

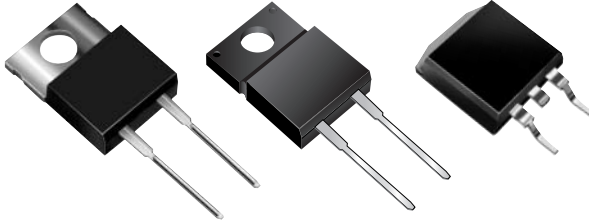


MBR10xx, MBRF10xx & MBRB10xx Series

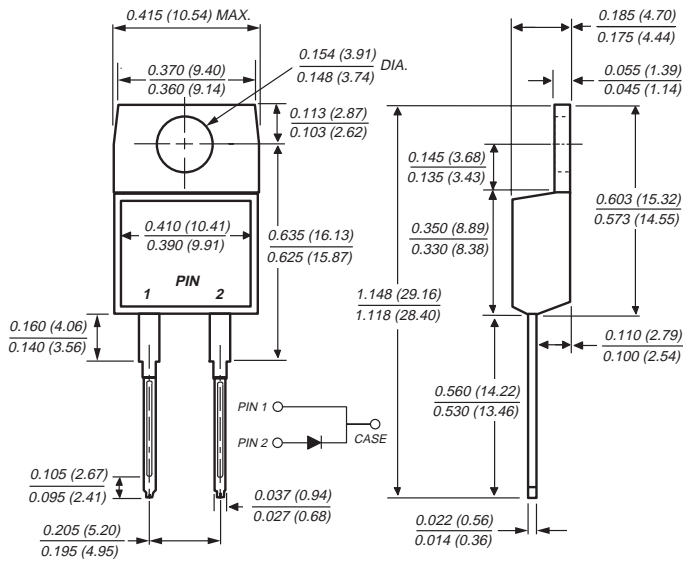
Vishay Semiconductors
formerly General Semiconductor

Schottky Barrier Rectifier

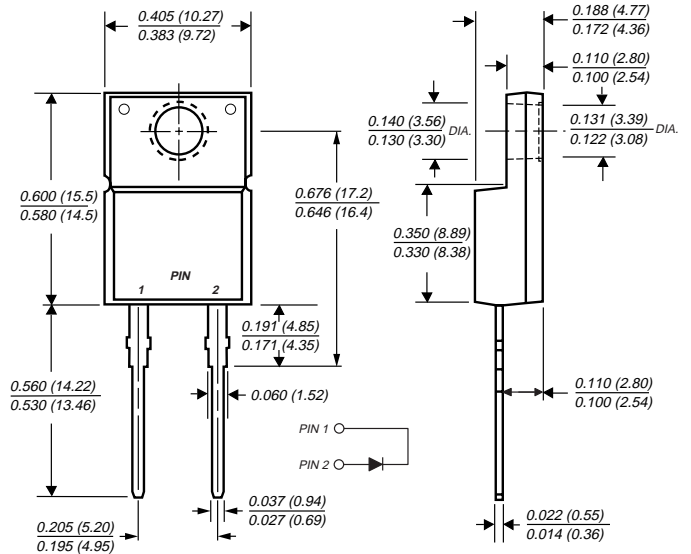
Reverse Voltage 35 to 60V
Forward Current 10A



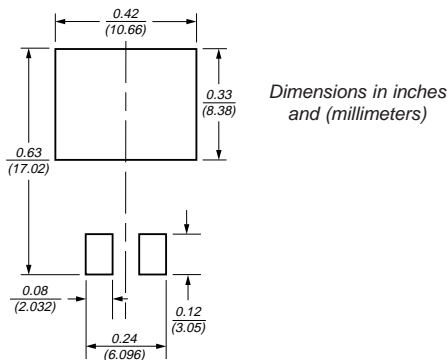
TO-220AC (MBR10xx)



