



MBR10xx, MBRF10xx & MBRB10xx Series

Schottky Barrier Rectifiers

Reverse Voltage 35 to 60 Volts Forward Current 10.0 Amperes

Features

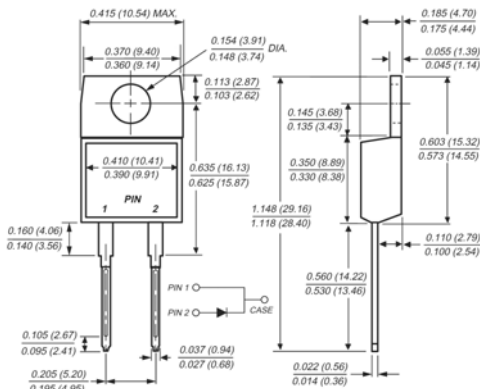
- ◆ Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ Guardring for overvoltage protection
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection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

Mechanical Data

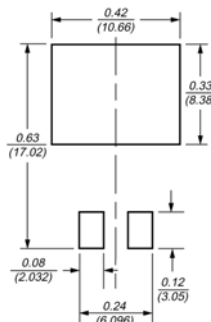
- ◆ Case: JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body
- ◆ Terminals: Plated leads, solderable per MIL-STD-750, Method 2026
- ◆ Polarity: As marked
- ◆ Mounting Position: Any
- ◆ Mounting Torque: 10 in-lbs maximum
- ◆ Weight: 0.08 ounce, 2.24 grams



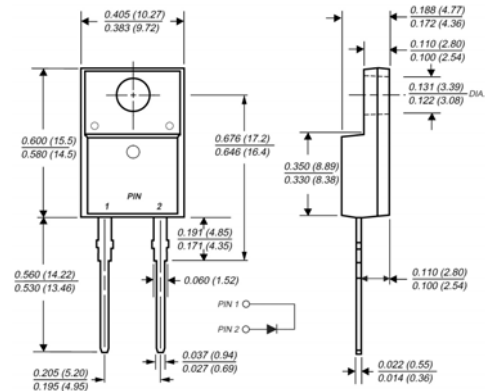
TO-220AC



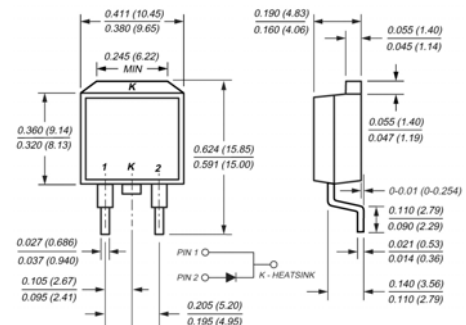
Mounting Pad Layout TO-263AB



ITO-220AC



TO-263AB(D²PAK)



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 $T_c=135^\circ\text{C}$	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 $t_p = 2.0\mu\text{s}$, 1KHz	I_{RRM}	1.0	0.5			Amps
Voltage rate of change (rated V_R)	dv/dt	10,000				V/ μs
Maximum instantaneous forward voltage (Note 4) at $I_F=10\text{A}$, $T_c=25^\circ\text{C}$ at $I_F=10\text{A}$, $T_c=125^\circ\text{C}$ at $I_F=20\text{A}$, $T_c=25^\circ\text{C}$ at $I_F=20\text{A}$, $T_c=125^\circ\text{C}$	V_F	- 0.57 0.84 0.72	0.80 0.70 0.95 0.85			Volts
Maximum instantaneous reverse current at rated DC blocking voltage (Note 4) $T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$	I_R	0.10 15				mA
Maximum thermal resistance from junction to case	$R_{\theta JC}$	MBR 2.0 / MBRF 4.0 / MBRB 2.0				$^\circ\text{C}/\text{W}$
RMS Isolation voltage (MBRF type only) from terminals to heatsink with $t = 1.0$ second, $RH \leq 30\%$	V_{ISOL}	4500 (Note 1) 3500 (Note 2) 1500 (Note 3)				Volts
Operating junction temperature range	T_J	-55 to +150				$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150				$^\circ\text{C}$

- 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

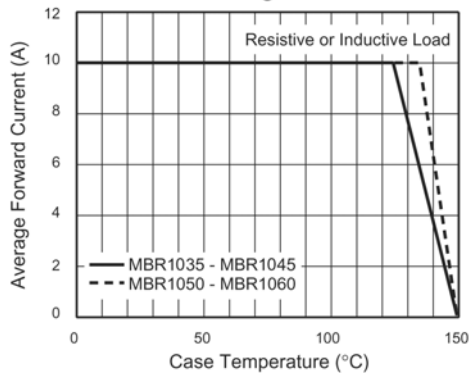


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

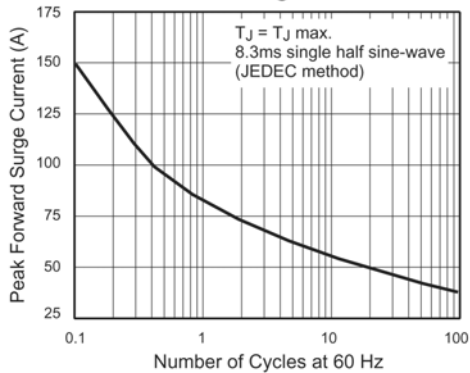


Fig. 3 - Typical Instantaneous Forward Characteristics

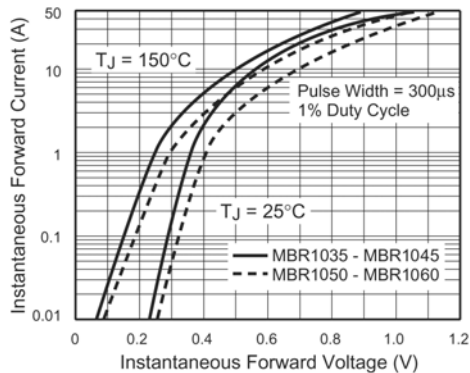


Fig. 4 - Typical Reverse Characteristics

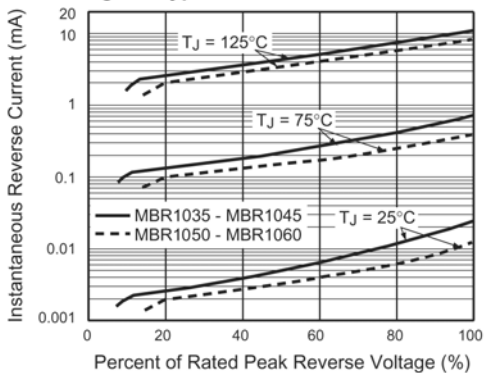


Fig. 5 - Typical Junction Capacitance

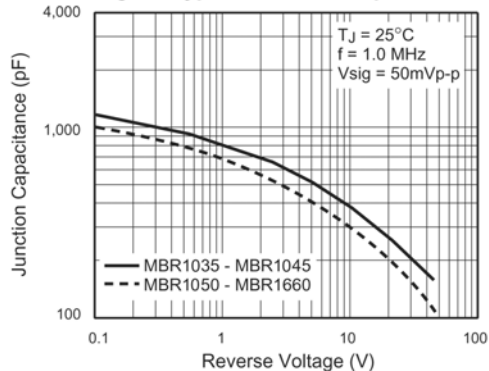


Fig. 6 - Typical Transient Thermal Impedance

