

Axial Lead Rectifiers

... 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

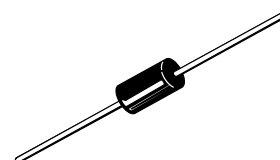
Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 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" from case
- Shipped in plastic bags, 5,000 per bag
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode indicated by Polarity Band
- Marking: B320, B330, B340, B350, B360

MBR320
MBR330
MBR340
MBR350
MBR360

MBR340 and MBR360 are
Motorola Preferred Devices

**SCHOTTKY BARRIER
RECTIFIERS
3.0 AMPERES
20, 30, 40, 50, 60 VOLTS**



CASE 267-03
PLASTIC

MAXIMUM RATINGS

Rating	Symbol	MBR320	MBR330	MBR340	MBR350	MBR360	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	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, see Note 3)	I_O	3.0					A
Non-Repetitive Peak Surge Current (2) (Surge applied at rated load conditions, half wave, 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					°C
Peak Operating Junction Temperature (Forward Current applied)	$T_{J(pk)}$	150					°C

THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	MBR320	MBR330	MBR340	MBR350	MBR360	Unit
Maximum Instantaneous Forward Voltage (1) ($i_F = 1.0$ Amp) ($i_F = 3.0$ Amp) ($i_F = 9.4$ Amp)	v_F	0.500 0.600 0.850			0.600 0.740 1.080		V
Maximum Instantaneous Reverse Current @ Rated dc Voltage (1) $T_L = 25^{\circ}\text{C}$ $T_L = 100^{\circ}\text{C}$	i_R	0.60 20					mA

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

(2) Lead Temperature reference is cathode lead 1/32" from case.

