

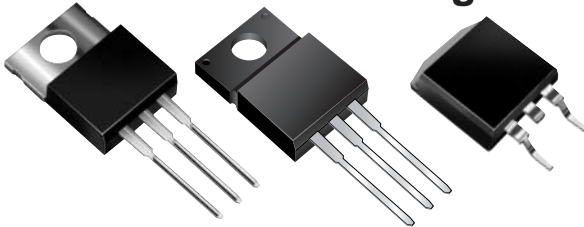


# MBR20100CT, MBRF20100CT & MBRB20100CT Series

New Product

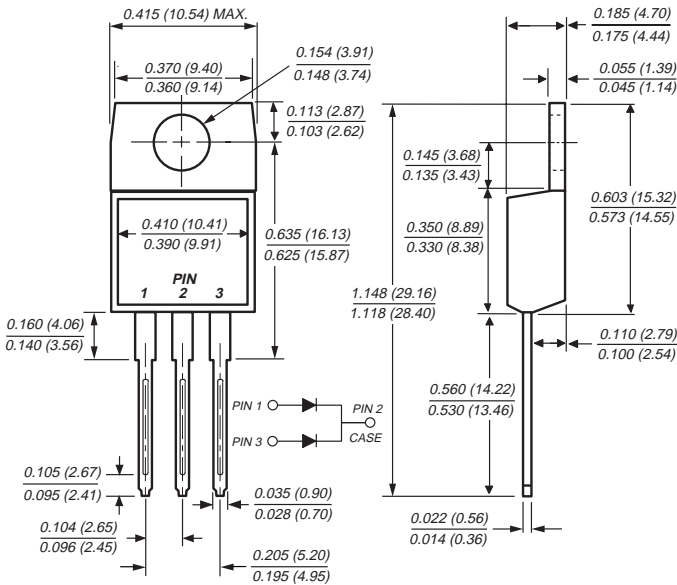
Vishay Semiconductors  
formerly General Semiconductor

## Dual High-Voltage Schottky Rectifiers

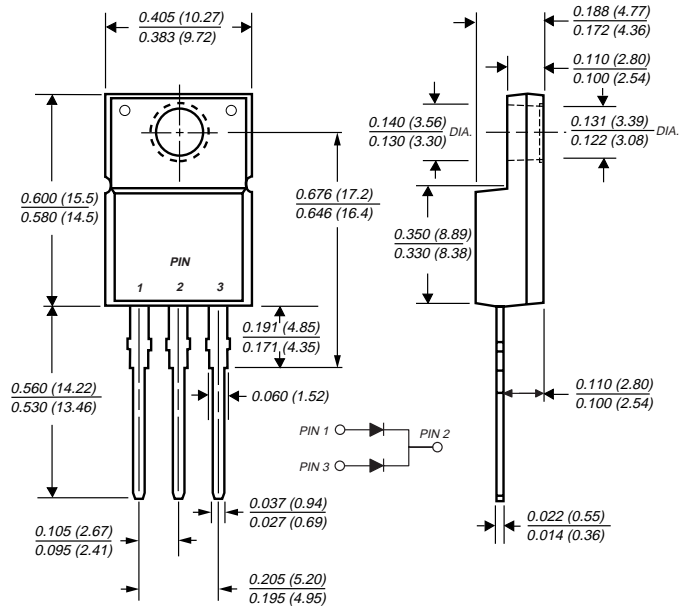


Reverse Voltage 90 to 100V  
Forward Current 20A

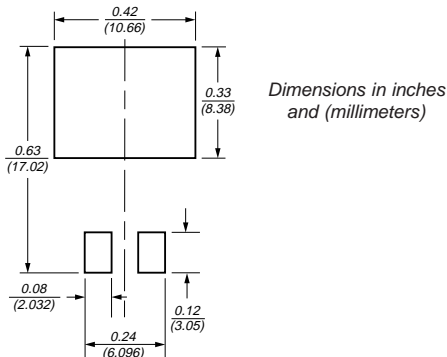
### TO-220AB (MBR2090CT, MBR20100CT)



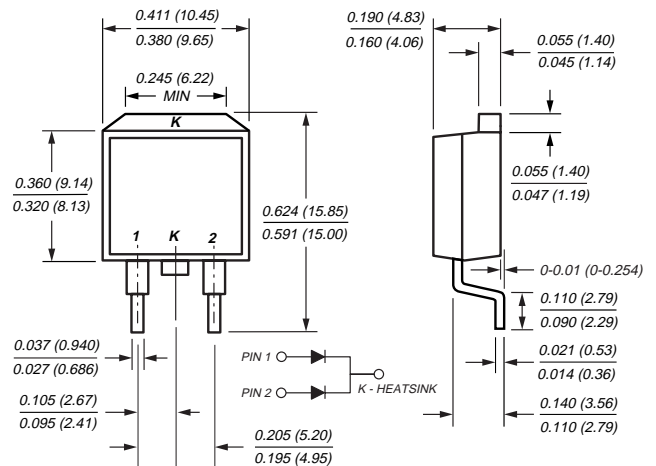
### ITO-220AB (MBRF2090CT, MBRF20100CT)



### Mounting Pad Layout TO-263AB



### TO-263AB (MBRB2090CT, MBRB20100CT)



## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Dual rectifier construction, positive center tap
- 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-220AB, ITO-220AB & 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

