

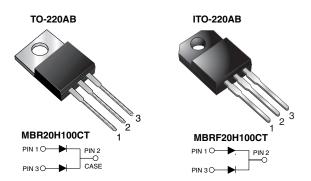
Vishay General Semiconductor

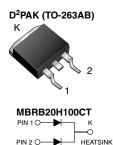
HALOGEN

FREE

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

High Barrier Technology for Improved High Temperature Performance





### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 10 A				
$V_{RRM}$	100 V				
I <sub>FSM</sub> 250 A					
I <sub>R</sub>	4.5 μA				
$V_{F}$	0.64 V				
T <sub>J</sub> max.	175 °C				
Package	TO-220AB, ITO-220AB, D <sup>2</sup> PAK (TO-263AB)				
Circuit configurations	Common cathode				

#### **FEATURES**

- Power pack
- · Guardring for overvoltage protection
- · Low power loss, 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 bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

#### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters and polarity protection application.

#### **MECHANICAL DATA**

Case: TO-220AB, ITO-220AB, D2PAK (TO-263AB) Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - RoHS-compliant, halogen-free, commercial

Terminals: matte tin plated leads, solderable J-STD-002 and JESD 22-B102

E3 and M3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

PARAMETER		SYMBOL	MBR20H100CT MBRF20H100CT MBRB20H100CT	UNIT	
Maximum repetitive peak reverse voltage		$V_{RRM}$	100		
Working peak reverse voltage		$V_{RWM}$	100	V	
Maximum DC blocking voltage		$V_{DC}$	100		
Maying up a core as forward rectified a wrent	total device	- I <sub>F(AV)</sub>	20	A	
Maximum average forward rectified current	per diode		10		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	250	А	
Peak repetitive reverse current per diode at $t_p$ = 2.0 $\mu$ s, 1 kHz		I <sub>RRM</sub>	1.0		
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		$V_{AC}$	1500	V	



# MBR20H100CT, MBRF20H100CT, MBRB20H100CT

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT	
Maximum instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C	0.77	V	
		I <sub>F</sub> = 10 A	T <sub>C</sub> = 125 °C	0.64		
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 25 °C	0.88		
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 125 °C	0.73		
Maximum reverse current at working peak reverse voltage per diode	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	4.5	μΑ	
			T <sub>J</sub> = 125 °C	6.0	mA	

#### Notes

 $^{(1)}$  Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR20H100CT	MBRF20H100CT	MBRB20H100CT	UNIT	
Typical thermal resistance per diode	$R_{\theta JC}$	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		
D <sup>2</sup> PAK (TO-263AB)	MBRB20H100CT-M3/I	1.35	I	800/reel	Tape and reel		

# MBR20H100CT, MBRF20H100CT, MBRB20H100CT

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### **RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)

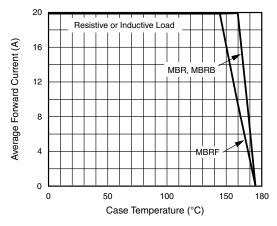


Fig. 1 - Forward Current Derating Curve

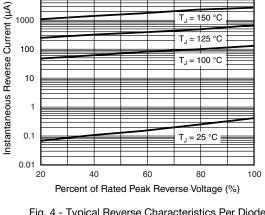


Fig. 4 - Typical Reverse Characteristics Per Diode

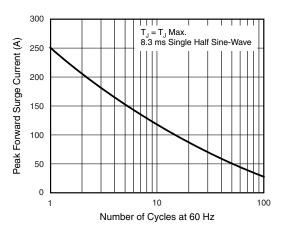


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

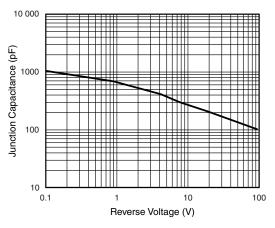


Fig. 5 - Typical Junction Capacitance Per Diode

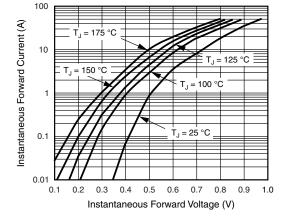


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

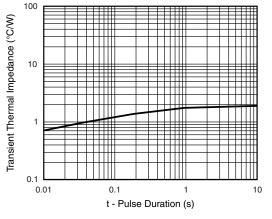


Fig. 6 - Typical Transient Thermal Impedance Per Diode

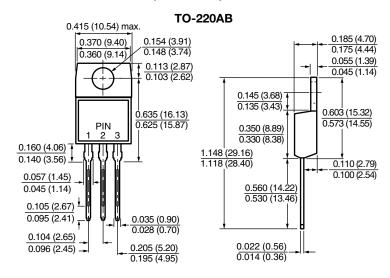


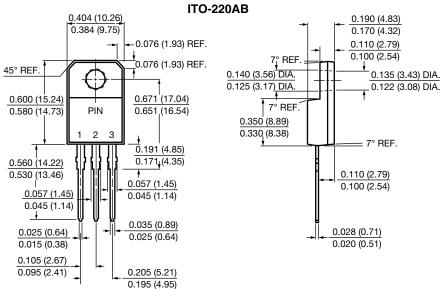


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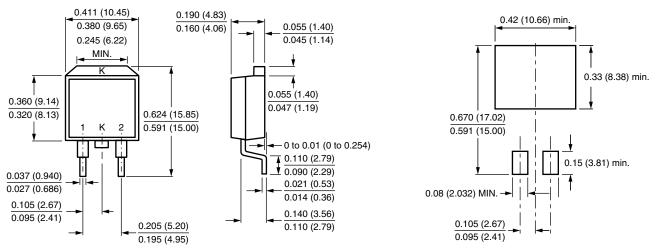
### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





### D<sup>2</sup>PAK (TO-263AB)

### **Mounting Pad Layout**



Revision: 27-Sep-2023 4 Document Number: 88673



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