MBR3100

Preferred Device

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.

- 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: 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, 500 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: B3100

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
Average Rectified Forward Current T_A = 100°C ($R_{\theta JA}$ = 28°C/W, P.C. Board Mounting, see Note 2)	I_O	3.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 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

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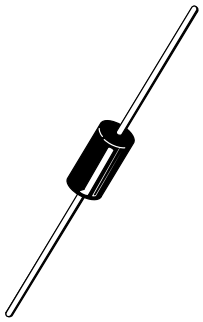
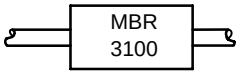
SCHOTTKY BARRIER RECTIFIER 3.0 AMPERES 100 VOLTS



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

MARKING DIAGRAM



MBR3100 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBR3100	Axial Lead	500 Units/Bag
MBR3100RL	Axial Lead	1500/Tape & Reel

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 2, Mounting Method 3)	$R_{\theta JA}$	28	°C/W

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

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 3.0 Amps, T_L = 25°C) (i_F = 3.0 Amps, T_L = 100°C)	v_F	 0.79 0.69	V
Maximum Instantaneous Reverse Current @ Rated dc Voltage (Note 1) T_L = 25°C T_L = 100°C	i_R	 0.6 20	mA

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

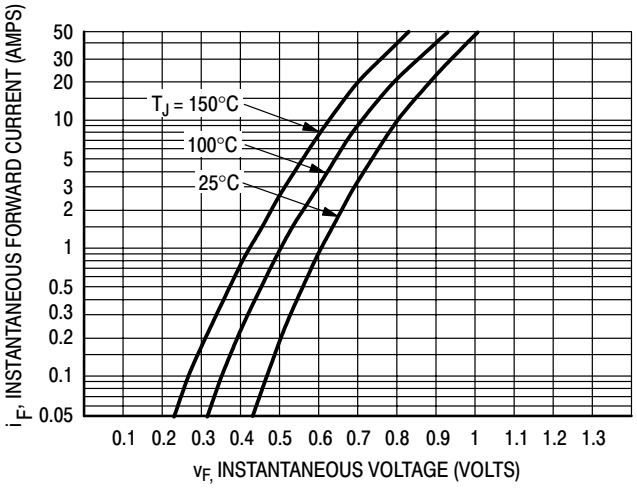


Figure 1. Typical Forward Voltage

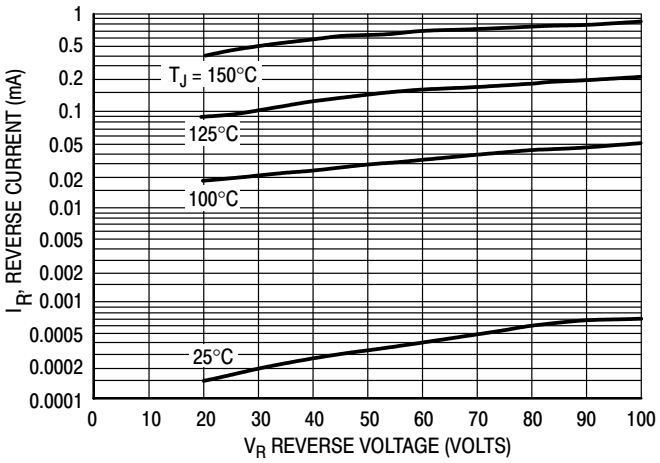


Figure 2. Typical Reverse Current*

*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 curves if V_R is sufficient below rated V_R.

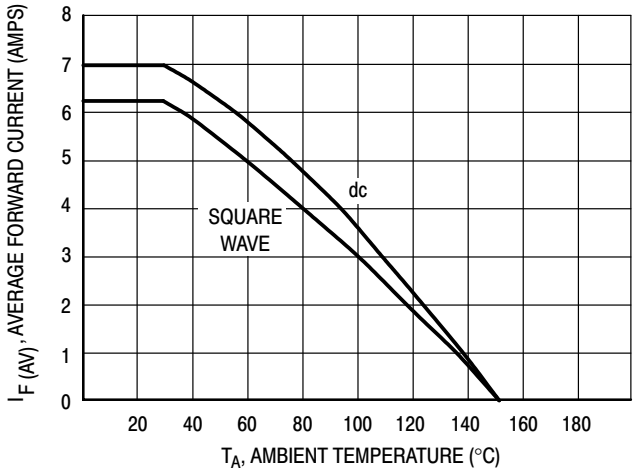


Figure 3. Current Derating (Mounting Method #3 per Note 2)