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

Parameter	Symbol	MBR2090CT	MBR20100CT	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	90	100	V
Working peak reverse voltage	V <sub>RWM</sub>	90	100	V
Maximum DC blocking voltage	V <sub>DC</sub>	90	100	V
Maximum average forward rectified current at T <sub>C</sub> = 133°C	<i>Total device</i> I <sub>F(AV)</sub> <i>Per leg</i>	20 10		A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I <sub>FSM</sub>	150		A
Peak repetitive reverse current per leg at t <sub>p</sub> = 2μs, 1KHz	I <sub>RRM</sub>	0.5		A
Voltage rate of change (rated V <sub>R</sub> )	dv/dt	10,000		V/μs
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150		°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1 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	Value	Unit
Maximum instantaneous forward voltage per leg at <sup>(4)</sup> : I <sub>F</sub> = 10A, T <sub>C</sub> = 25°C I <sub>F</sub> = 10A, T <sub>C</sub> = 125°C I <sub>F</sub> = 20A, T <sub>C</sub> = 25°C I <sub>F</sub> = 20A, T <sub>C</sub> = 125°C	V <sub>F</sub>	0.80 0.65 0.95 0.75	V
Maximum reverse current per leg at working peak reverse voltage <sup>(4)</sup>	I <sub>R</sub>	100 6.0	μA mA

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

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Typical thermal resistance per leg	R <sub>θJA</sub> R <sub>θJC</sub>	60 2	— 3.5	60 2	°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

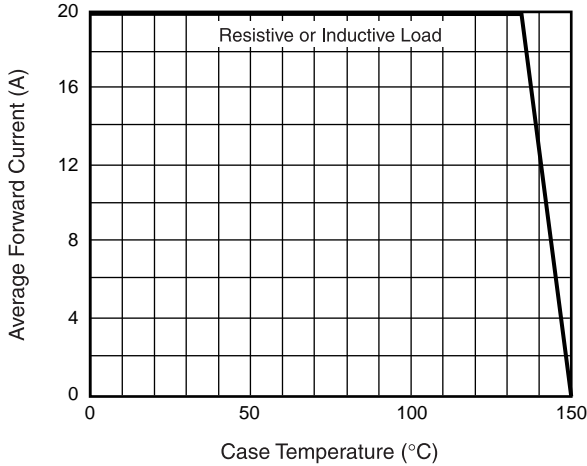
## Ordering Information

Product	Case	Package Code	Package Option
MBR2090CT, MBR20100CT	TO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRF2090CT, MBRF20100CT	ITO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRB2090CT, MBRB20100CT	TO-263AB	31 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton Anti-Static 13" reel, 800/reel, 4.8K/carton

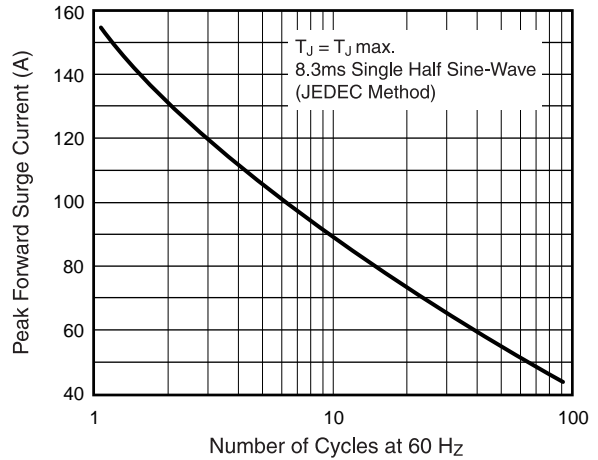


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

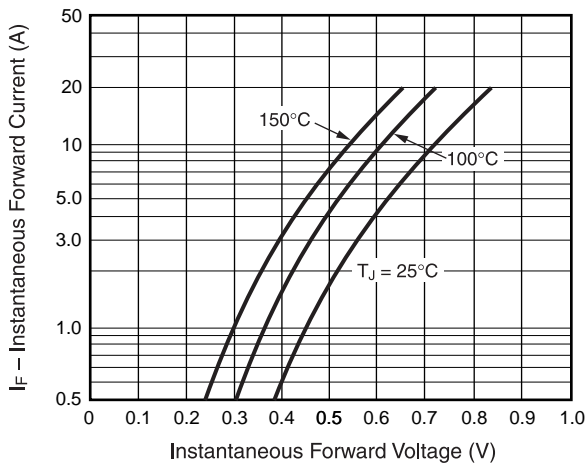
**Fig. 1 - Forward Current Derating Curve**



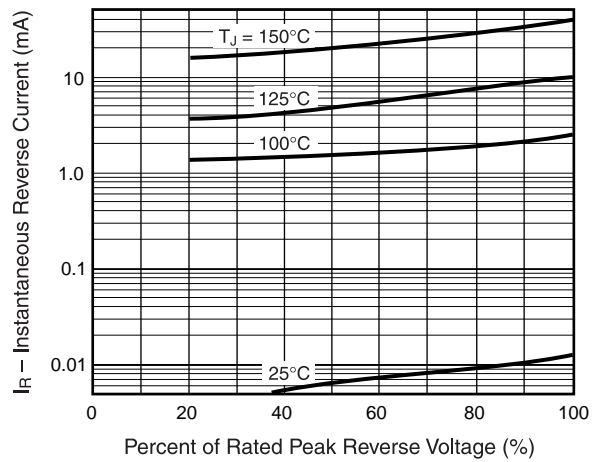
**Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current**



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



**Fig. 4 - Typical Reverse Characteristics**



**Fig. 5 - Typical Transient Thermal Impedance**

