

SWITCHMODE Power Rectifier

Ultrafast “E” Series with High Reverse Energy Capability

MUR2100E

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

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 Temperature for Soldering Purposes: 260 °C Max for 10 Seconds
- 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 2)	$I_{F(AV)}$	2.0 @ $T_A = 35\text{ °C}$	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

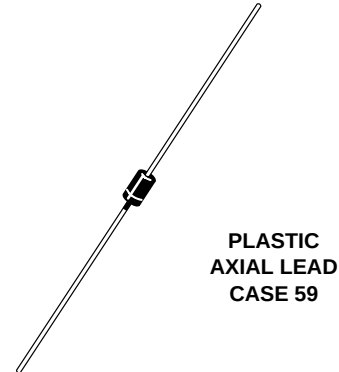
Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	(Note 4)	°C/W

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.

2. Pulse Test: Pulse Width = 300 μ s, Duty Cycle $\leq$ 2.0%.

* For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, [SOLDDRM/D](#).

ULTRAFAST RECTIFIER 2.0 AMPERES, 1000 VOLTS



PLASTIC
AXIAL LEAD
CASE 59

MARKING DIAGRAM



A = Assembly Location

Y = Year

WW = Work Week

▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MUR2100EG	Axial Lead**	1000 Units/Bag
MUR2100ERLG	Axial Lead**	5000/Tape & Reel

DISCONTINUED (Note 1)

MUR2100E	Axial Lead**	1000 Units/Bag
MUR2100ERL	Axial Lead**	5000/Tape & Reel

† 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](#).

** This package is inherently Pb-Free.

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](#).

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) ($I_F = 2.0\text{ A}$, $T_J = 150\text{ }^\circ\text{C}$) ($I_F = 2.0\text{ A}$, $T_J = 25\text{ }^\circ\text{C}$)	V_F	1.75 2.20	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_J = 100\text{ }^\circ\text{C}$) (Rated dc Voltage, $T_J = 25\text{ }^\circ\text{C}$)	I_R	600 10	μA
Maximum Reverse Recovery Time ($I_F = 1.0\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$) ($I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{REC} = 0.25\text{ A}$)	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

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 $\leq 2.0\%$.

