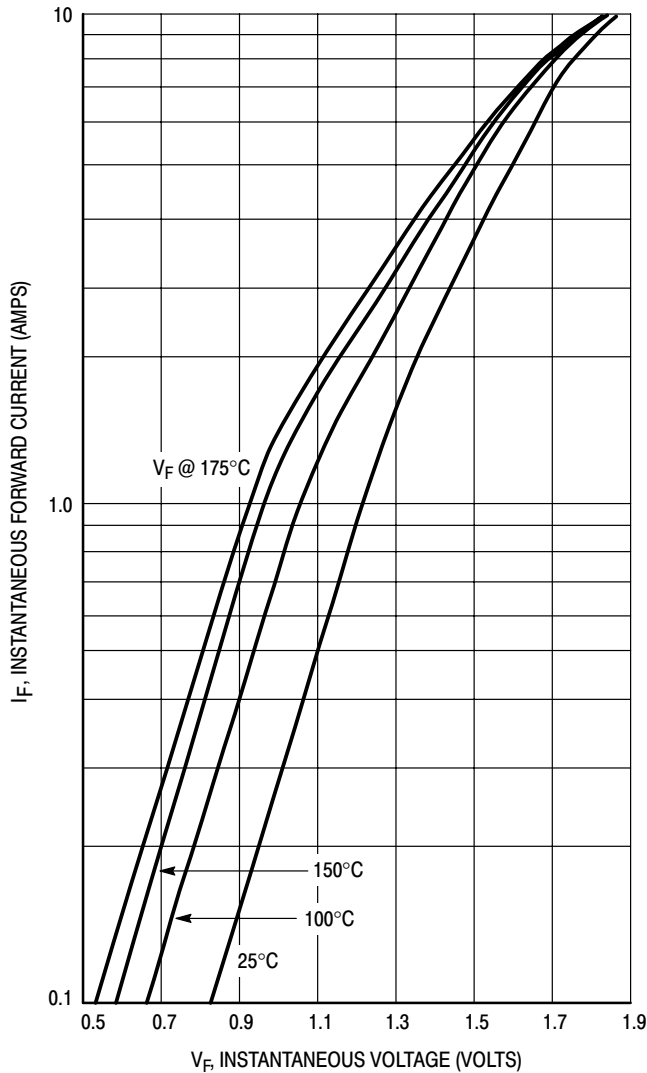


Figure 1. Maximum Forward Voltage

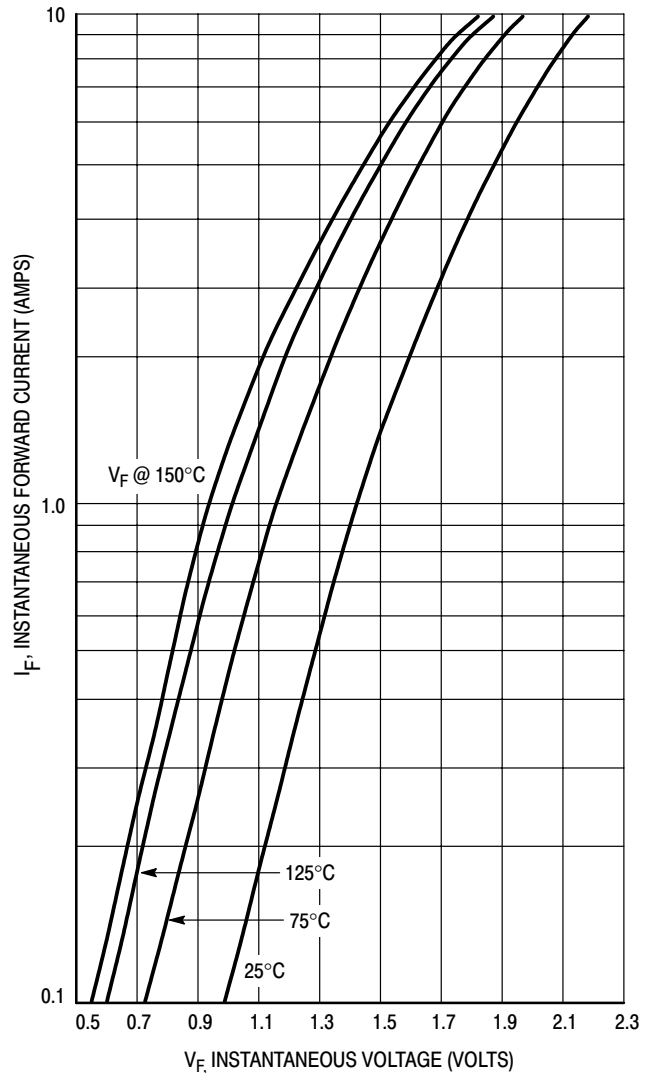


Figure 2. Typical Forward Voltage

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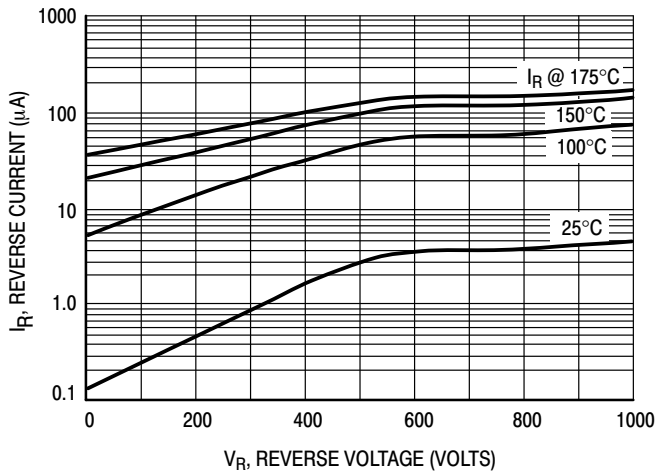


