

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.

- Low Reverse Current
- Low Stored Charge, Majority Carrier Conduction
- Low Power Loss/High Efficiency
- Highly Stable Oxide Passivated Junction
- Guard-Ring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- High Surge Capacity

Mechanical Characteristics:

Case: Void free, transfer molded

Finish: All external surfaces corrosion-resistant and the terminal leads are readily solderable

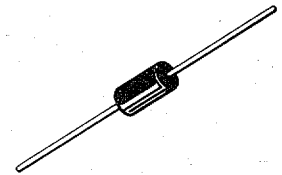
Polarity: Cathode indicated by polarity band

Mounting Positions: Any

Soldering: 220°C 1/16" from case for ten seconds

MBR370
MBR380
MBR390
MBR3100

SCHOTTKY BARRIER
RECTIFIERS
3 AMPERES
70, 80, 90, 100 VOLTS



CASE 267-03
PLASTIC

MAXIMUM RATINGS

Rating	Symbol	MBR370	MBR380	MBR390	MBR3100	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	70	80	90	100	V
Average Rectified Forward Current T _A = 100°C (R _{θJA} = 28°C/W, P.C. Board Mounting, see Note 1)	I _O	3				A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, half-wave, single phase, 60 Hz)	I _{FSM}	150				A
Operating and Storage Junction Temperature Range (Reverse Voltage applied)	T _J , T _{stg}	- 65 to + 150				°C
Voltage Rate of Change (Rated V _R)	dv/dt	10				V/ns

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient (see Note 1, Mounting Method 3)	R _{θJA}	28	°C/W

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

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage* (I _F = 3 Amps, T _L = 25°C) (I _F = 3 Amps, T _L = 100°C)	V _F	0.79 0.69	V
Maximum Instantaneous Reverse Current @ Rated dc Voltage* (T _L = 25°C) (T _L = 100°C)	I _R	0.6 20	mA

*Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.



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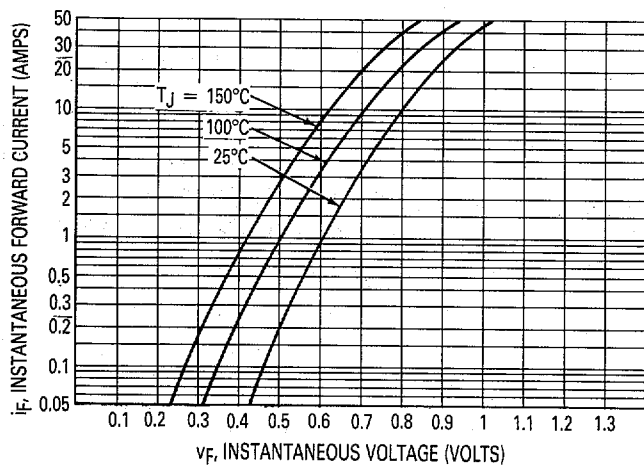


Figure 1. Typical Forward Voltage

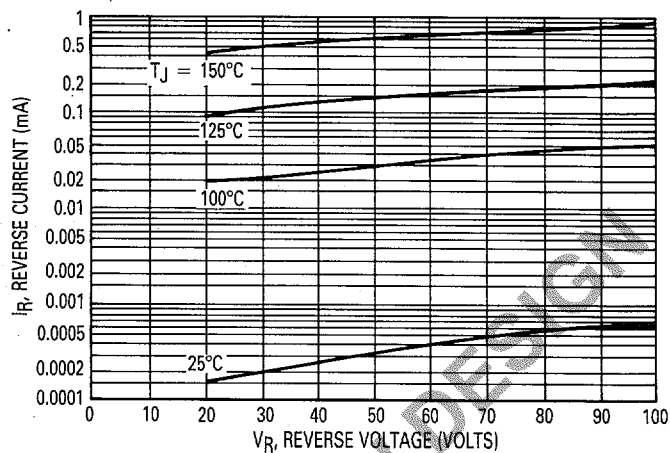


Figure 2. Typical Reverse Current*

*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 .