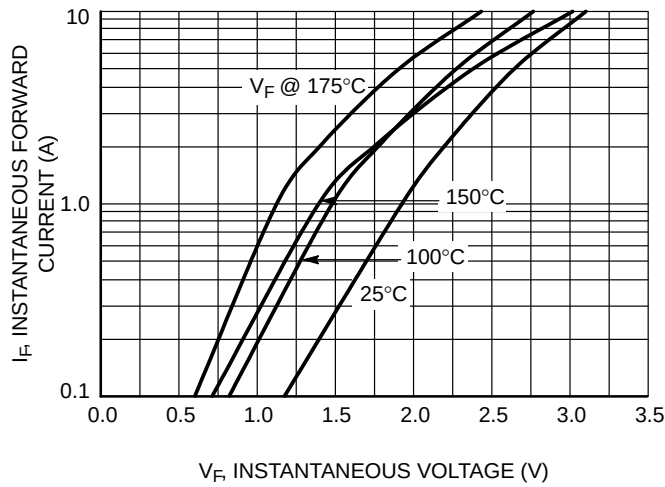


Figure 1. Maximum Forward Voltage

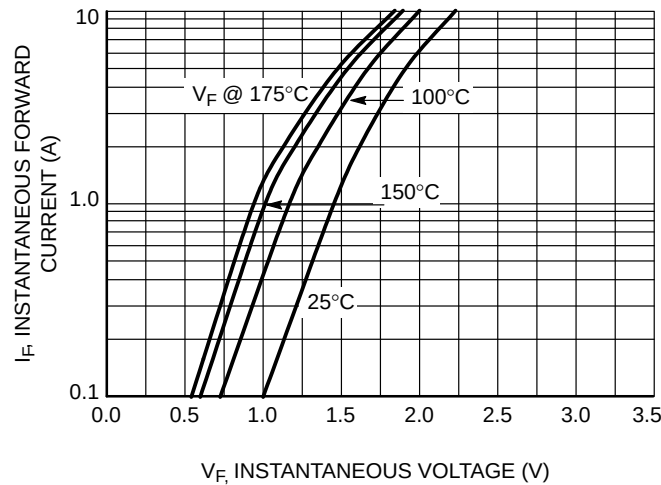


Figure 2. Typical Forward Voltage

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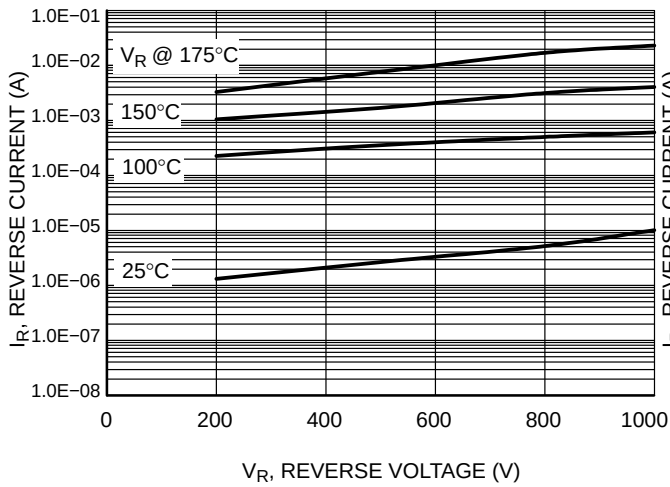


