

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.

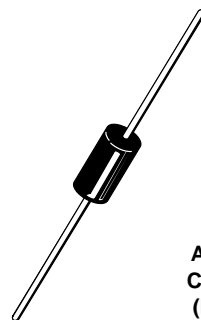
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



ON Semiconductor®

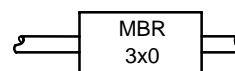
<http://onsemi.com>

**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.

MBR350, MBR360

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%.

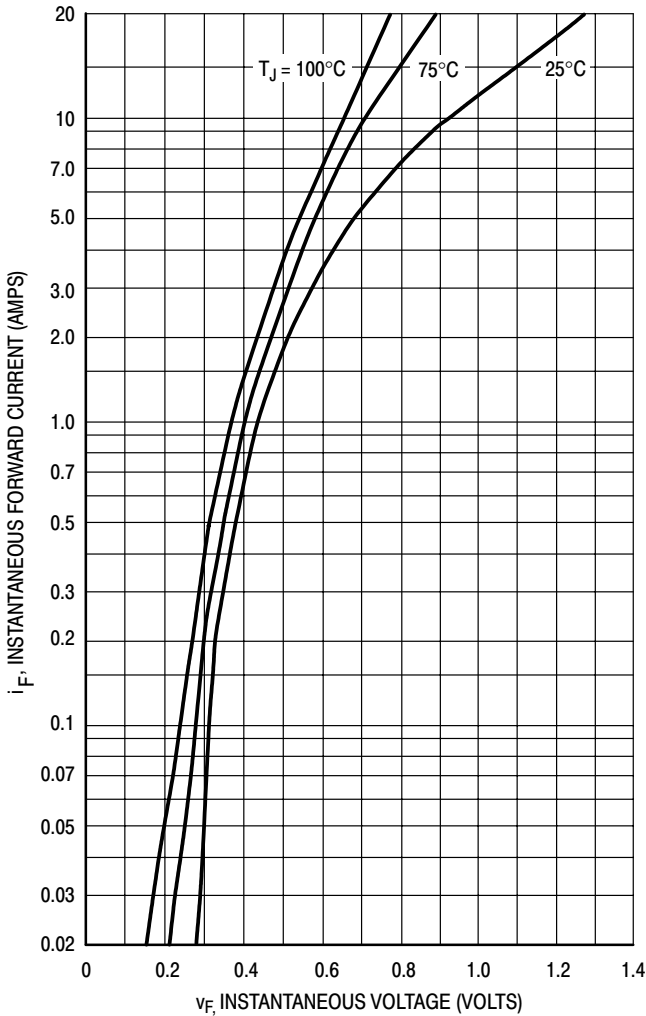


Figure 1. Typical Forward Voltage

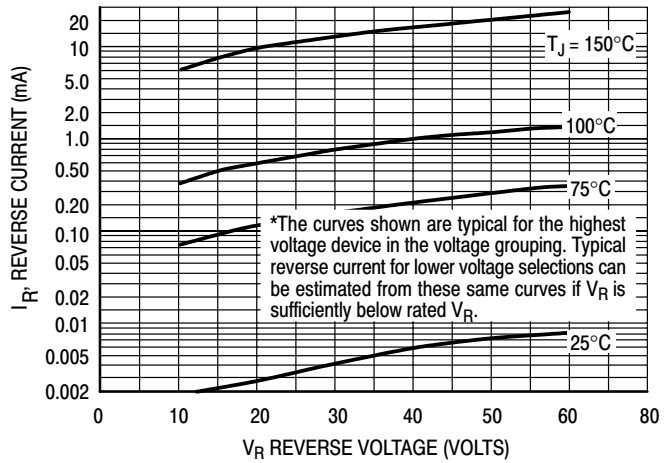


Figure 2. Typical Reverse Current*

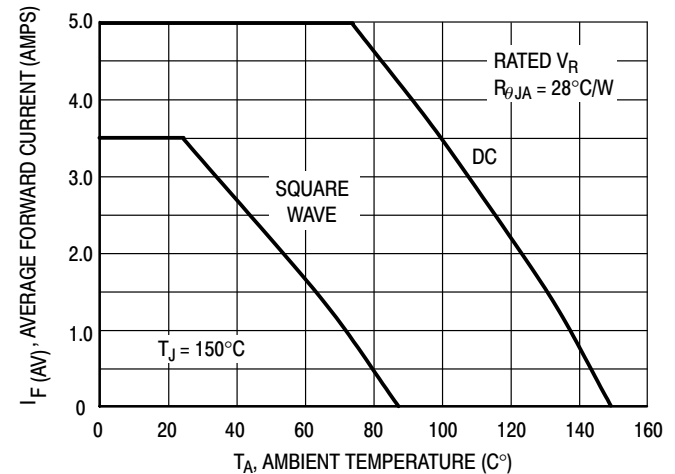


Figure 3. Current Derating Ambient (Mounting Method #3 per Note 4)

