



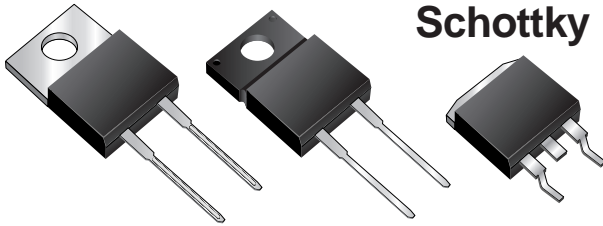
# MBR10Hxx, MBRF10Hxx & MBRB10Hxx Series

New Product

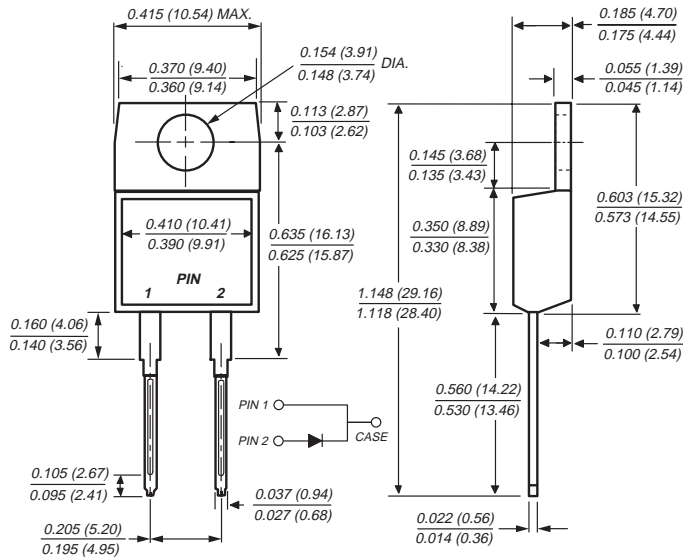
Vishay Semiconductors  
formerly General Semiconductor

## Schottky Barrier Rectifiers

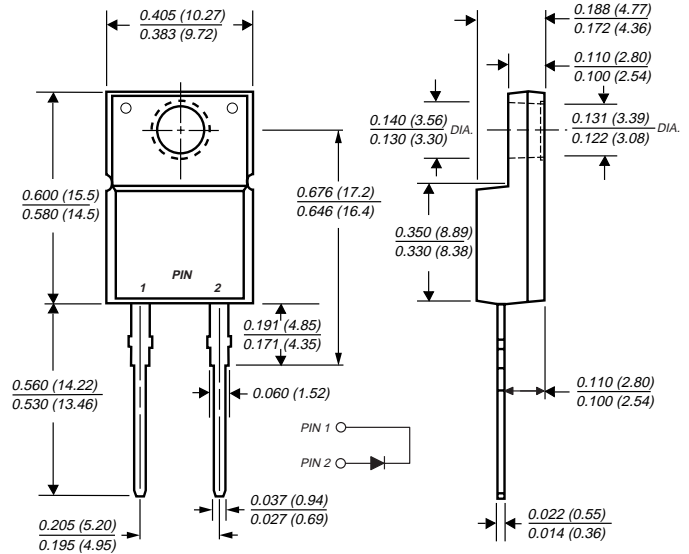
Reverse Voltage 35 to 60 V  
Forward Current 10 A



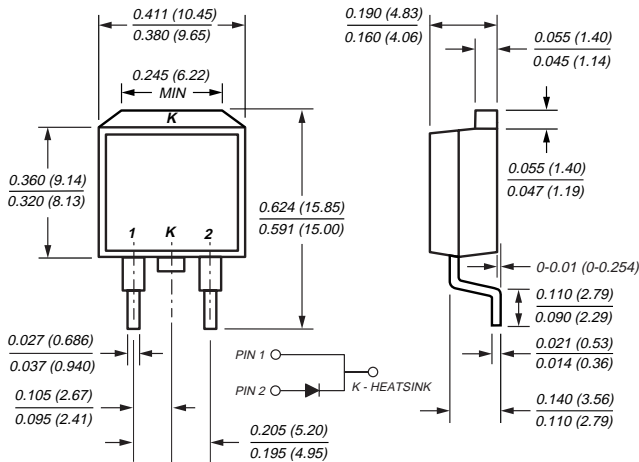
TO-220AC (MBR10Hxx)