Figure 3. Maximum Reverse Current

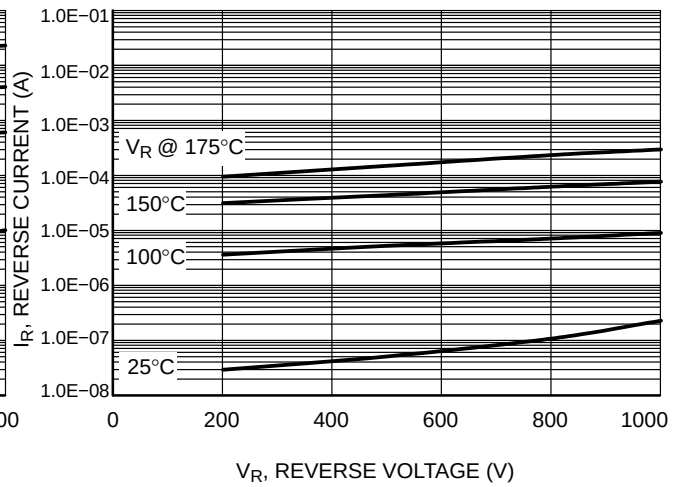


Figure 4. Typical Reverse Current

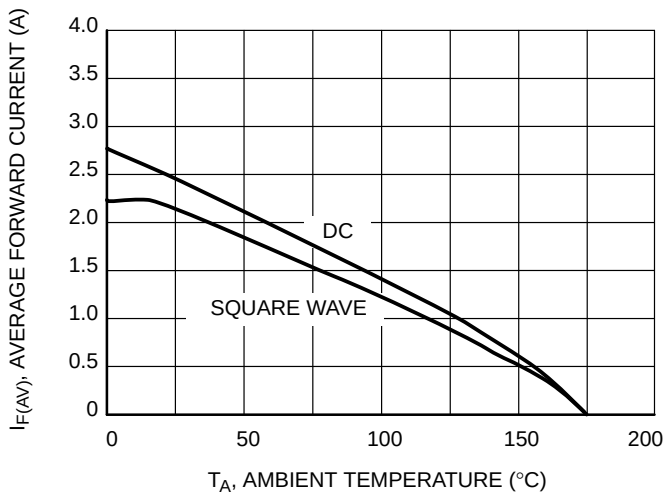


Figure 5. Current Derating

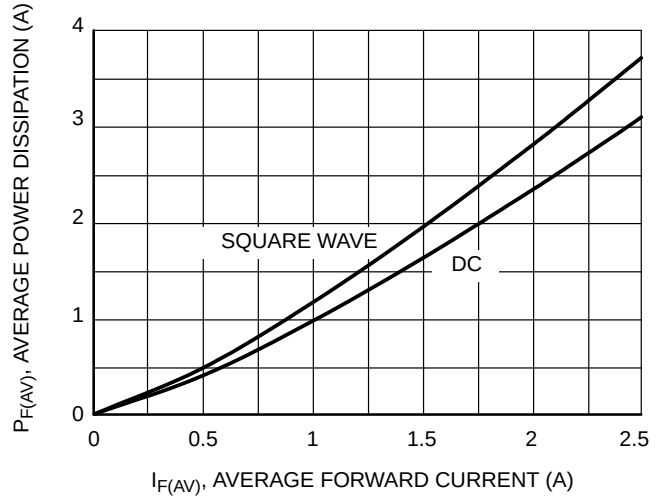


Figure 6. Power Dissipation

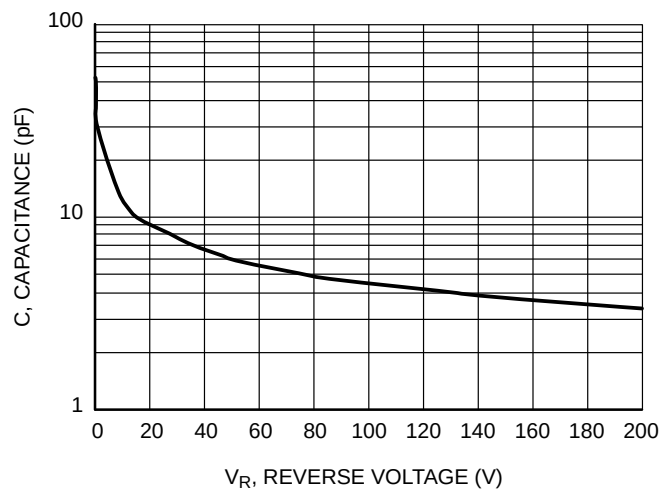


Figure 7. Typical Capacitance

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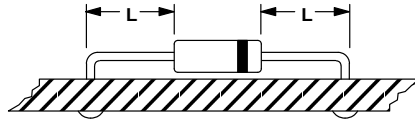
NOTE 4. – AMBIENT MOUNTING DATA

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.

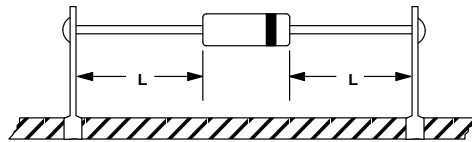
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

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

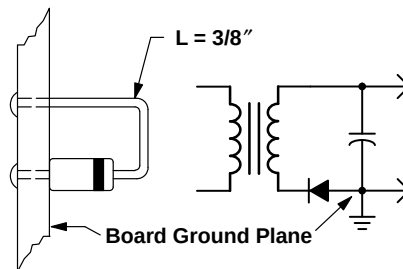


MOUNTING METHOD 2



Vector Pin Mounting

MOUNTING METHOD 3



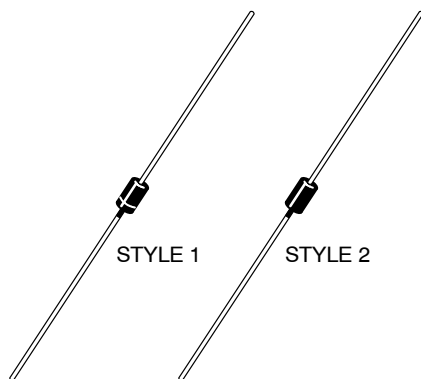
P.C. Board with
1-1/2" X 1-1/2" Copper Surface

MUR2100E

REVISION HISTORY

Revision	Description of Changes	Date
7	Rebranded the Data Sheet to onsemi format. MUR2100E, MUR2100ERL OPNs marked as Discontinued.	10/9/2025

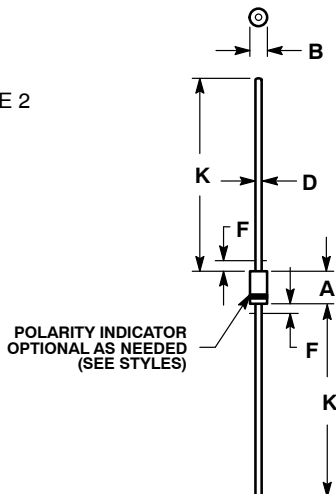
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.



SCALE 1:1

AXIAL LEAD
CASE 59-10
ISSUE U

DATE 15 FEB 2005

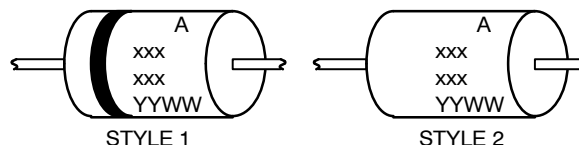


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY.
4. POLARITY DENOTED BY CATHODE BAND.
5. 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	---

GENERIC
MARKING DIAGRAM*



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

STYLE 2:
NO POLARITY

xxx = Specific Device Code
A = Assembly Location
YY = Year
WW = Work Week

*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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DESCRIPTION:	AXIAL LEAD	PAGE 1 OF 1

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