

MBR350, MBR360

MBR360 is a Preferred Device

Axial Lead Rectifiers

These devices employ 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.

Features

- Extremely Low v_F
- Low Power Loss/High Efficiency
- Highly Stable Oxide Passivated Junction
- Low Stored Charge, Majority Carrier Conduction
- Shipped in plastic bags, 500 per bag
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- These devices are manufactured with a Pb-Free external lead finish only*

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.1 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 in from case
- Polarity: Cathode indicated by Polarity Band

MAXIMUM RATINGS

| Rating | Symbol | Max | Unit |
|---|---------------------------------|-------------|------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 50 60 | V |
| Average Rectified Forward Current $T_A = 65^\circ\text{C}$ ($R_{\theta JA} = 28^\circ\text{C/W}$, P.C. Board Mounting) | I_O | 3.0 | A |
| Non-Repetitive Peak Surge Current (Note 1) (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz, $T_L = 75^\circ\text{C}$) | I_{FSM} | 80 | 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 |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Lead Temperature reference is cathode lead 1/32 in from case.

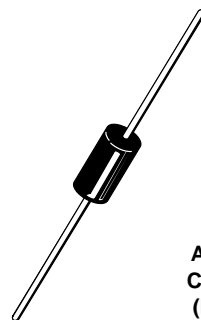
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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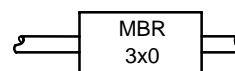
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**SCHOTTKY BARRIER
RECTIFIERS
3.0 AMPERES
50, 60 VOLTS**



AXIAL LEAD
CASE 267-05
(DO-201AD)
STYLE 1

MARKING DIAGRAM



MBR3x0= Device Code
x = 5 or 6

ORDERING INFORMATION

| Device | Package | Shipping† |
|----------|------------|------------------|
| MBR350 | Axial Lead | 500 Units/Bag |
| MBR350RL | Axial Lead | 1500/Tape & Reel |
| MBR360 | Axial Lead | 500 Units/Bag |
| MBR360RL | Axial Lead | 1500/Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

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THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-----|---------------|
| Thermal Resistance, Junction-to-Ambient (see Note 4, Mounting Method 3) | $R_{\theta JA}$ | 28 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS ($T_L = 25^{\circ}C$ unless otherwise noted) (Note 2)

| Characteristic | Symbol | Max | Unit |
|--|--------|-------------------------|------|
| Maximum Instantaneous Forward Voltage (Note 3) ($i_F = 1.0$ Amp) ($i_F = 3.0$ Amp) ($i_F = 9.4$ Amp) | V_F | 0.600 0.740 1.080 | V |
| Maximum Instantaneous Reverse Current @ Rated dc Voltage (Note 3) $T_L = 25^{\circ}C$ $T_L = 100^{\circ}C$ | i_R | 0.60 20 | mA |

- Lead Temperature reference is cathode lead 1/32 in from case.
- Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