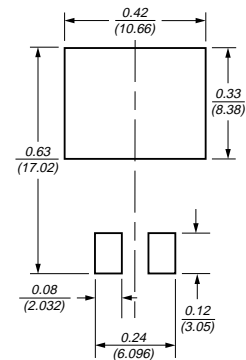
ITO-220AC (MBRF10Hxx)



TO-263AB (MBRB10Hxx)



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

### 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 oz., 2.24 g

### Features

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-0
- Metal silicon junction, majority carrier conduction
- Low forward voltage drop, low power loss and 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" (6.35 mm) from case
- Rated for reverse surge and ESD
- 175 °C maximum operation junction temperature

# MBR10Hxx, MBRF10Hxx & MBRB10Hxx Series



Vishay Semiconductors  
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## Maximum Ratings (T<sub>C</sub> = 25 °C unless otherwise noted)

Parameter	Symbol	MBR10H35	MBR10H45	MBR10H50	MBR10H60	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	35	45	50	60	V
Working peak reverse voltage	V <sub>RWM</sub>	35	45	50	60	V
Maximum DC blocking voltage	V <sub>DC</sub>	35	45	50	60	V
Maximum average forward rectified current (See fig.1)	I <sub>F(AV)</sub>	10				A
Peak repetitive forward current at T <sub>C</sub> = 150 °C (20 KHz sq. wave)	I <sub>FRM</sub>	20				A
Non-repetitive avalanche energy at 25 °C, I <sub>AS</sub> = 4 A, L = 10 mH	E <sub>AS</sub>	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	150				A
Peak repetitive reverse current at t <sub>p</sub> = 2.0 μs, 1 KHz	I <sub>RRM</sub>	1.0		0.5		A
Peak non-repetitive reverse energy (8/20 μs waveform)	E <sub>RSM</sub>	20		10		mJ
Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 kΩ	V <sub>C</sub>	25				kV
Voltage rate of change (rated V <sub>R</sub> )	dv/dt	10,000				V/μs
Operating junction temperature range	T <sub>J</sub>	-65 to +175				°C
Storage temperature range	T <sub>STG</sub>	-65 to +175				°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V <sub>ISOL</sub>	4500 <sup>(1)</sup> 3500 <sup>(2)</sup> 1500 <sup>(3)</sup>				V

## Electrical Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	MBR10H35, MBR10H45		MBR10H50, MBR10H60		Unit
		Typ	Max	Typ	Max	
Maximum instantaneous forward voltage <sup>(4)</sup> at I <sub>F</sub> = 10 A T <sub>J</sub> = 25 °C at I <sub>F</sub> = 10 A T <sub>J</sub> = 125 °C at I <sub>F</sub> = 20 A T <sub>J</sub> = 25 °C at I <sub>F</sub> = 20 A T <sub>J</sub> = 125 °C	V <sub>F</sub>	– 0.49 – 0.62	0.63 0.55 0.75 0.68	– 0.57 – 0.68	0.71 0.61 0.85 0.71	V
Maximum instantaneous reverse current at rated DC blocking voltage <sup>(4)</sup> T <sub>J</sub> = 25 °C T <sub>J</sub> = 125 °C	I <sub>R</sub>	– 4.0	100 12	– 2.0	100 12	μA mA

## Thermal Characteristics (T<sub>C</sub> = 25 °C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Maximum thermal resistance	R <sub>θJC</sub>	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: 300 μs pulse width, 1% duty cycle

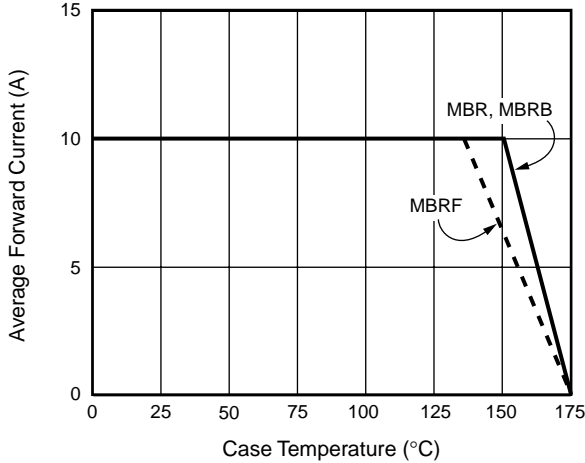
## Ordering Information

Product	Case	Package Code	Package Option
MBR10H35 – MBR10H60	TO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRF10H35 – MBRF10H60	ITO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRB10H35 – MBRB10H60	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

