

# 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

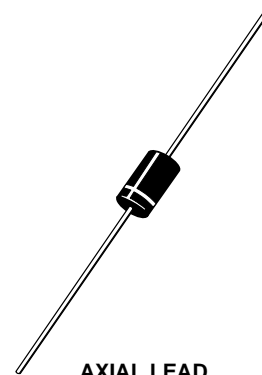
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_r$	60	V
Average Rectified Forward Current $T_L = 125^\circ\text{C}$ ( $R_{\theta JL} = 13^\circ\text{C/W}$ , P.C. Board Mounting)	$I_o$	3.0	A
Non-Repetitive Peak Surge Current	$I_{FSM}$	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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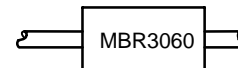
<http://onsemi.com>

**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	$\mu A$ mA

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

## TYPICAL CHARACTERISTICS

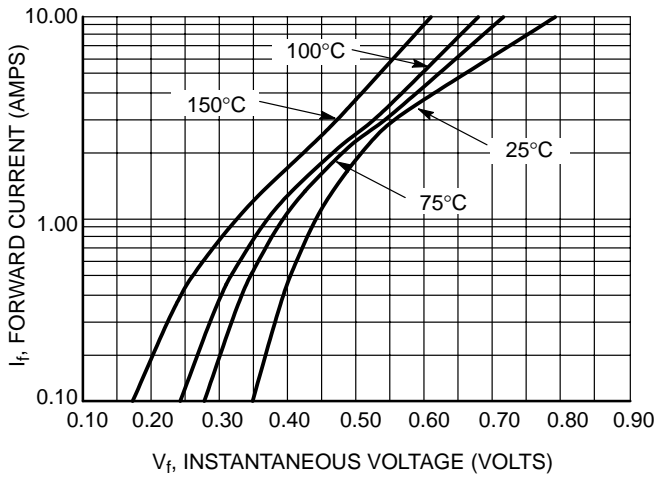


Figure 1. Typical Forward Voltage

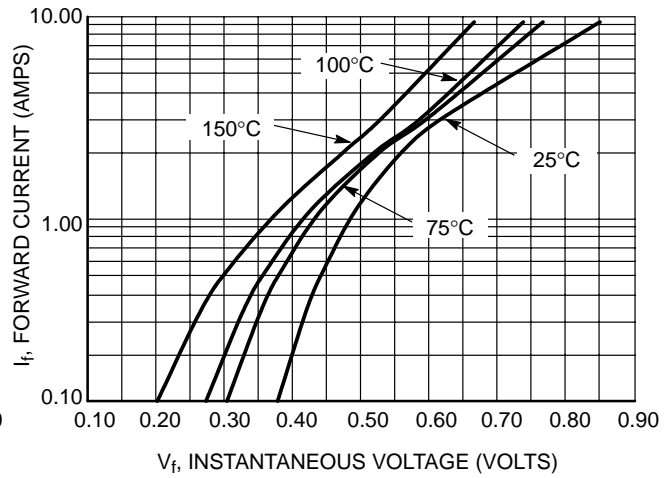


Figure 2. Maximum Forward Voltage

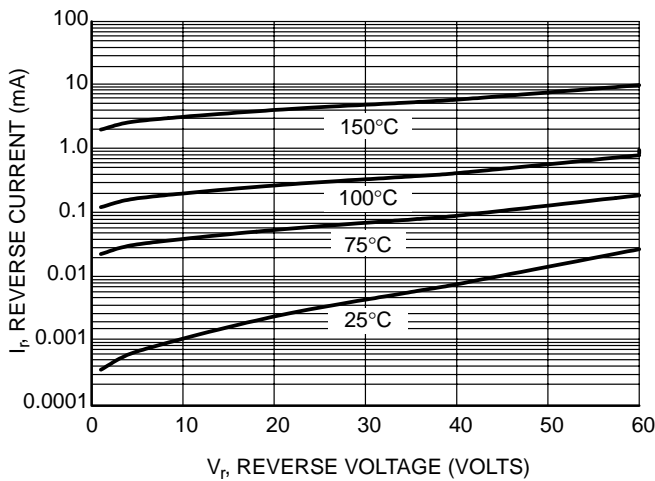


Figure 3. Typical Reverse Current

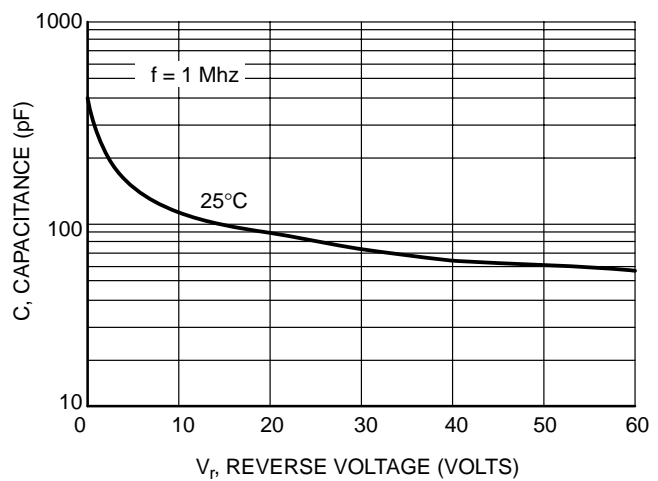
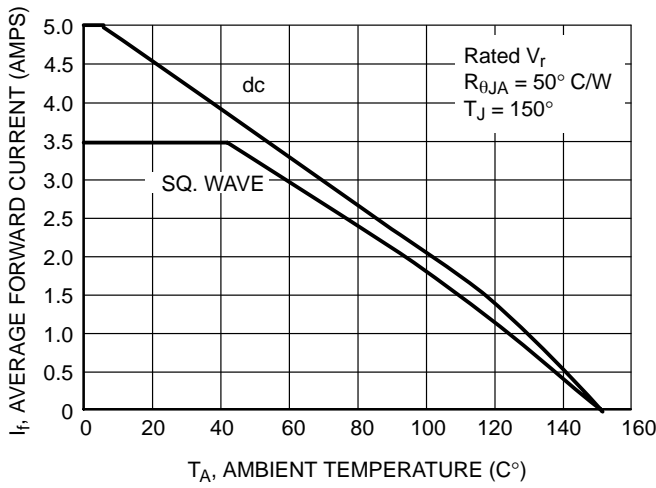


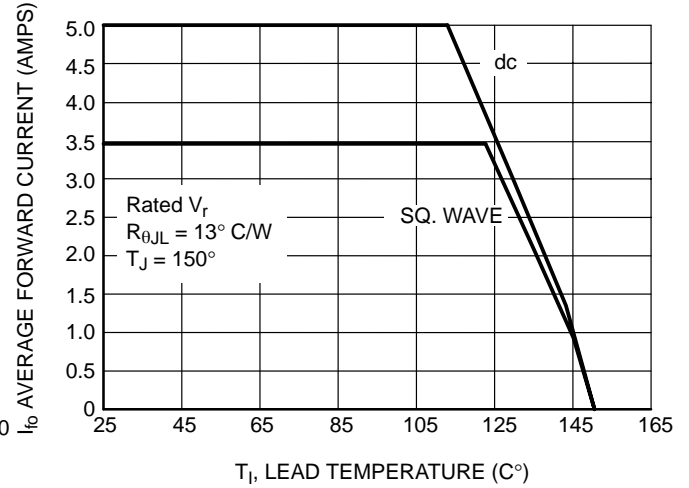
Figure 4. Typical Capacitance