Figure 3. Maximum Reverse Current

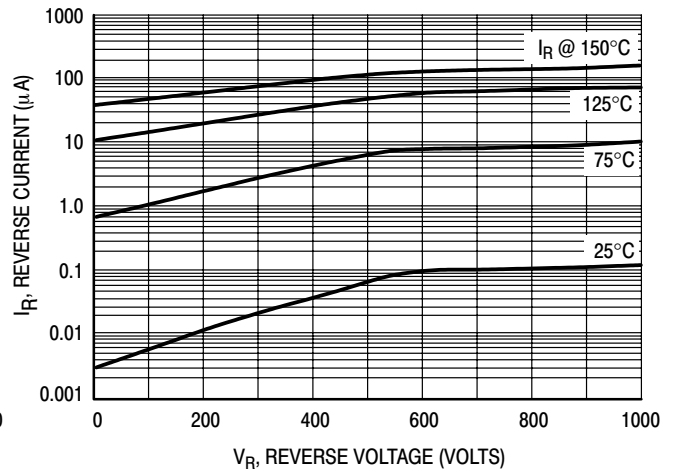


Figure 4. Typical Reverse Current

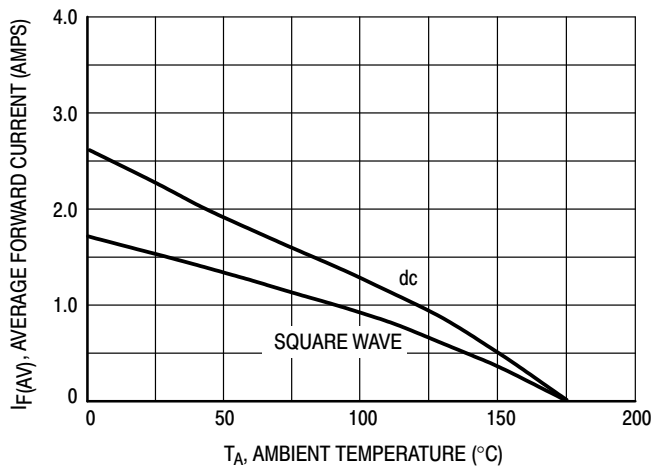


Figure 5. Current Derating

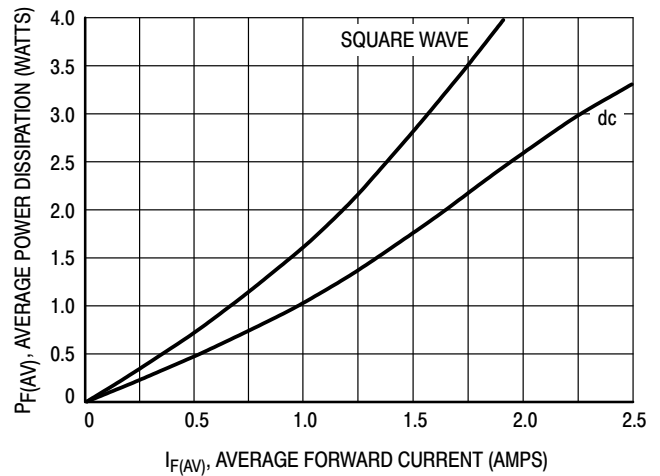


Figure 6. Power Dissipation

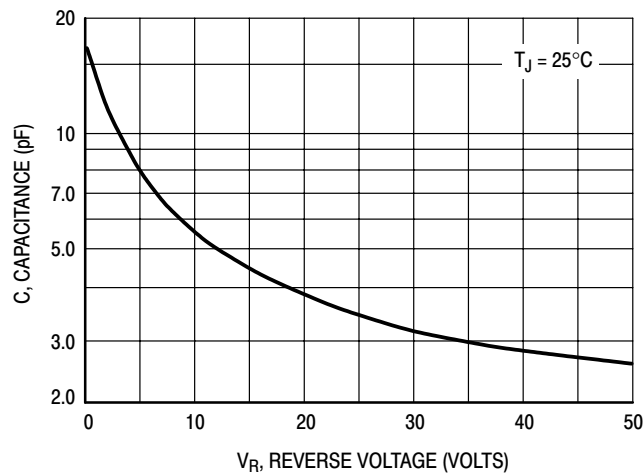


Figure 7. Typical Capacitance

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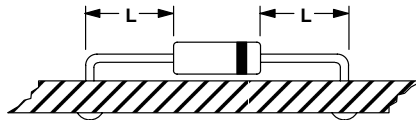
NOTE 1 — AMBIENT MOUNTING DATA

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.

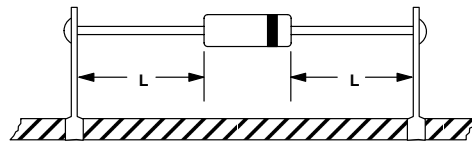
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

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

MOUNTING METHOD 1

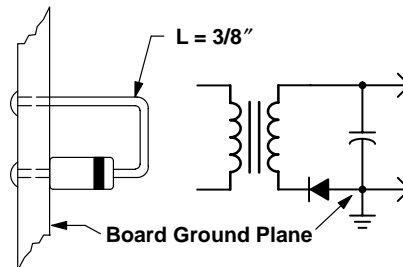


MOUNTING METHOD 2



Vector Pin Mounting

MOUNTING METHOD 3



P.C. Board with 1-1/2 " X 1-1/2 " Copper Surface

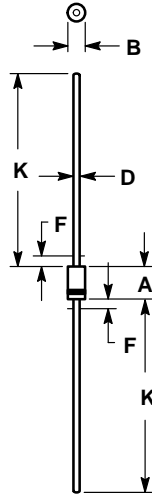
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PACKAGE DIMENSIONS

MINI MOSORB

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.

DIM	INCHES		MILLIMETERS	
	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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