



Reverse Voltage 35 to 60 Volts Forward Current 10.0 Amperes

- ◆ Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ Guardring for overvoltage protection
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed:
250°C/10 seconds, 0.25" (6.35mm) from case



- ◆ Case: JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body
- ◆ Terminals: Plated leads, solderable per MIL-STD-750, Method 2026
- ◆ Polarity: As marked
- ◆ Mounting Position: Any
- ◆ Mounting Torque: 10 in-lbs maximum
- ◆ Weight: 0.08 ounce, 2.24 grams

Figure 1: Dimensions of the probe. The drawing shows a side view of the probe with the following dimensions (inches in parentheses, millimeters in brackets):

- Overall width: 0.415 (10.54) MAX.
- Top width: 0.370 (9.40), 0.360 (9.14).
- Pin diameter: 0.113 (2.87), 0.103 (2.62).
- Pin length: 0.160 (4.06), 0.140 (3.56).
- Body height: 0.185 (4.70), 0.175 (4.44), 0.055 (1.39), 0.045 (1.14).
- Pin 1 length: 0.105 (2.67), 0.095 (2.41).
- Pin 2 length: 0.205 (5.20), 0.195 (4.95).
- Body width: 0.154 (3.91), 0.148 (3.74).
- Body height (right side): 0.145 (3.68), 0.135 (3.43), 0.350 (8.89), 0.330 (8.38).
- Pin 1 diameter: 0.037 (0.94), 0.027 (0.68).
- Pin 2 diameter: 0.037 (0.94), 0.027 (0.68).
- Pin 1 length (bottom): 0.022 (0.56), 0.014 (0.36).
- Pin 2 length (bottom): 0.022 (0.56), 0.014 (0.36).
- Pin 1 length (top): 0.148 (29.16), 0.118 (28.40).
- Pin 2 length (top): 0.110 (2.79), 0.100 (2.54).
- Pin 1 length (middle): 0.635 (16.13), 0.625 (15.87).
- Pin 2 length (middle): 0.635 (16.13), 0.625 (15.87).
- Pin 1 length (bottom): 0.560 (14.22), 0.530 (13.46).
- Pin 2 length (bottom): 0.560 (14.22), 0.530 (13.46).
- Pin 1 length (top): 0.083 (15.32), 0.073 (14.55).
- Pin 2 length (top): 0.083 (15.32), 0.073 (14.55).
- Pin 1 length (middle): 0.148 (29.16), 0.118 (28.40).
- Pin 2 length (middle): 0.110 (2.79), 0.100 (2.54).
- Pin 1 length (bottom): 0.022 (0.56), 0.014 (0.36).
- Pin 2 length (bottom): 0.022 (0.56), 0.014 (0.36).

[illegible]

Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

($T_c = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	MBR1035	MBR1045	MBR1050	MBR1060	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	50	60	Volts
Working peak reverse voltage	V _{RWM}	35	45	50	60	Volts
Maximum DC blocking voltage	V _{DC}	35	45	50	60	Volts
Maximum average forward rectified current (See Fig. 1)	I _{F(AV)}	10				Amps
Peak repetitive forward current (sq. wave, 20KHz) at T _c =135°C	I _{FRM}	20				Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I _{FSM}	150				Amps
Peak repetitive reverse current at t _p = 2.0us, 1KHz	I _{RRM}	1.0		0.5		Amps
Voltage rate of change (rated V _R)	dv/dt	10,000				V/us
Maximum instantaneous forward voltage (Note 4) at I _F =10A, T _C =25°C at I _F =10A, T _C =125°C at I _F =20A, T _C =25°C at I _F =20A, T _C =125°C	V _F	-		0.80 0.70 0.95 0.85		Volts
Maximum instantaneous reverse current at rated DC blocking voltage (Note 4) T _C =25°C T _C =125°C	I _R	0.10 15				mA
Maximum thermal resistance from junction to case	R _{θJC}	MBR 2.0 / MBRF 4.0 / MBRB 2.0				°C/W
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V _{ISOL}	4500 (Note 1) 3500 (Note 2) 1500 (Note 3)				Volts
Operating junction temperature range	T _J	-55 to +150				°C
Storage temperature range	T _{STG}	-55 to +150				°C

