

MBR3060

Axial Lead Rectifier

...employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlap contact. Ideally suited for use as rectifiers in low-voltage, high-frequency inverters, free wheeling diodes, and polarity protection diodes.

- Extremely Low V_f
- Low Power Loss/High Efficiency
- Highly Stable Oxide Passivated Junction
- Low Stored Charge, Majority Carrier Conduction

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
- ESD Ratings: Machine Model = A
Human Body Model = 2
- Marking: MBR3060

MAXIMUM RATINGS

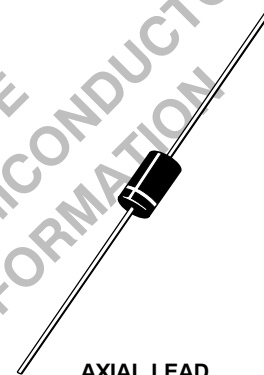
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_f	60	V
Average Rectified Forward Current $T_L = 125^\circ\text{C}$ ($R_{\theta JL} = 13^\circ\text{C/W}$, P.C. Board Mounting)	I_o	3.0	A
Non-Repetitive Peak Surge Current	I_{FSM}	125	A
Operating and Storage Junction Temperature Range (Reverse Voltage Applied)	T_J, T_{stg}	-65 to +150	°C
Peak Operating Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	150	°C



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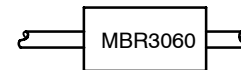
<http://onsemi.com>

**SCHOTTKY BARRIER
RECTIFIER
3.0 AMPERES
60 VOLTS**



AXIAL LEAD
CASE 59-09
PLASTIC

MARKING DIAGRAM



MBR3060 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBR3060	Axial Lead	1000 Units/Bag
MBR3060RL	Axial Lead	5000/Tape & Reel

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead (Note 1, see Note 3, Mounting Method 3)	$R_{\theta JL}$	13	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient (see Note 3, Mounting Method 3)	$R_{\theta JA}$	50	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_L = 25^{\circ}C$ unless otherwise noted) (Note 1)

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ($I_f = 3.0$ Amp), $T_L = 25^{\circ}C$ ($I_f = 3.0$ Amp), $T_L = 100^{\circ}C$	V_f	0.62 0.59	V
Maximum Instantaneous Reverse Current (Note 2) ($V_r = 60$ V), $T_L = 25^{\circ}C$ ($V_r = 60$ V), $T_L = 100^{\circ}C$	I_r	150 10	μA mA

- Lead Temperature reference is cathode lead at printed wiring board.
- Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