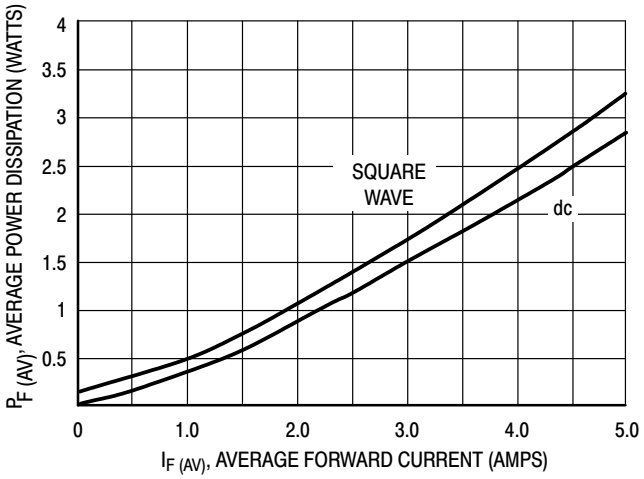


Figure 4. Power Dissipation

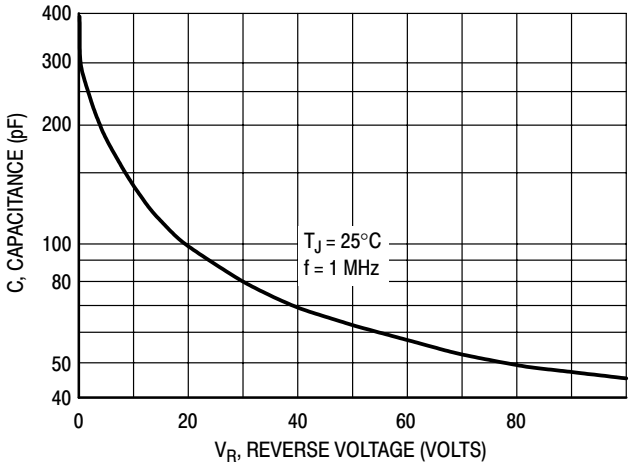


Figure 5. Typical Capacitance

NOTE 2 — MOUNTING DATA

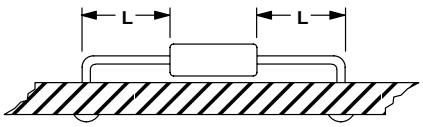
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering, or in case the tie point temperature cannot be measured.

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	°C/W
2	58	59	61	63	°C/W
3	28				°C/W

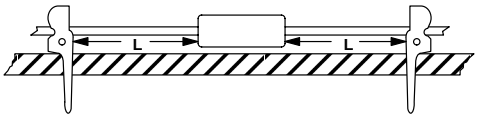
Mounting Method 1

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



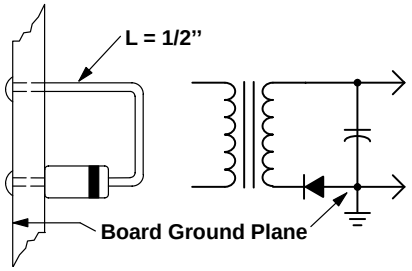
Mounting Method 2

Vector Push-In Terminals T-28



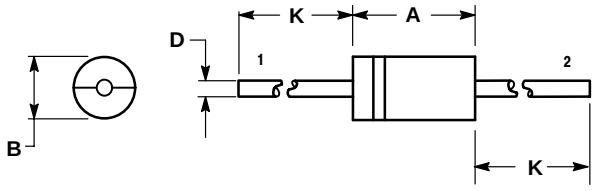
Mounting Method 3

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



PACKAGE DIMENSIONS

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



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

	INCHES		MILLIMETERS	
DIM	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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