MBR350, MBR360

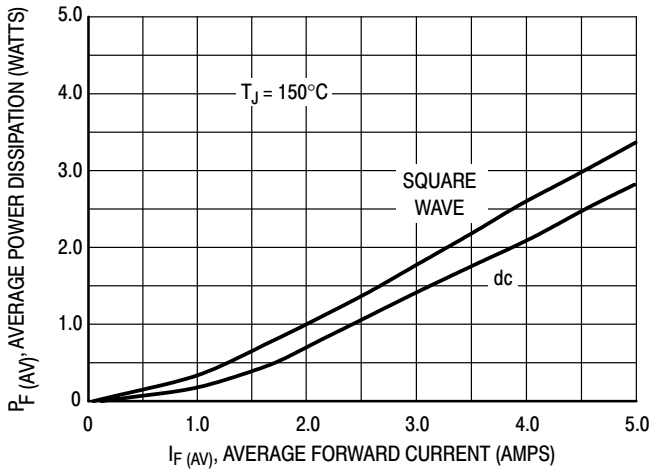


Figure 4. Power Dissipation

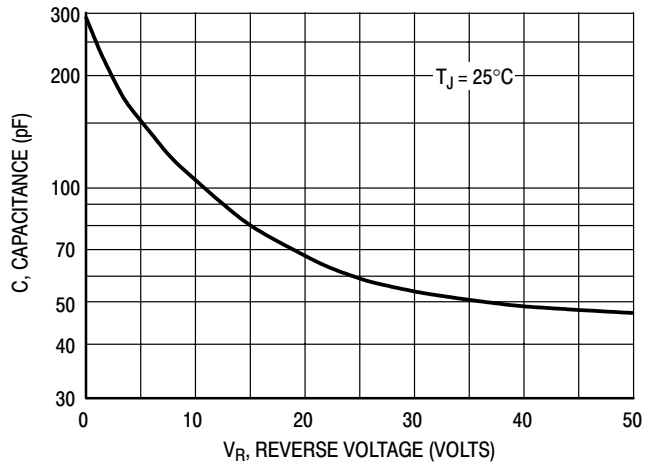


Figure 5. Typical Capacitance

NOTE 4 — MOUNTING DATA

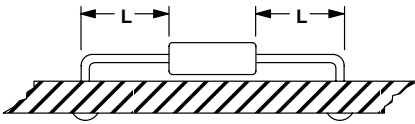
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering, or in case the tie point temperature cannot be measured.

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	$^{\circ}\text{C}/\text{W}$
2	58	59	61	63	$^{\circ}\text{C}/\text{W}$
3	28				$^{\circ}\text{C}/\text{W}$

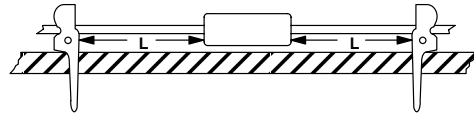
Mounting Method 1

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



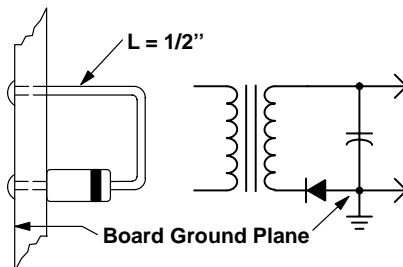
Mounting Method 2

Vector Push-In Terminals T-28



Mounting Method 3

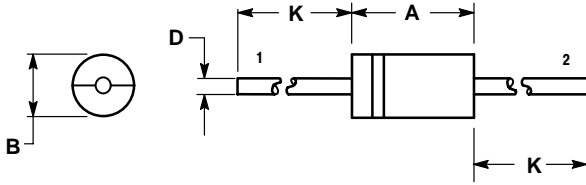
P.C. Board with 2-1/2" X 2-1/2" copper surface.



MBR350, MBR360

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)
- ANODE

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA
Phone: 480-829-7710 or 800-344-3860 Toll Free USA/Canada
Fax: 480-829-7709 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051
Phone: 81-3-5773-3850

ON Semiconductor Website: <http://onsemi.com>

Order Literature: <http://www.onsemi.com/litorder>

For additional information, please contact your
local Sales Representative.