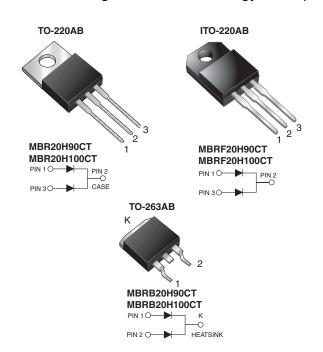




Vishay General Semiconductor

## **Dual Common-Cathode High-Voltage Schottky Rectifier**

High Barrier Technology for Improved High Temperature Performance



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	10 A x 2				
$V_{RRM}$	90 V, 100 V				
I <sub>FSM</sub>	250 A				
I <sub>R</sub>	4.5 μΑ				
V <sub>F</sub>	0.64 V				
T <sub>J</sub> max.	175 °C				

### **FEATURES**

Guardring for overvoltage protection



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

### 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

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	MBR20H90CT	MBR20H100CT	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	total device per diode	I <sub>F(AV)</sub>	20 10		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I <sub>FSM</sub>	250		А	
Peak repetitive reverse current per diode at t <sub>p</sub> = 2 μs, 1 kHz		I <sub>RRM</sub>	1.0		Α	
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 + 175		°C	
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min		V <sub>AC</sub>	1500		٧	

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# MBR(F,B)20H90CT & MBR(F,B)20H100CT

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		TEST CONDITIONS		SYMBOL	VALUE	UNIT	
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 10 A I <sub>F</sub> = 10 A I <sub>F</sub> = 20 A I <sub>F</sub> = 20 A	$T_{C} = 25 ^{\circ}\text{C}$ $T_{C} = 125 ^{\circ}\text{C}$ $T_{C} = 25 ^{\circ}\text{C}$ $T_{C} = 125 ^{\circ}\text{C}$	$V_{F}$	0.77 0.64 0.88 0.73	>			
Maximum reverse current per diode at working peak reverse voltage		T <sub>J</sub> = 25 °C T <sub>J</sub> = 125 °C	I <sub>R</sub>	4.5 6.0	μA mA			

#### Note:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	$R_{ hetaJC}$	2.0	5.8	2.0	°C/W

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	MBR20H100CT-E3/45	1.85	45	50/tube	Tube		
ITO-220AB	MBRF20H100CT-E3/45	1.99	45	50/tube	Tube		
TO-263AB	MBRB20H100CT-E3/45	1.35	45	50/tube	Tube		
TO-263AB	MBRB20H100CT-E3/81	1.35	81	800/reel	Tape reel		
TO-220AB	MBR20H100CTHE3/45 (1)	1.85	45	50/tube	Tube		
ITO-220AB	MBRF20H100CTHE3/45 (1)	1.99	45	50/tube	Tube		
TO-263AB	MBRB20H100CTHE3/45 (1)	1.35	45	50/tube	Tube		
TO-263AB	MBRB20H100CTHE3/81 (1)	1.35	81	800/reel	Tape reel		

#### Note:

### **RATINGS AND CHARACTERISTICS CURVES**

 $(T_A = 25 \, ^{\circ}C \text{ unless otherwise noted})$ 

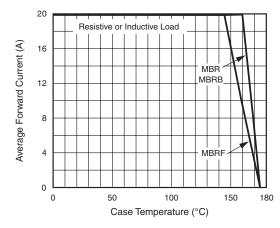


Figure 1. Forward Current Derating Curve

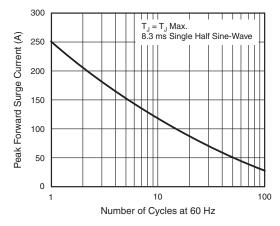


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

<sup>(1)</sup> Automotive grade AEC Q101 qualified





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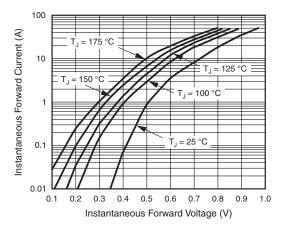


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

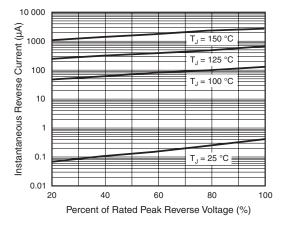


Figure 4. Typical Reverse Characteristics Per Diode

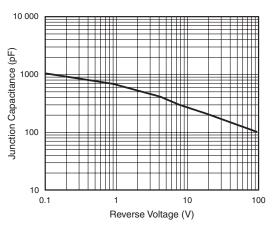


Figure 5. Typical Junction Capacitance Per Diode

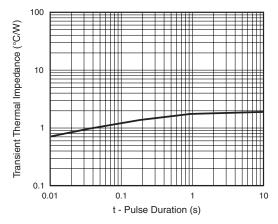


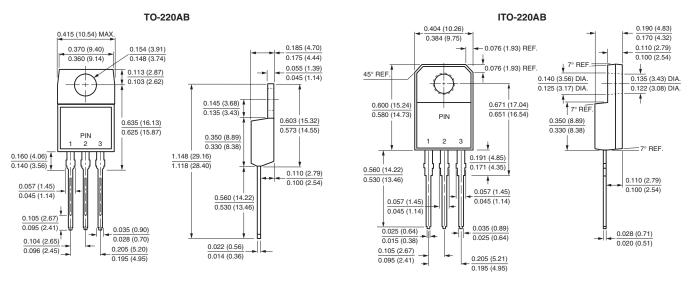
Figure 6. Typical Transient Thermal Impedance Per Diode

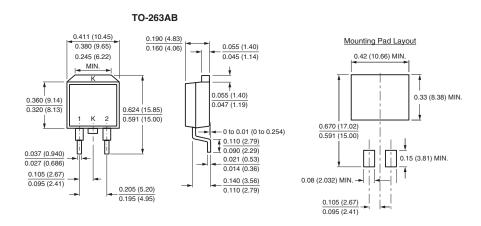
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### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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