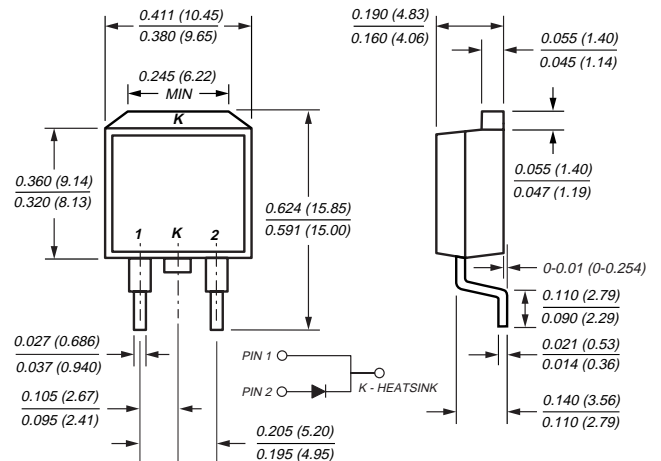
ITO-220AC (MBRF10xx)



Mounting Pad Layout TO-263AB



TO-263AB (MBRB10xx)



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

MBR10xx, MBRF10xx & MBRB10xx Series



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Maximum Ratings (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR1035	MBR1045	MBR1050	MBR1060	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	50	60	V
Working peak reverse voltage	V _{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V _{DC}	35	45	50	60	V
Maximum average forward rectified current (See Fig. 1)	I _{F(AV)}	10				A
Peak repetitive forward current at T _C = 135°C (sq. wave, 20 KHz)	I _{FRM}	20				A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I _{FSM}	150				A
Peak repetitive reverse current per leg at t _p = 2.0μs, 1KHz	I _{RRM}	1.0	0.5			A
Voltage rate of change (rated V _R)	dv/dt	10,000				V/μs
Operating junction temperature range	T _J	-65 to +150				°C
Storage temperature range	T _{STG}	-65 to +175				°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V _{ISOL}	4500 ⁽¹⁾ 3500 ⁽²⁾ 1500 ⁽³⁾				V

Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR1035	MBR1045	MBR1050	MBR1060	Unit
Maximum instantaneous forward voltage per leg ⁽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	– 0.57 0.84 0.72		0.80 0.70 0.95 0.85		V
Maximum instantaneous reverse current at rated DC blocking voltage ⁽⁴⁾ T _C = 25°C T _C = 125°C	I _R		0.10 15			mA

Thermal Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Maximum thermal resistance, junction to case	R _{θJC}	2.0	4.0	2.0	°C/W

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: 300μs pulse width, 1% duty cycle

Ordering Information

Product	Case	Package Code	Package Option
MBR1035 - MBR1060	TO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRF1035 - MBRF1060	ITO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRB1035 - MBRB1060	TO-263AB	31	13" reel, 800/reel, 4.8K/carton
		45	Anti-Static tube, 50/tube, 2K/carton
		81	Anti-Static 13" reel, 800/reel, 4.8K/carton