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



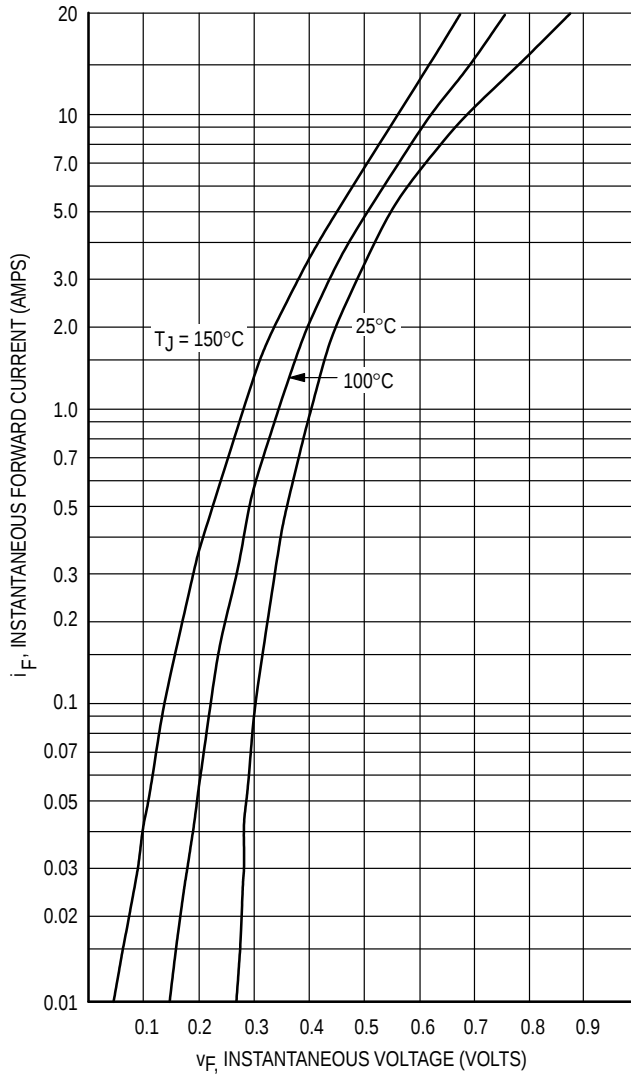


Figure 1. Typical Forward Voltage

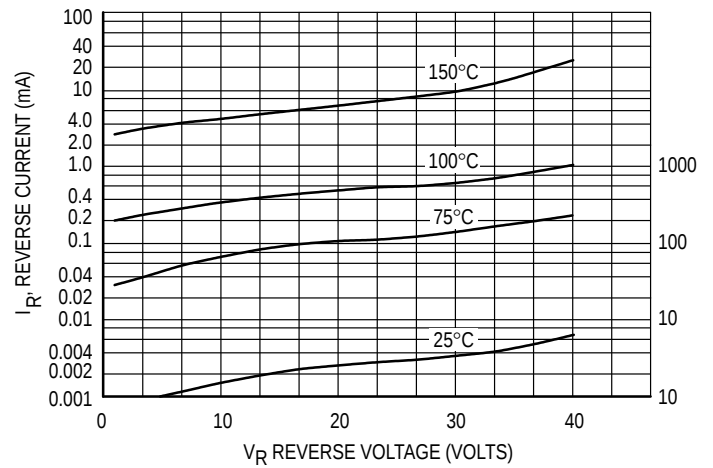


Figure 2. Typical Reverse Current*

*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

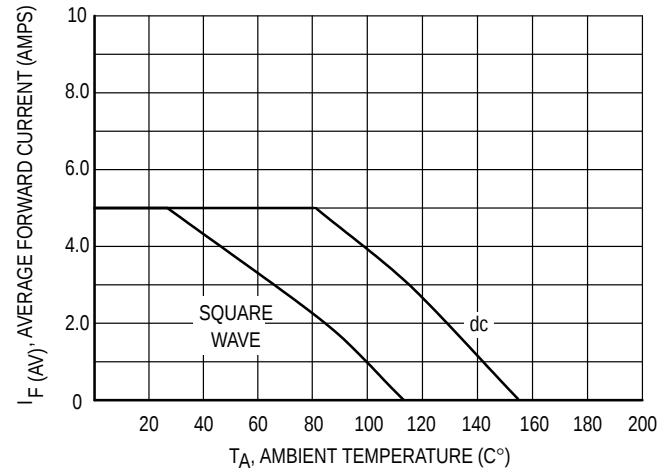


Figure 3. Current Derating
(Mounting method #3 per note 1)