TYPICAL CHARACTERISTICS

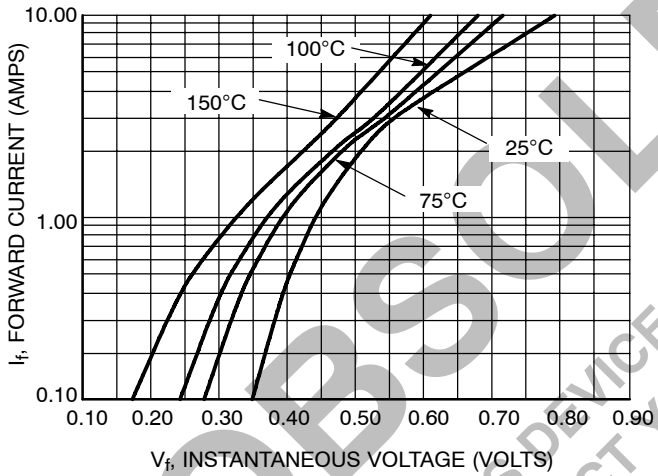


Figure 1. Typical Forward Voltage

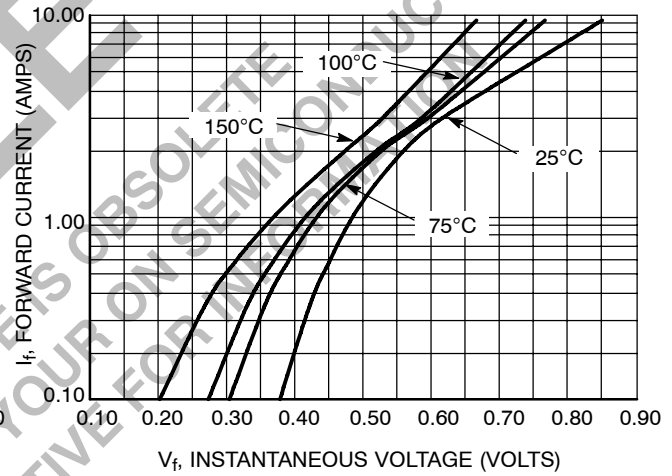


Figure 2. Maximum Forward Voltage

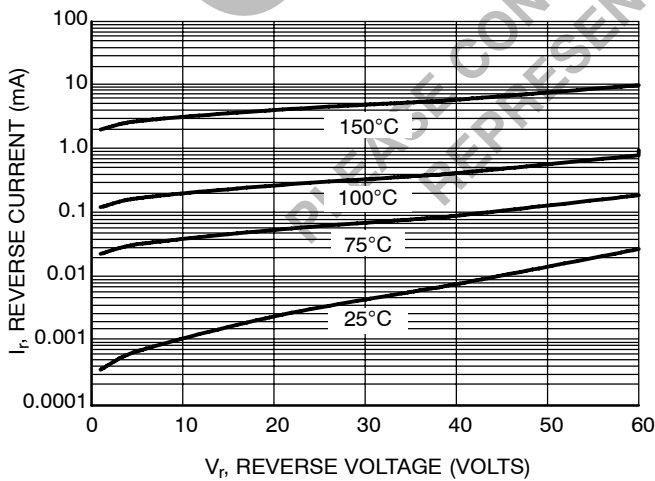


Figure 3. Typical Reverse Current

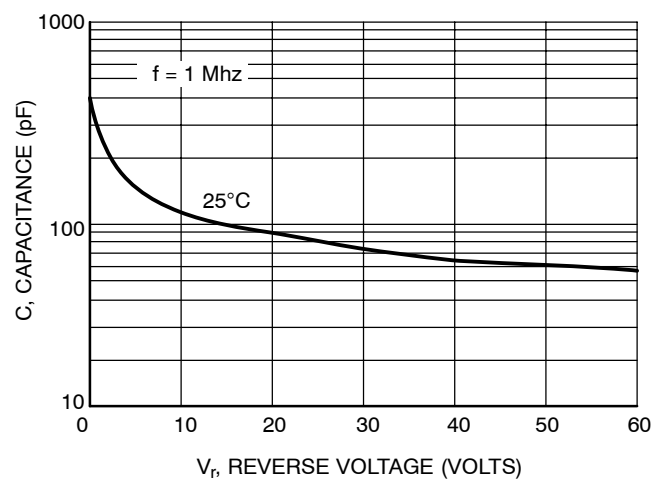


Figure 4. Typical Capacitance

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TYPICAL CHARACTERISTICS

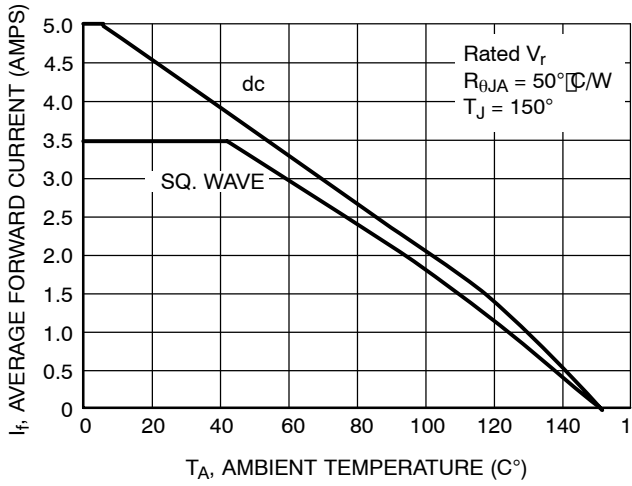


Figure 5. Current Derating - Ambient

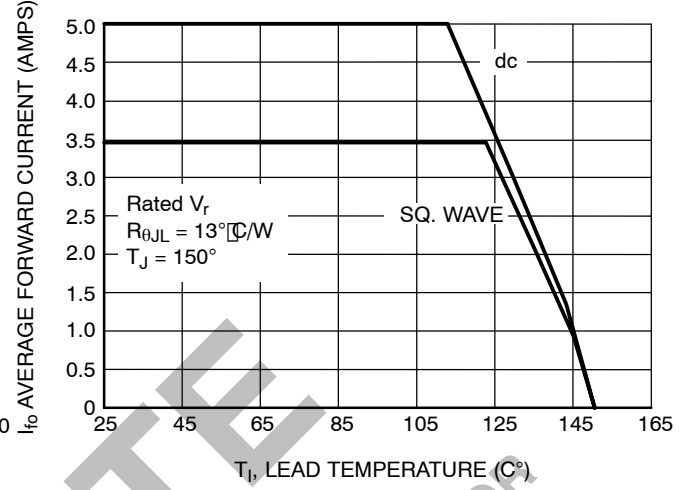


Figure 6. Current Derating - Lead

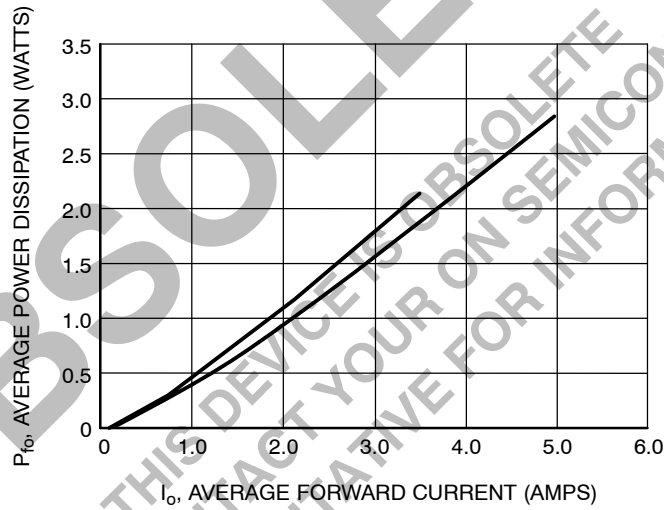


Figure 7. Forward Power Dissipation

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NOTE 3 — MOUNTING DATA

Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) and thermal resistance junction-to-lead ($R_{\theta JL}$) 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

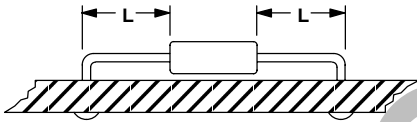
Mounting Method	Lead Length, L (in)				$R_{\theta JA}$