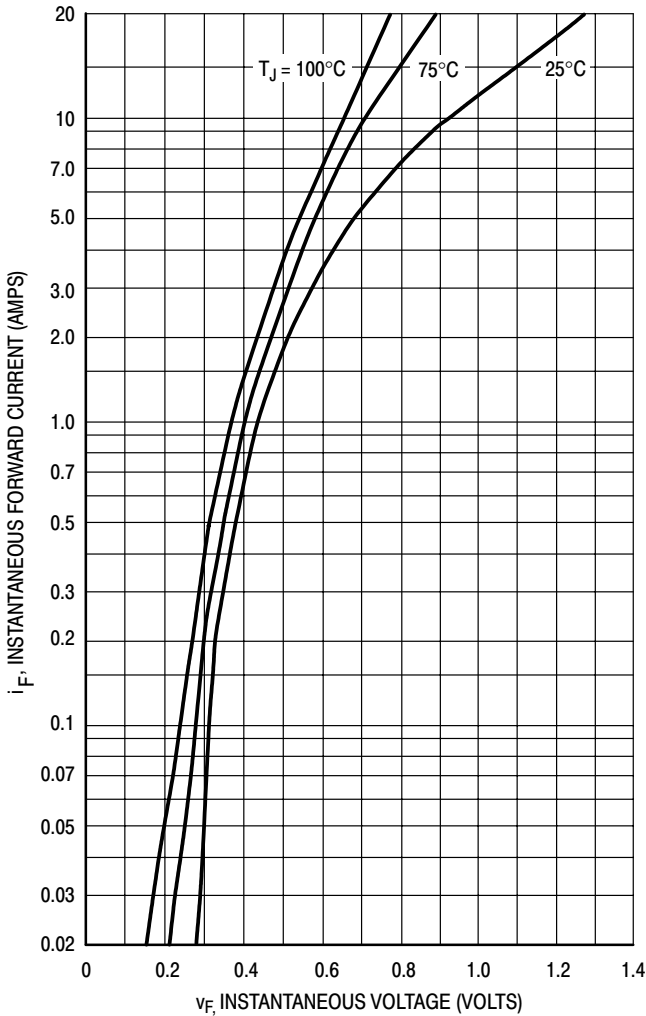


Figure 1. Typical Forward Voltage

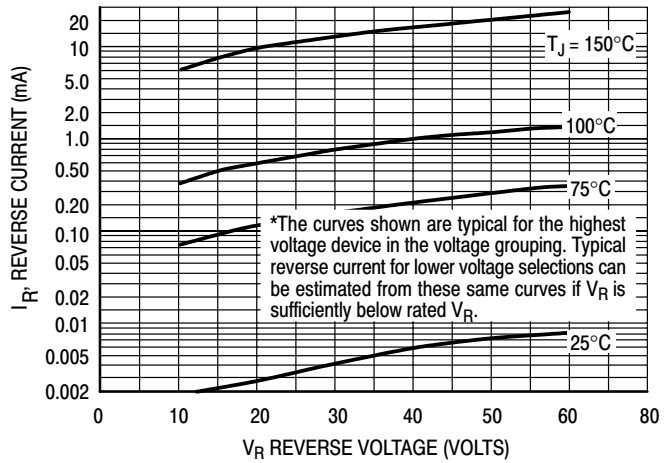


Figure 2. Typical Reverse Current*

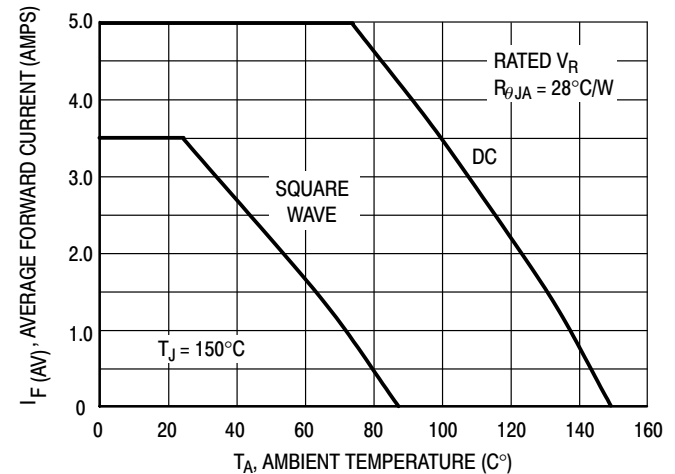


Figure 3. Current Derating Ambient (Mounting Method #3 per Note 4)

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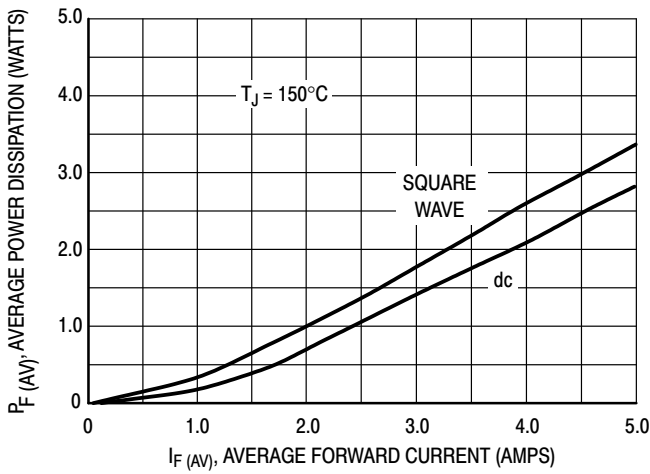


