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°C ($R_{\theta JL}$ = 13°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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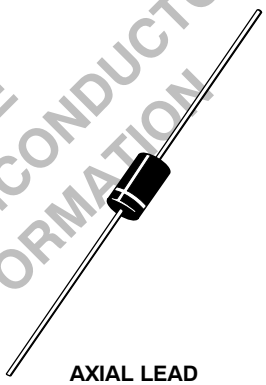
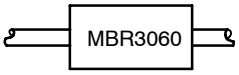
SCHOTTKY BARRIER RECTIFIER 3.0 AMPERES 60 VOLTS



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

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_L = 25°C unless otherwise noted) (Note 1)

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

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

TYPICAL CHARACTERISTICS

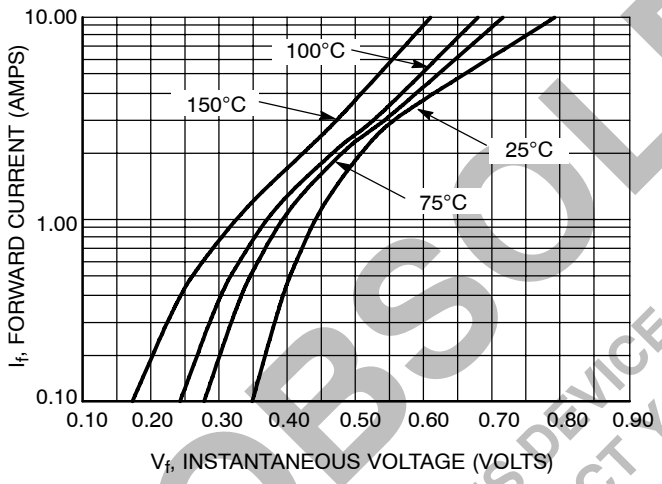


Figure 1. Typical Forward Voltage

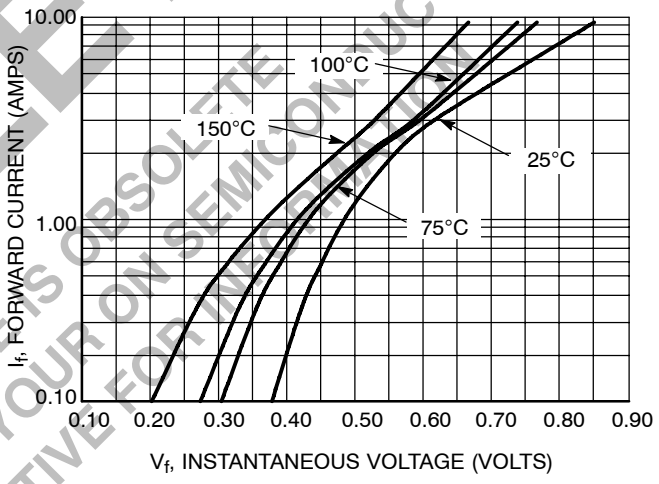


Figure 2. Maximum Forward Voltage

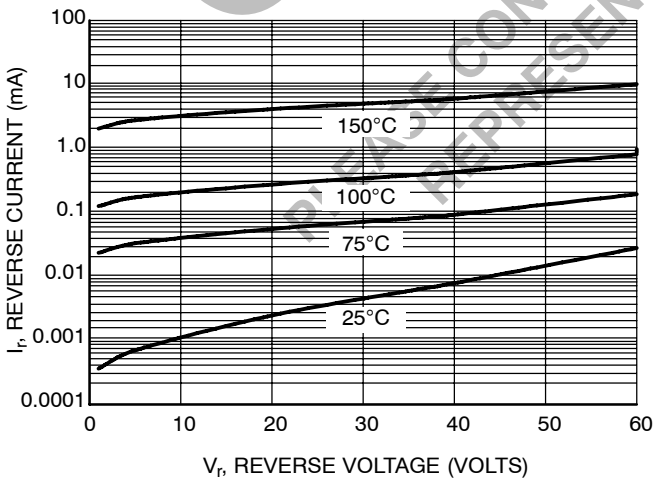


Figure 3. Typical Reverse Current

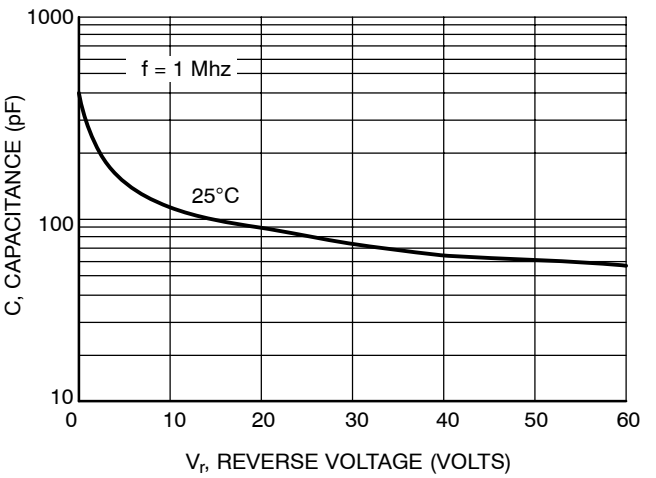


Figure 4. Typical Capacitance

TYPICAL CHARACTERISTICS

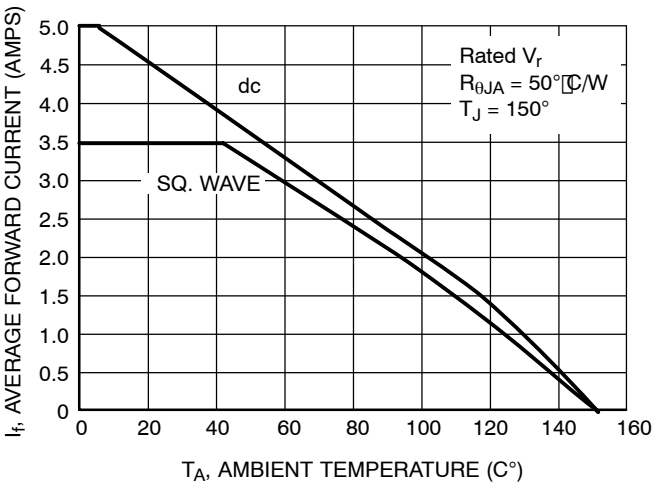


Figure 5. Current Derating – Ambient