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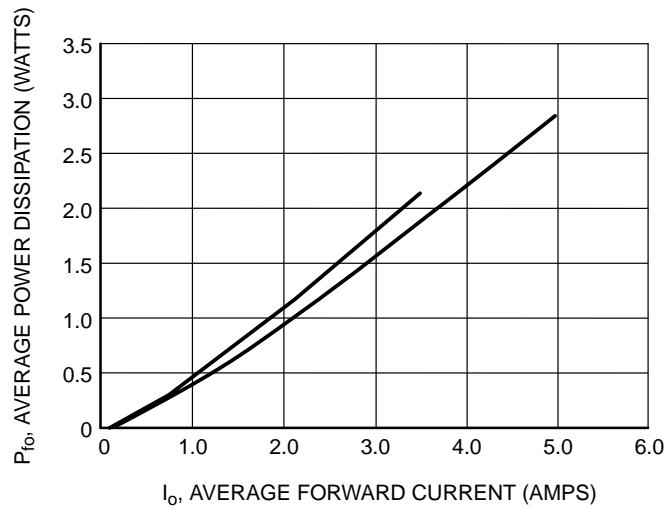
## TYPICAL CHARACTERISTICS



**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

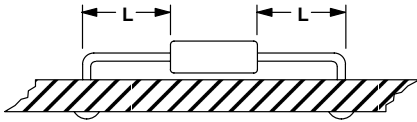
Mounting Method	Lead Length, L (in)				$R_{\theta JA}$
	1/8	1/4	1/2	3/4	
1	52	65	72	85	$^{\circ}\text{C}/\text{W}$
2	67	80	87	100	$^{\circ}\text{C}/\text{W}$
3	50				$^{\circ}\text{C}/\text{W}$

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			$^{\circ}\text{C}/\text{W}$

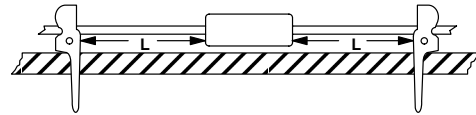
### Mounting Method 1

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



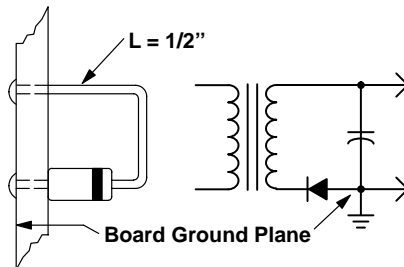
### Mounting Method 2

Vector Push-In  
Terminals T-28



### Mounting Method 3

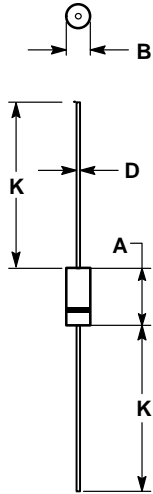
P.C. Board with  
1-1/2" X 1-1/2" copper surface.



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## 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	---

**Notes**

**Notes**

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