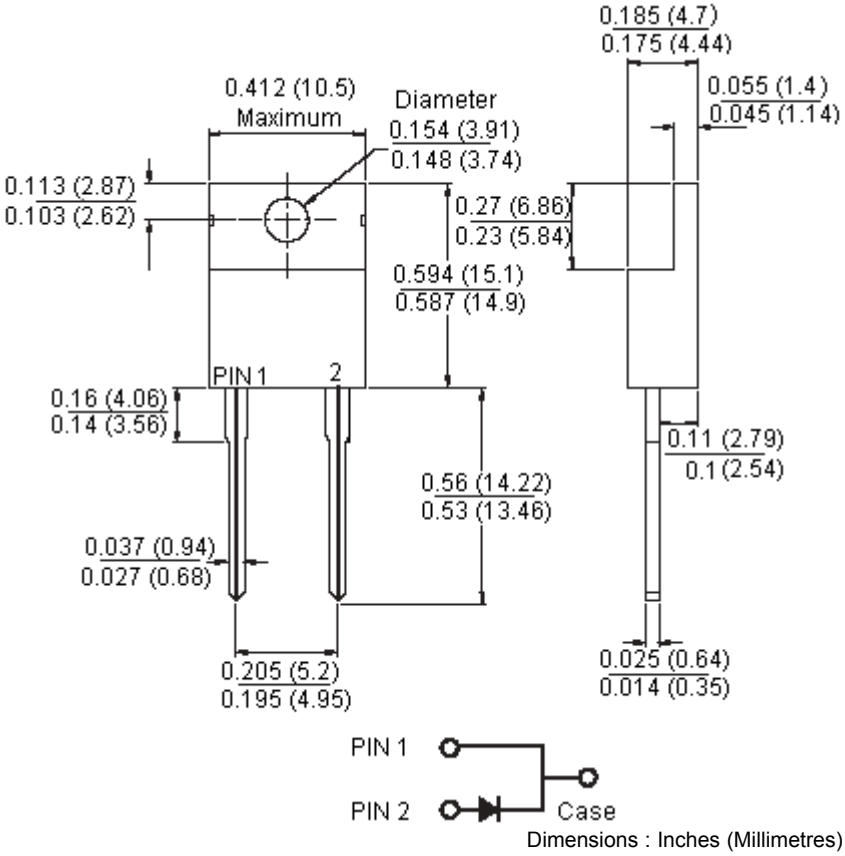
Schottky Diode

MBR10X Series

TO-220AC



Dimensions : Inches (Millimetres)

Features:

RoHS Compliant

- Plastic material
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low forward voltage drop
- High surge capability
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guardring for over voltage protection
- High temperature soldering guaranteed: 260°C / 10 seconds, 0.25 inch (6.35 mm) from case

Mechanical Data

Cases	: JEDEC TO-220AC moulded plastic body
Terminals	: Pure tin plated, lead free, solderable per MIL-STD-750, Method 2026
Polarity	: As marked
Mounting position	: Any
Mounting torque	: 5 in. - lbs. maximum
Weight	: 0.08 ounce, 2.24 g

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load
For capacitive load, derate current by 20%

Type Number	Symbol	MBR 1045	MBR 1060	MBR 10100	MBR 10150	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	45	60	100	150	V
Maximum RMS Voltage	V_{RMS}	31	42	70	105	
Maximum DC Blocking Voltage	V_{DC}	45	60	100	150	