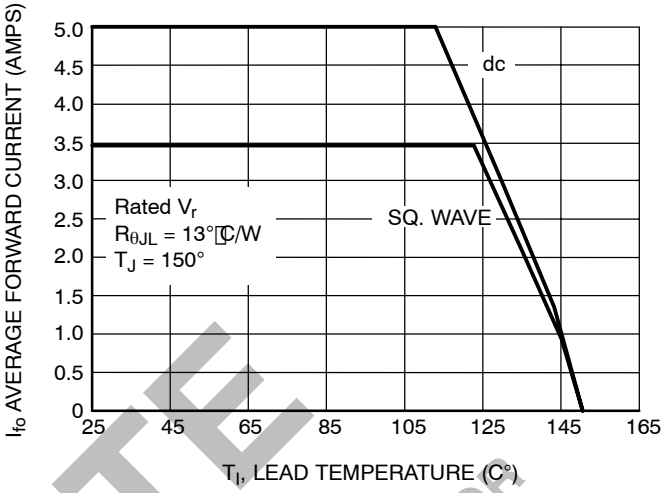


Figure 6. Current Derating – Lead

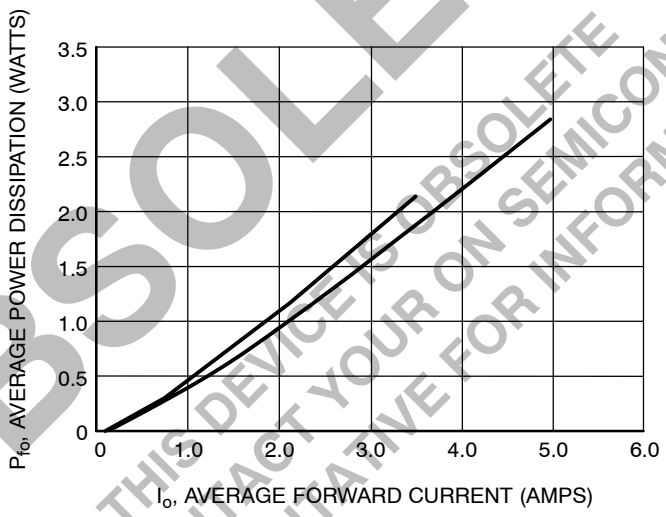


Figure 7. Forward Power Dissipation

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

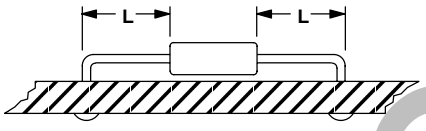
Mounting Method	Lead Length, L (in)				$R_{\theta JA}$
	1/8	1/4	1/2	3/4	
1	52	65	72	85	°C/W
2	67	80	87	100	°C/W
3	50				°C/W

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

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

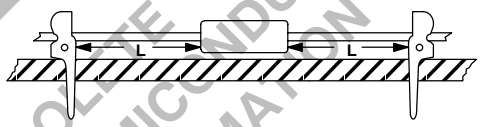
Mounting Method 1

P.C. Board with
1−1/2″ X 1−1/2″ copper surface.



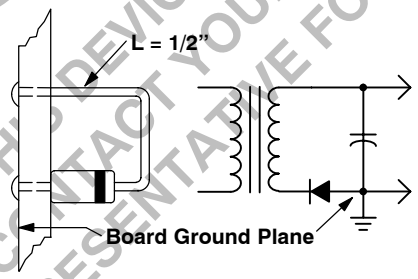
Mounting Method 2

Vector Push−In
Terminals T−28



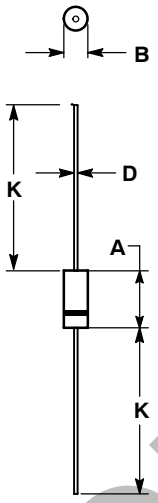
Mounting Method 3

P.C. Board with
1−1/2″ X 1−1/2″ copper surface.



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.

	INCHES		MILLIMETERS	
DIM	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	---

PUBLICATION ORDERING INFORMATION

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MBR3060/D