- Notes:**
1. Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
 2. Clip mounting (on case), where leads do overlap heatsink
 3. Screw mounting with 4-40 screw, where washer diameter is < 4.9 mm (0.19")
 4. Pulse test: 300 μs pulse width, 1% duty cycle

RATINGS AND CHARACTERISTIC CURVES

($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

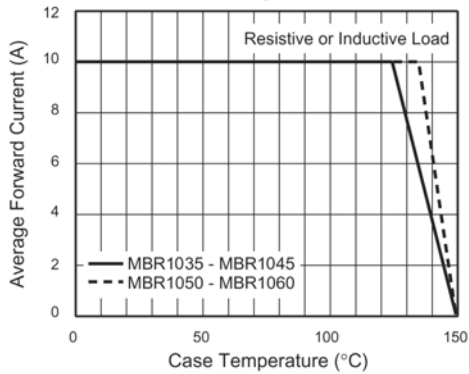


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

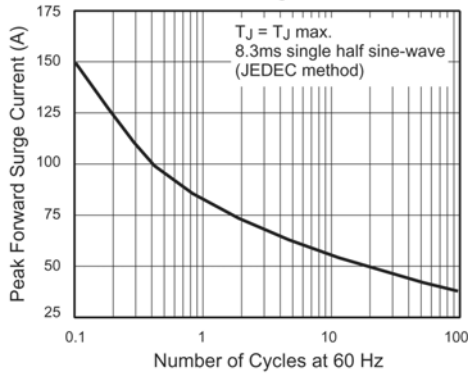


Fig. 3 - Typical Instantaneous Forward Characteristics

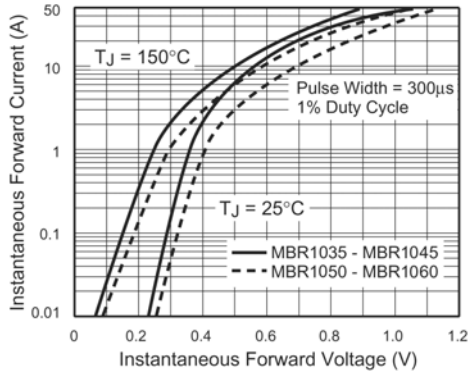


Fig. 4 - Typical Reverse Characteristics

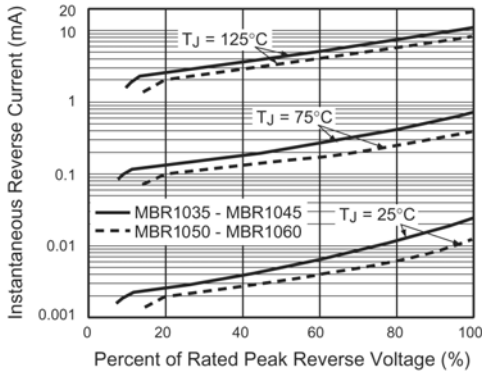


Fig. 5 - Typical Junction Capacitance

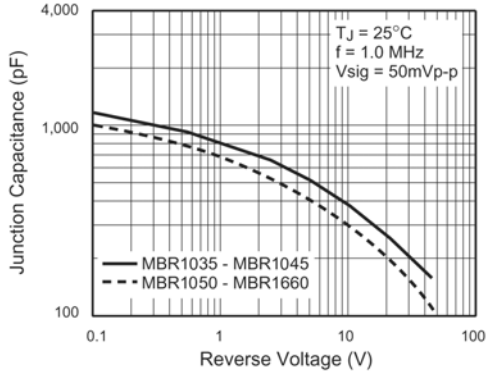


Fig. 6 - Typical Transient Thermal Impedance