Figure 4. Power Dissipation

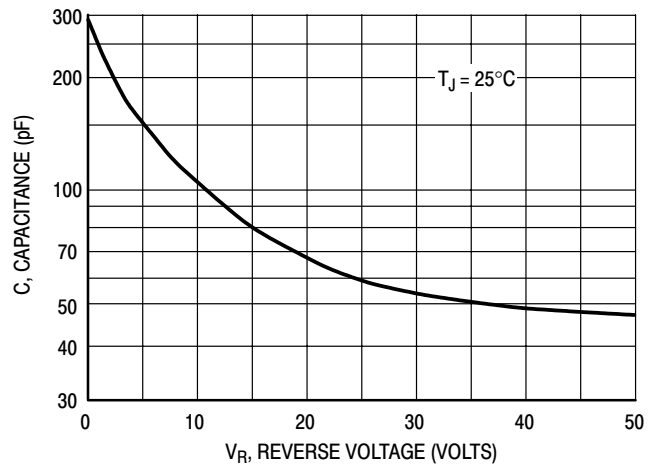


Figure 5. Typical Capacitance

NOTE 4 — MOUNTING DATA

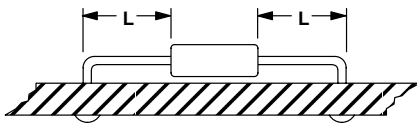
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering, or in case the tie point temperature cannot be measured.

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

| Mounting Method | Lead Length, L (in) | | | | $R_{\theta JA}$ |
|-----------------|---------------------|-----|-----|-----|-----------------|
| | 1/8 | 1/4 | 1/2 | 3/4 | |
| 1 | 50 | 51 | 53 | 55 | $^{\circ}C/W$ |
| 2 | 58 | 59 | 61 | 63 | $^{\circ}C/W$ |
| 3 | 28 | | | | $^{\circ}C/W$ |

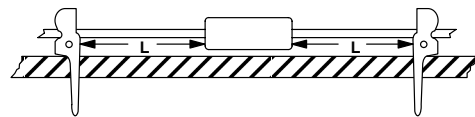
Mounting Method 1

P.C. Board where available copper surface is small.



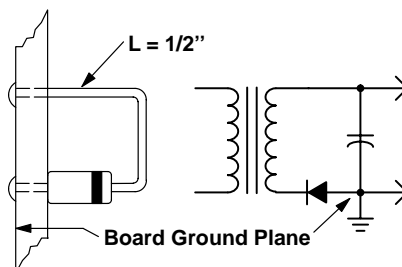
Mounting Method 2

Vector Push-In Terminals T-28



Mounting Method 3

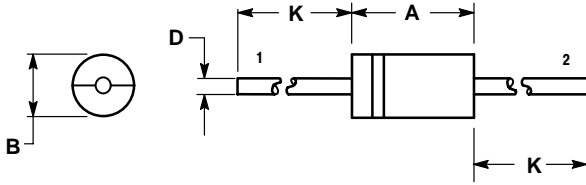
P.C. Board with 2-1/2" X 2-1/2" copper surface.



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PACKAGE DIMENSIONS


AXIAL LEAD CASE 267-05 (DO-201AD) ISSUE G



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.287 | 0.374 | 7.30 | 9.50 |
| B | 0.189 | 0.209 | 4.80 | 5.30 |
| D | 0.047 | 0.051 | 1.20 | 1.30 |
| K | 1.000 | --- | 25.40 | --- |

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

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