

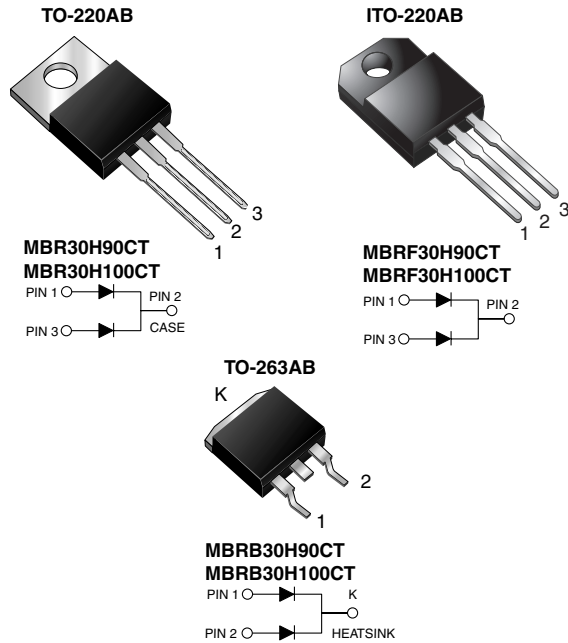


# New Product MBR(F,B)30H90CT & MBR(F,B)30H100CT

Vishay General Semiconductor

## Dual Common-Cathode High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters or polarity protection application.

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, TO-263AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	15 A x 2
$V_{RRM}$	90 V, 100 V
$I_{FSM}$	275 A
$V_F$	0.67 V
$I_R$	5.0 $\mu$ A
$T_J \text{ max.}$	175 °C

MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	MBR30H90CT	MBR30H100CT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	90	100	V
Working peak reverse voltage	$V_{RWM}$	90	100	V
Maximum DC blocking voltage	$V_{DC}$	90	100	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	30 15		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	275		A
Peak repetitive reverse current per diode at $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175		°C
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1$ min	$V_{AC}$	1500		V

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ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 15 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.82	V
	I <sub>F</sub> = 15 A	T <sub>J</sub> = 125 °C		0.67	
	I <sub>F</sub> = 30 A	T <sub>J</sub> = 25 °C		0.93	
	I <sub>F</sub> = 30 A	T <sub>J</sub> = 125 °C		0.80	
Maximum reverse current at rated V <sub>R</sub> per diode <sup>(2)</sup>		T <sub>J</sub> = 25 °C	I <sub>R</sub>	5.0	μA
		T <sub>J</sub> = 125 °C		6.0	mA

**Notes:**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	1.9	4.6	1.9	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR30H100CT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	MBRF30H100CT-E3/45	1.99	45	50/tube	Tube
TO-263AB	MBRB30H100CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB30H100CT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	MBR30H100CTHE3/45 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	MBRF30H100CTHE3/45 <sup>(1)</sup>	1.99	45	50/tube	Tube
TO-263AB	MBRB30H100CTHE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	MBRB30H100CTHE3/81 <sup>(1)</sup>	1.35	81	800/reel	Tape and reel