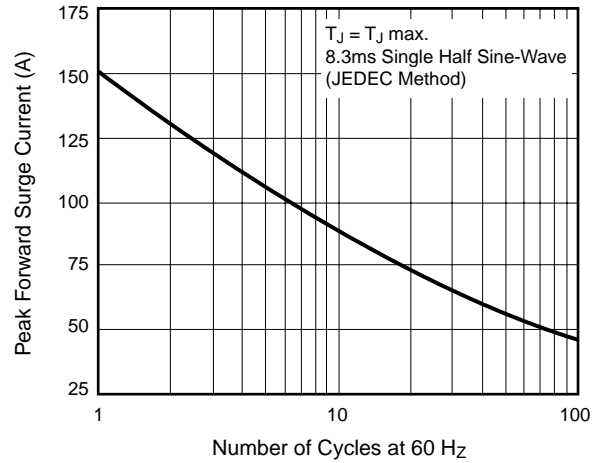


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

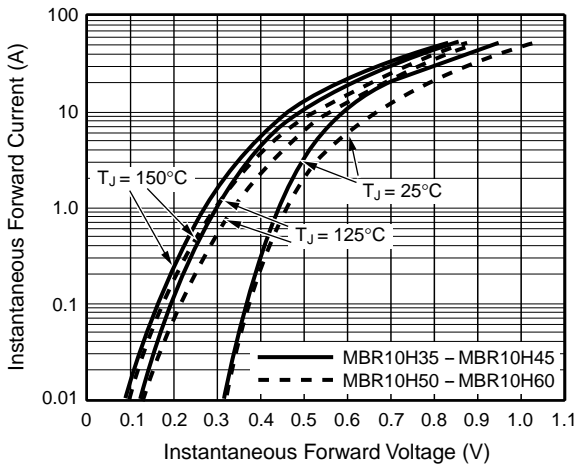
**Fig. 1 – Forward Current Derating Curve**



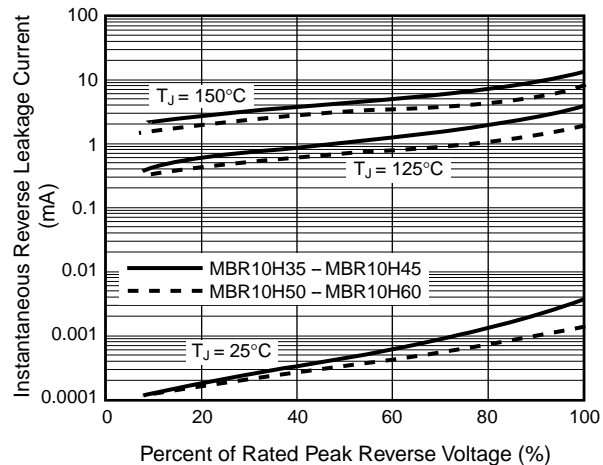
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



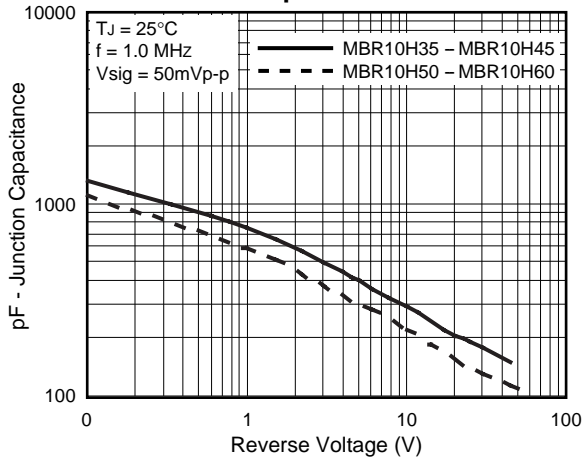
**Fig. 3 – Typical Instantaneous Forward Characteristics**



**Fig. 4 – Typical Reverse Characteristics**



**Fig. 5 – Typical Junction Capacitance**



**Fig. 6 – Typical Transient Thermal Impedance**