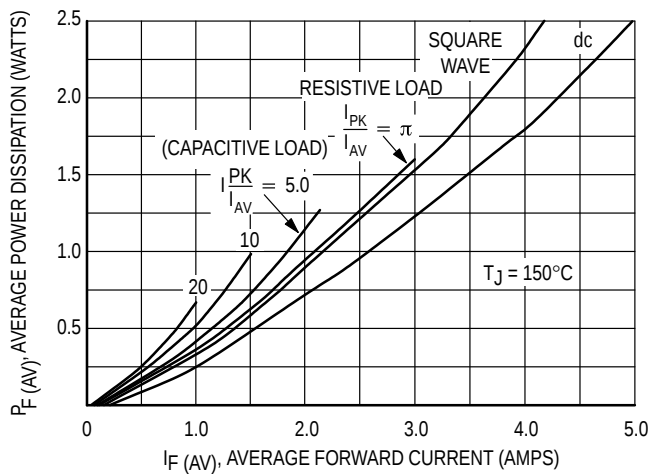


Figure 4. Power Dissipation

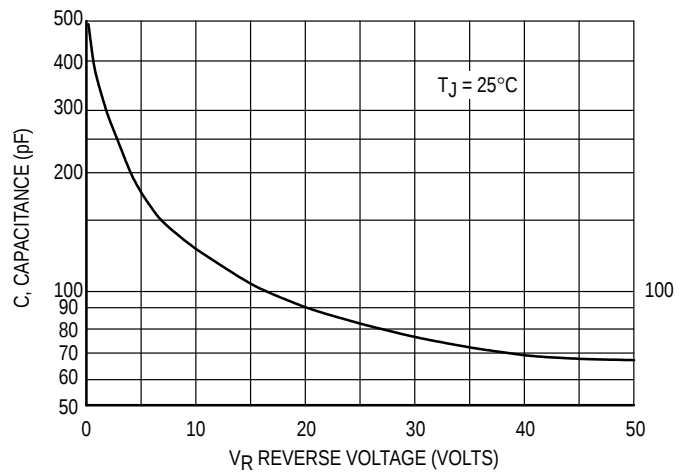


Figure 5. Typical Capacitance

MBR350 AND 360

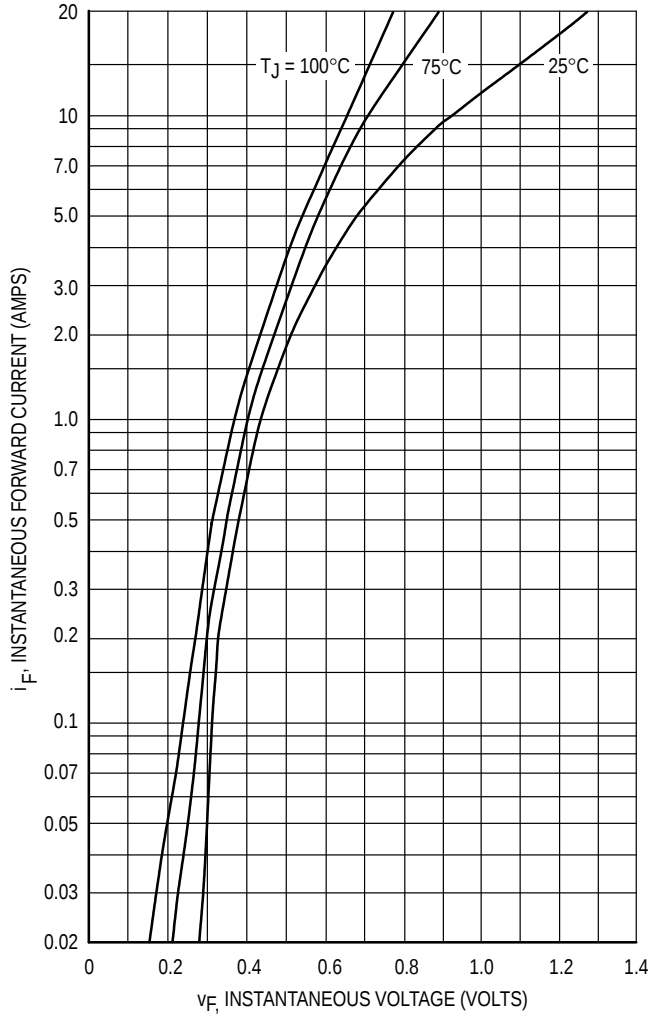


Figure 6. Typical Forward Voltage

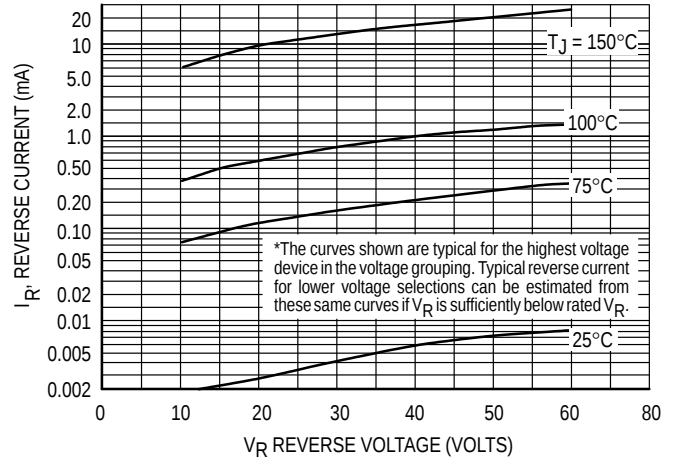


Figure 7. Typical Reverse Current*

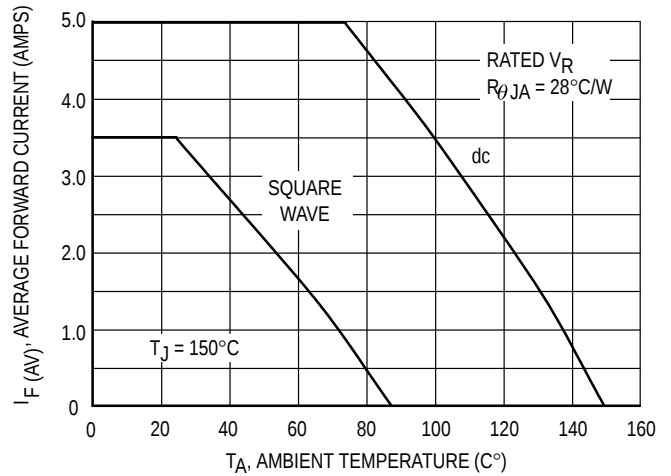


Figure 8. Current Derating Ambient
(Mounting method #3 per note 1)