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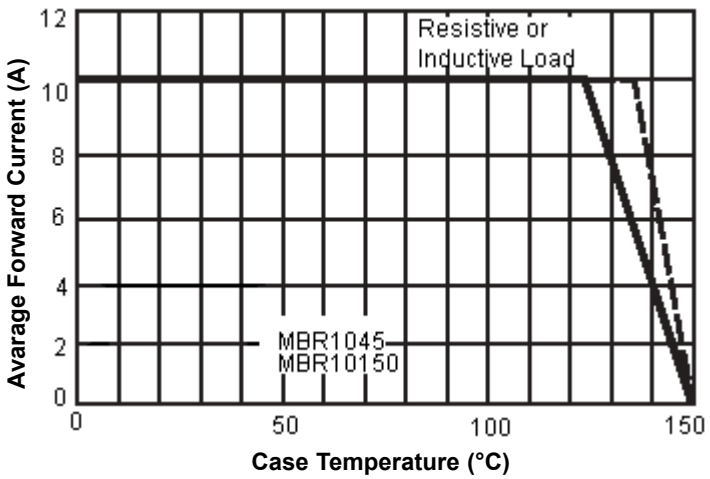
Type Number	Symbol	MBR 1045	MBR 1060	MBR 10100	MBR 10150	Unit
Maximum average forward rectified current at T_C = 125°C	$I_{(AV)}$	10				A
Peak repetitive forward current (rated V_R, square wave, 20 KHz) at T_C = 125°C	I_{FRM}	32				
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	I_{FSM}	150				
Peak repetitive reverse surge current (Note 1)	I_{RRM}	1	0.5			
Maximum Instantaneous forward voltage at (Note 2) I_F = 10 A, T_C = 25°C I_F = 10 A, T_C = 125°C I_F = 20 A, T_C = 25°C I_F = 20 A, T_C = 125°C	V_F	 0.7 0.57 0.84 0.72	 0.8 0.7 0.95 0.85	 0.85 0.71 - -	 1.05 - - -	V
Maximum instantaneous reverse current at T_C = 25°C	I_R	0.1				µA
at rated DC blocking voltage at T_C = 125°C (Note 2)		15	10	6		µA
Voltage rate of change (Rated V_R)	dV / dt	10,000				V / µS
Typical junction capacitance	C_j	500				pF
Maximum typical thermal resistance (Note 3)	$R_{\theta JC}$	3				°C / W
Operating junction temperature range	T_J	-65 to +150				°C
Storage temperature range	T_{STG}	-65 to +175				

Notes:

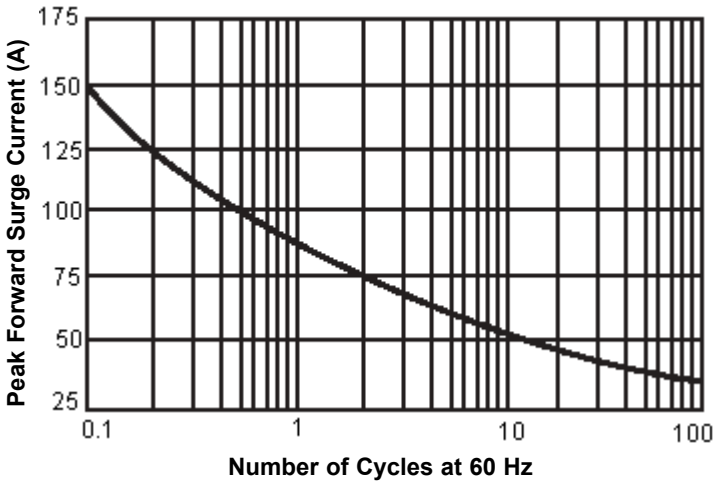
1. 2 µs Pulse Width, f = 1 KHz
2. Pulse Test: 300 µs Pulse Width, 1% Duty Cycle
2. Thermal resistance from junction to case per leg with heatsink size of 2 × 3 × 0.25 inches Al-Plate

Ratings and Characteristic Curves (MBR10100, MBR10150, MBR1045 and MBR1060)