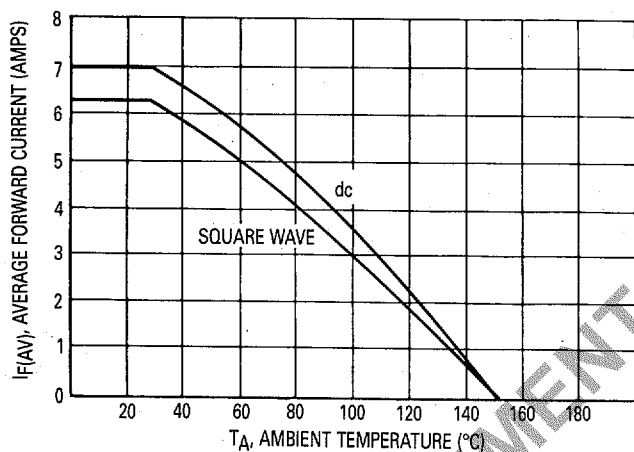


Figure 3. Current Derating
(Mounting method 3 per note 1.)

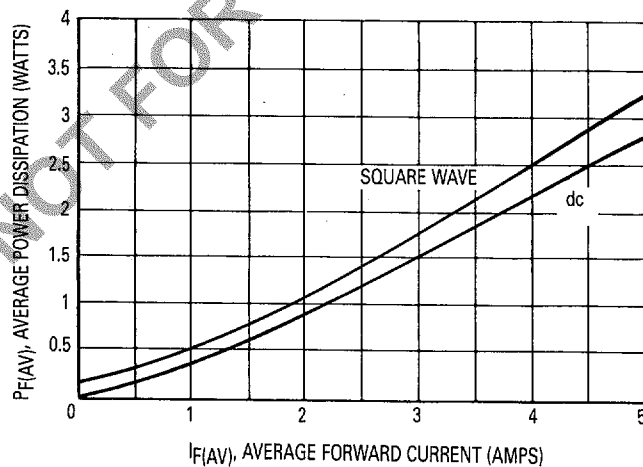


Figure 4. Power Dissipation

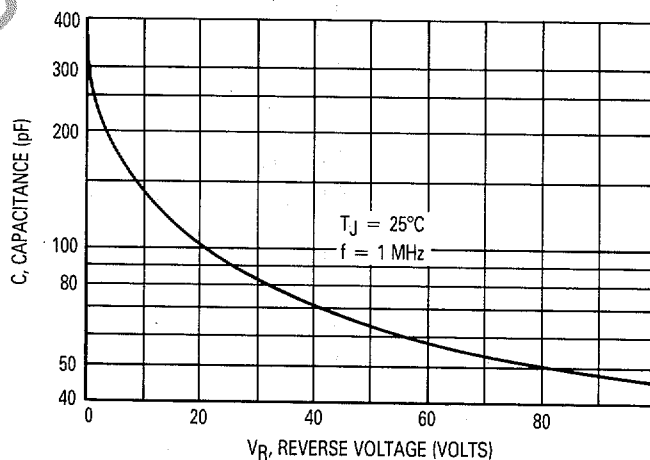


Figure 5. Typical Capacitance

NOTE 1 — MOUNTING DATA:

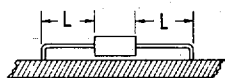
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

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

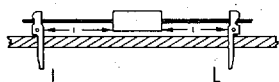
Mounting Method 1

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



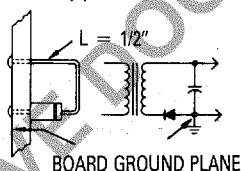
Mounting Method 2

Vector Push-In
Terminals T-28



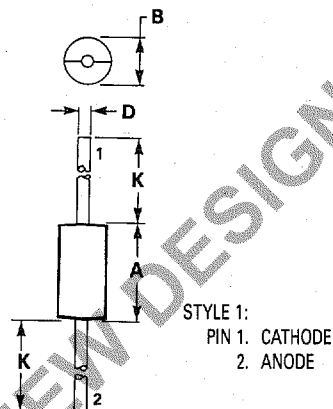
Mounting Method 3

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



OUTLINE DIMENSIONS

CASE 267-03 PLASTIC



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

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

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