	1/8	1/4	1/2	3/4	
1	52	65	72	85	$^{\circ}\text{C}/\text{W}$
2	67	80	87	100	$^{\circ}\text{C}/\text{W}$
3	50				$^{\circ}\text{C}/\text{W}$

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

Mounting Method	Lead Length, L (in)			$R_{\theta JL}$
	1/8	1/4	1/2	
1	15	23	37	$^{\circ}\text{C}/\text{W}$
2	30	38	52	$^{\circ}\text{C}/\text{W}$
3	13			$^{\circ}\text{C}/\text{W}$

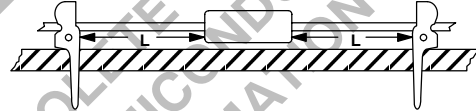
Mounting Method 1

P.C. Board with
1-1/2" X 1-1/2" copper surface.



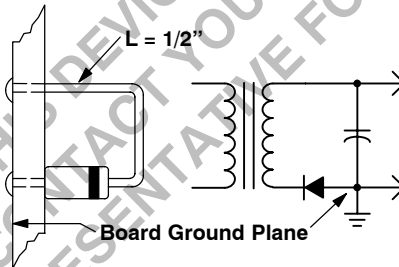
Mounting Method 2

Vector Push-In
Terminals T-28



Mounting Method 3

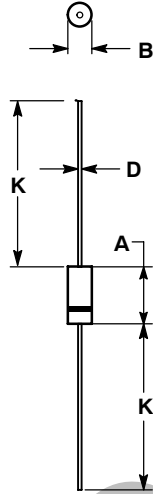
P.C. Board with
1-1/2" X 1-1/2" copper surface.



MBR3060

PACKAGE DIMENSIONS

AXIAL LEAD CASE 59-09 ISSUE R



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	0.228	0.299	5.80	7.60
B	0.102	0.142	2.60	3.60
D	0.028	0.034	0.71	0.86
K	1.000	---	25.44	---

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