**Note:**

- (1) Automotive grade AEC Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

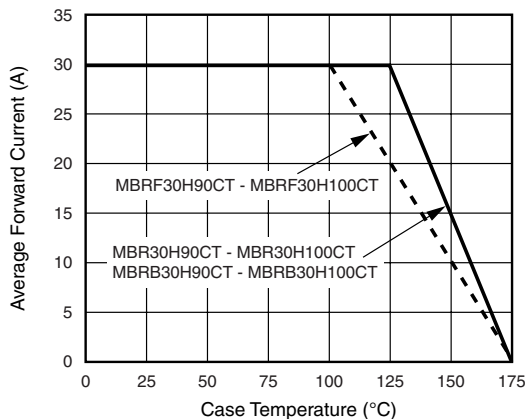


Figure 1. Forward Derating Curve Per Diode

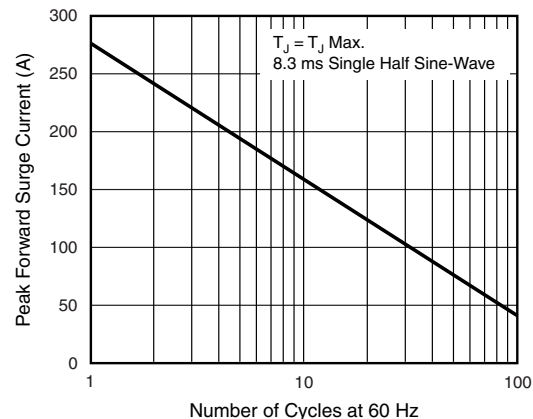


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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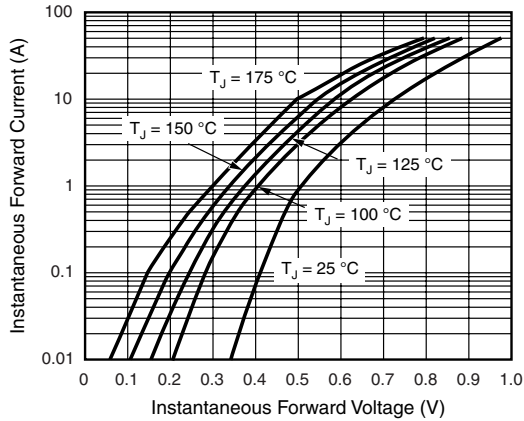