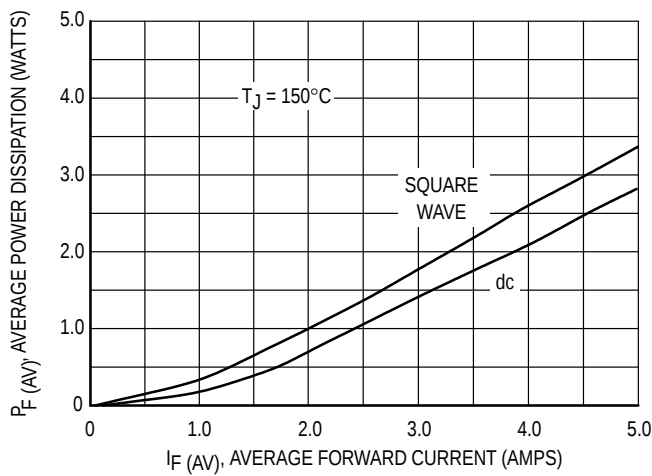


Figure 9. Power Dissipation

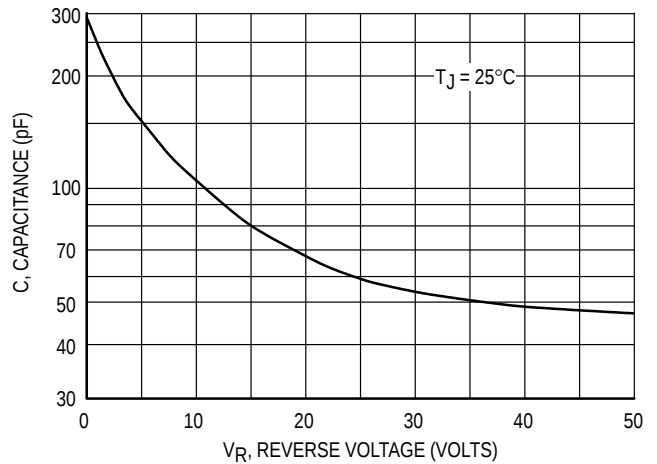


Figure 10. Typical Capacitance

NOTE 1 — MOUNTING DATA

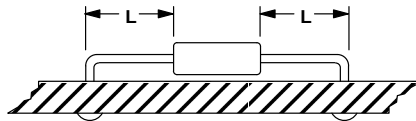
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering, or in case the tie point temperature cannot be measured.

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

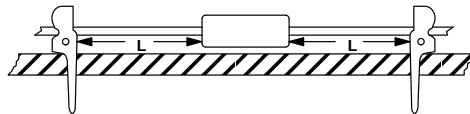
Mounting Method 1

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



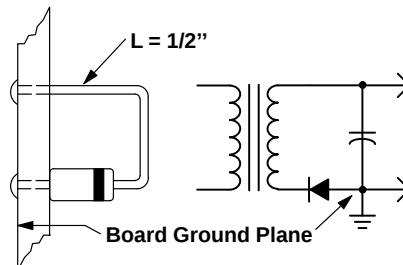
Mounting Method 2

Vector Push-In
Terminals T-28

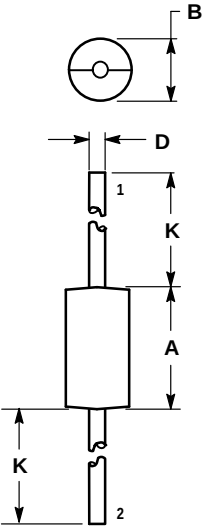


Mounting Method 3

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



PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.370	0.380	9.40	9.65
B	0.190	0.210	4.83	5.33
D	0.048	0.052	1.22	1.32
K	1.000	—	25.40	—

STYLE 1:
PIN 1. CATHODE
2. ANODE

CASE 267-03
ISSUE C

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola 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 consequential or incidental damages. "Typical" parameters which may be provided in Motorola 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. Motorola does not convey any license under its patent rights nor the rights of others. Motorola 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 Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola 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 Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 303-675-2140 or 1-800-441-2447

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
INTERNET: <http://Design-NET.com>

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 81-3-3521-8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298



MOTOROLA

◇ CODELINE TO BE PLACED HERE

MBR320/D