Forward Current Derating Curve



Maximum Non-Repetitive Peak Forward Surge Current



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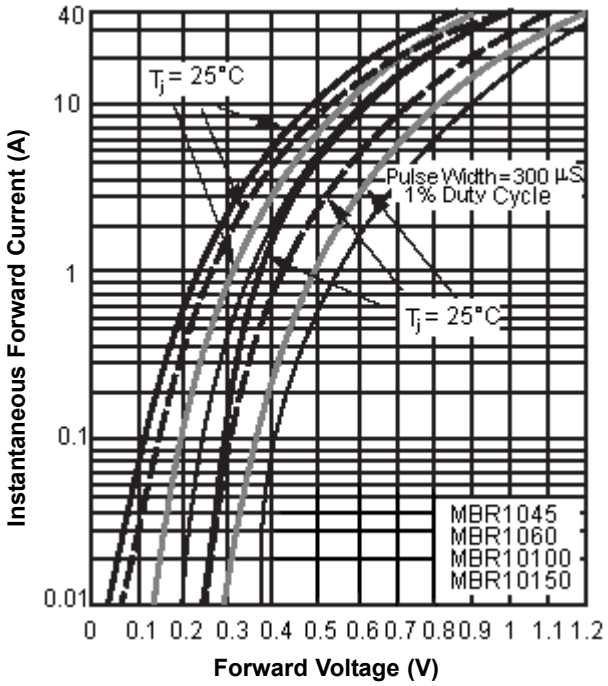
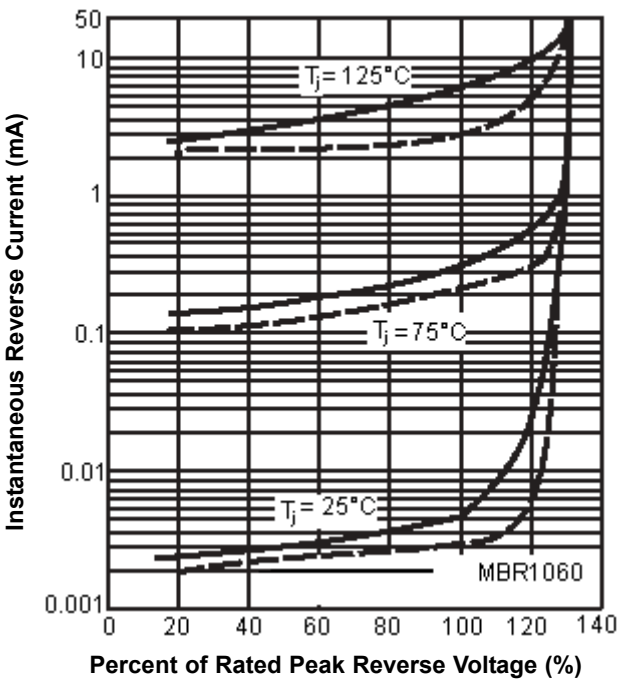
Ratings and Characteristic Curves (MBR10100, MBR10150, MBR1045 and MBR1060)

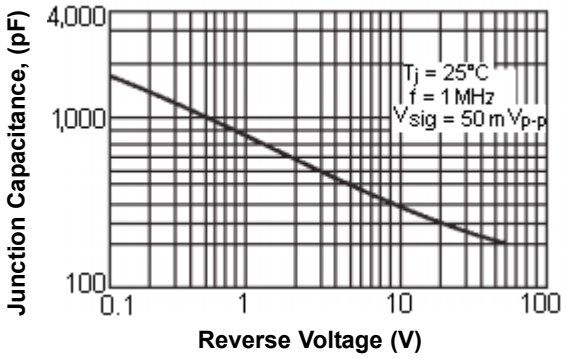
Typical Instantaneous Forward Characteristics



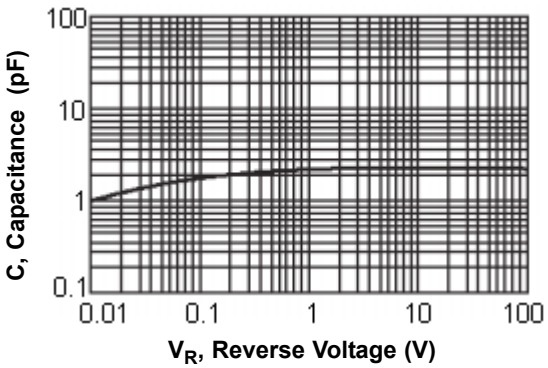
Typical Reverse Characteristics



Typical Junction Capacitance



Typical Capacitance



Part Number Table

Description	Part Number
Diode, Schottky 10 A 100 V	MBR10100
Diode, Schottky 10 A 150 V	MBR10150
Diode, Schottky 10 A 45 V	MBR1045
Diode, Schottky 10 A 60 V	MBR1060