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

Fig. 1 - Forward Current Derating Curve

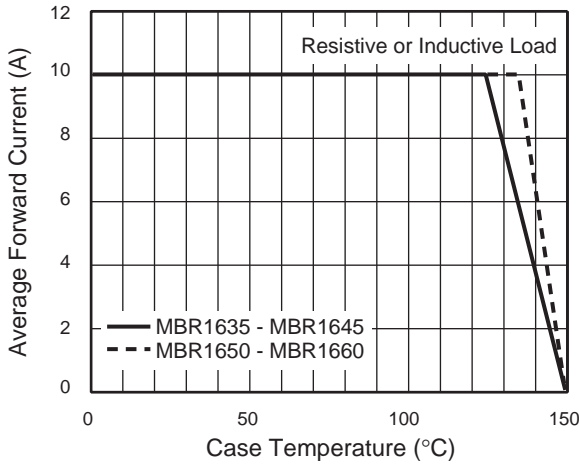


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

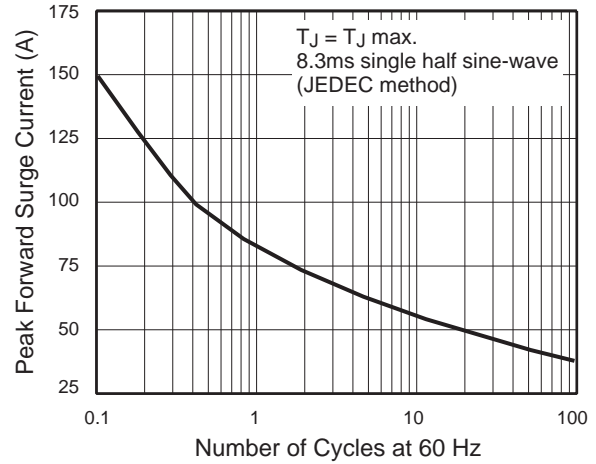


Fig. 3 - Typical Instantaneous Forward Characteristics

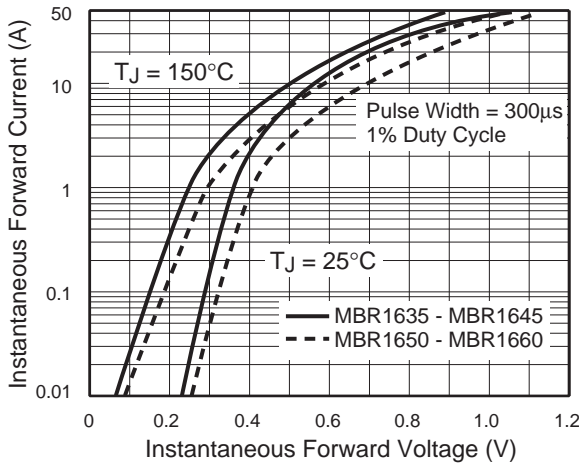


Fig. 4 - Typical Reverse Characteristics

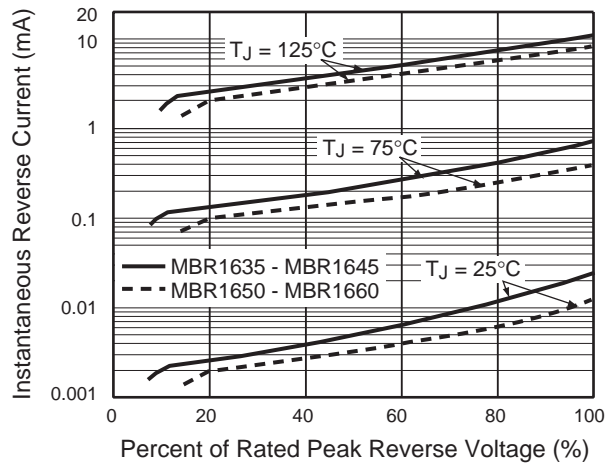


Fig. 5 - Typical Junction Capacitance

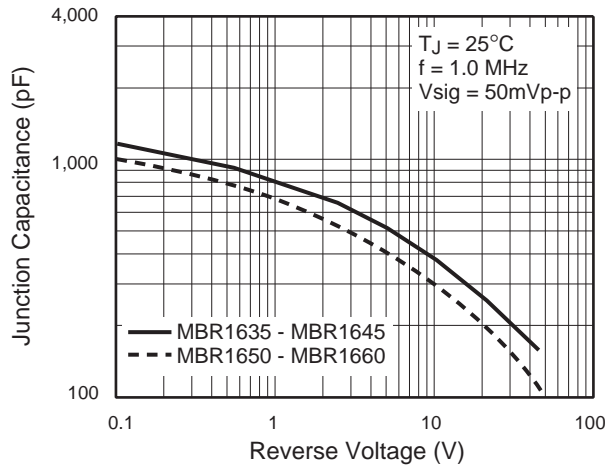
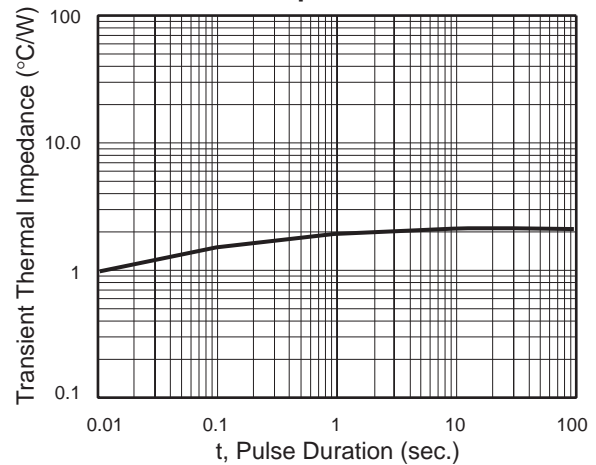


Fig. 6 - Typical Transient Thermal Impedance





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