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

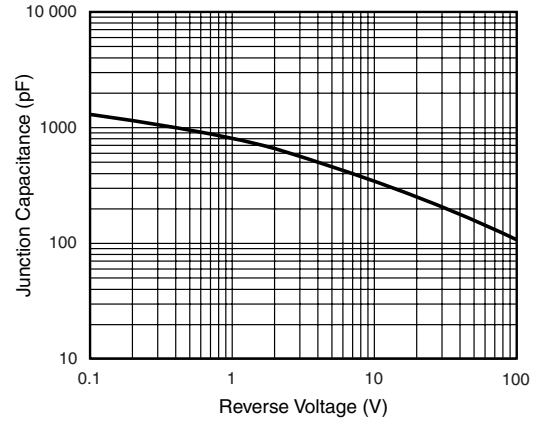


Figure 5. Typical Junction Capacitance Per Diode

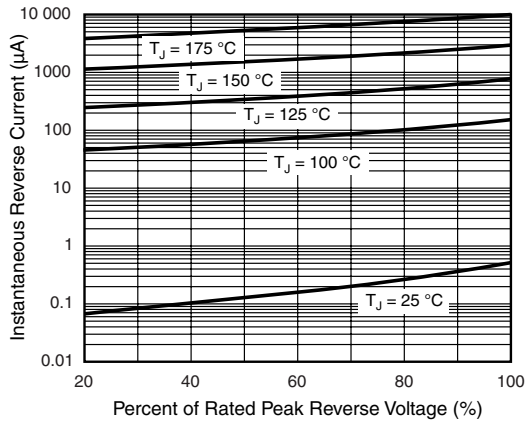


Figure 4. Typical Reverse Characteristics Per Diode

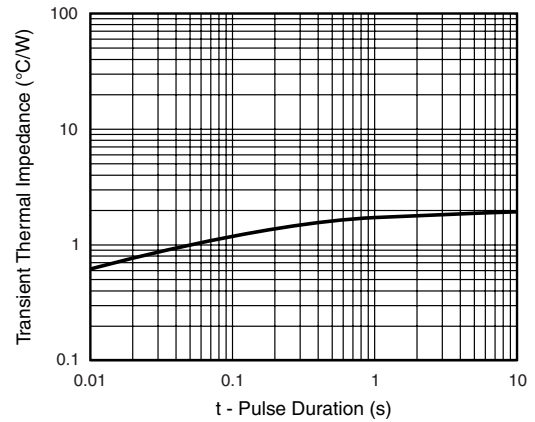


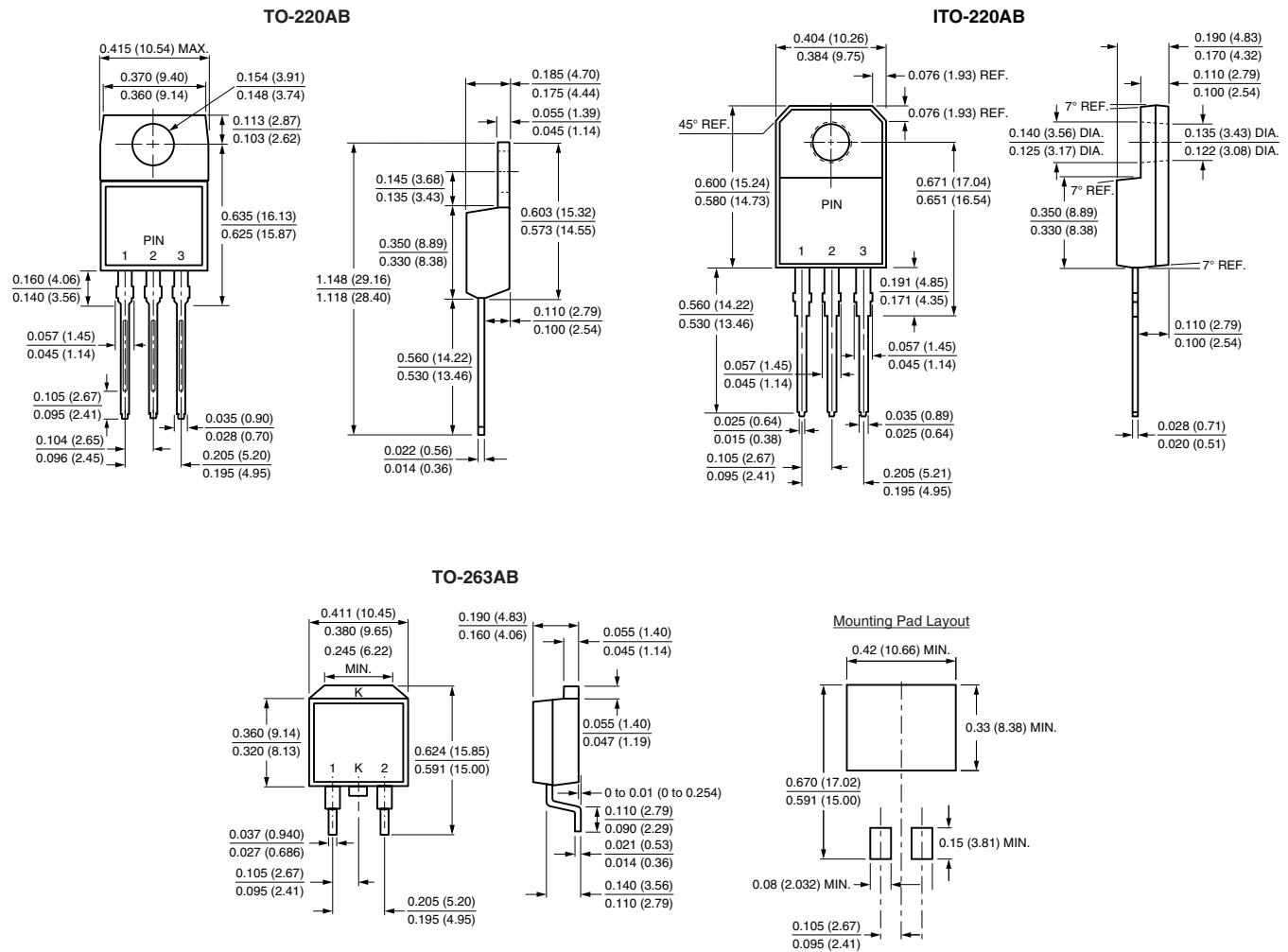
Figure 6. Typical Transient Thermal Impedance Per Diode

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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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