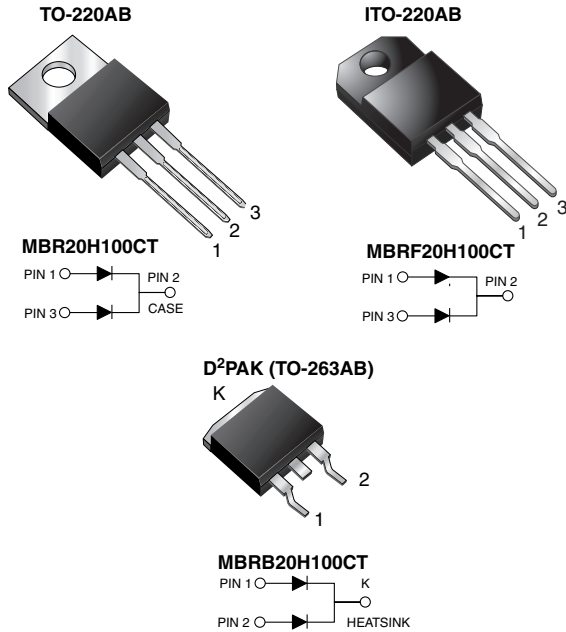


# Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



## 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](http://www.vishay.com/doc?99912)


**RoHS**  
 COMPLIANT  
**HALOGEN**  
**FREE**  
 Available

## 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, D<sup>2</sup>PAK (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 grade

**Terminals:** matte tin plated leads, solderable per 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

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
$V_{RRM}$	100 V
$I_{FSM}$	250 A
$I_R$	4.5 $\mu$ A
$V_F$	0.64 V
$T_J$ max.	175 °C
Package	TO-220AB, ITO-220AB, D <sup>2</sup> PAK (TO-263AB)
Circuit configurations	Common cathode

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	MBR20H100CT MBRF20H100CT MBRB20H100CT	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V	
Working peak reverse voltage	$V_{RWM}$	100		
Maximum DC blocking voltage	$V_{DC}$	100		
Maximum average forward rectified current	$I_{F(AV)}$	total device	20	A
		per diode	10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250		
Peak repetitive reverse current per diode at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		
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	



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 10\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	0.77	V
		$I_F = 10\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$	0.64	
		$I_F = 20\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	0.88	
		$I_F = 20\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$	0.73	
Maximum reverse current at working peak reverse voltage per diode	$I_R^{(2)}$	Rated $V_R$	$T_J = 25\text{ }^\circ\text{C}$	4.5	$\mu\text{A}$
			$T_J = 125\text{ }^\circ\text{C}$	6.0	mA

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBR20H100CT	MBRF20H100CT	MBRB20H100CT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	5.8	2.0	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (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



## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

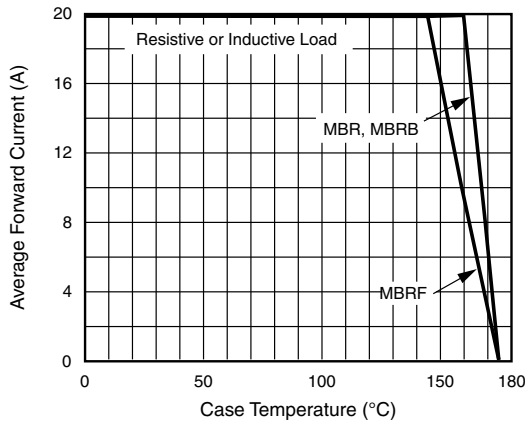


Fig. 1 - Forward Current Derating Curve

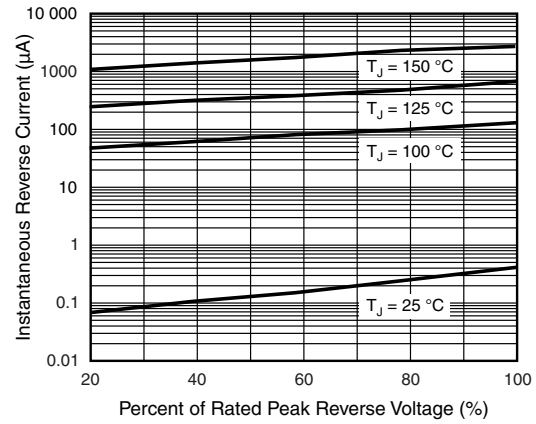


Fig. 4 - Typical Reverse Characteristics Per Diode

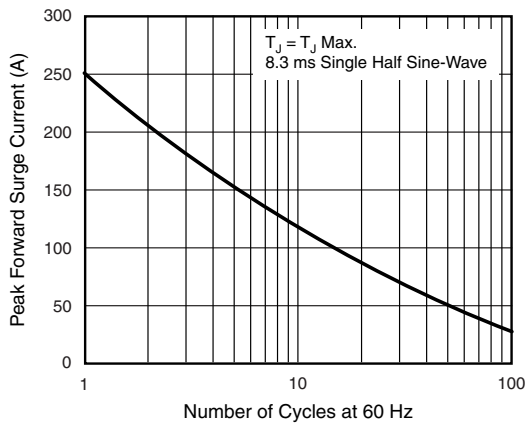


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

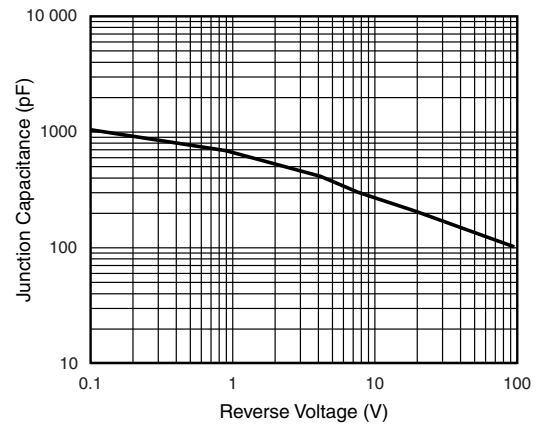


Fig. 5 - Typical Junction Capacitance Per Diode

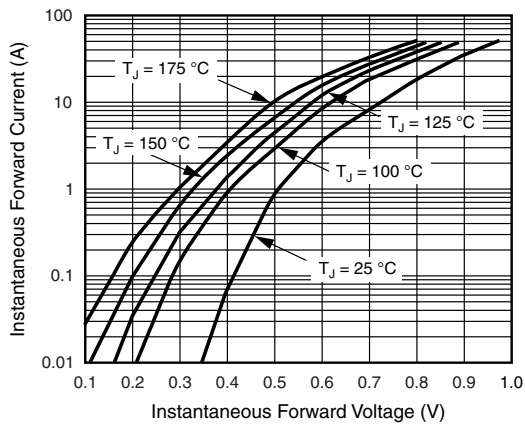


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

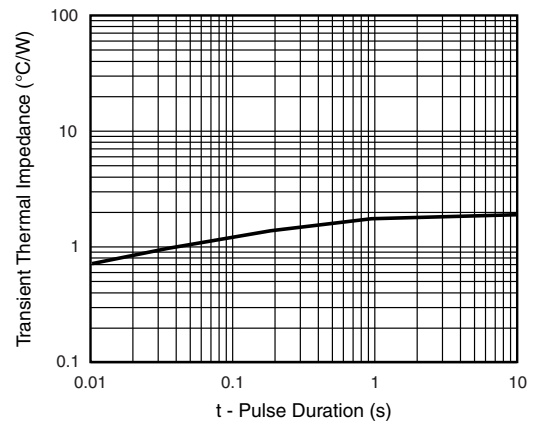
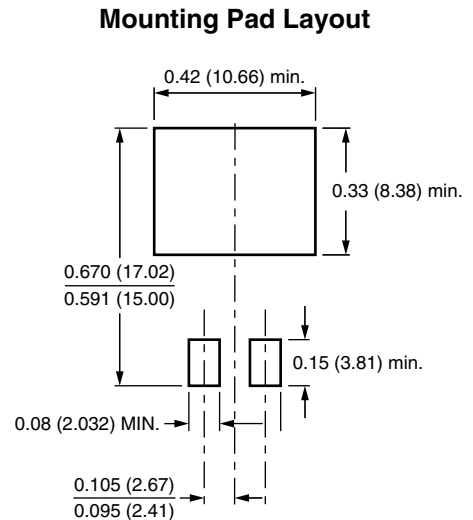
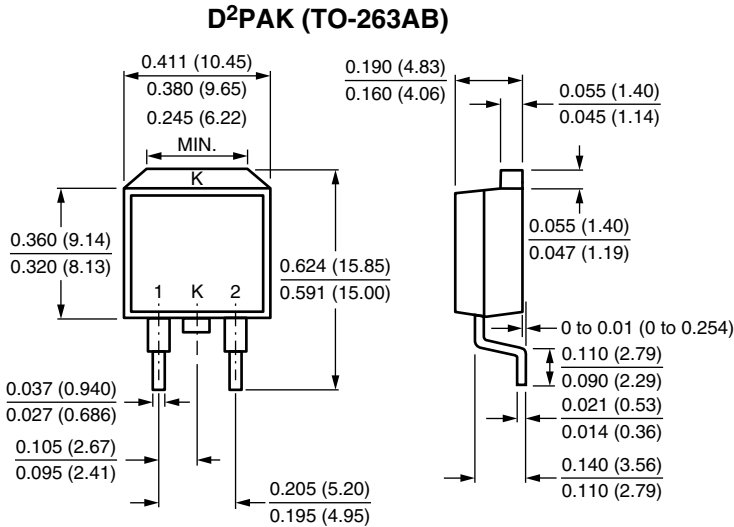
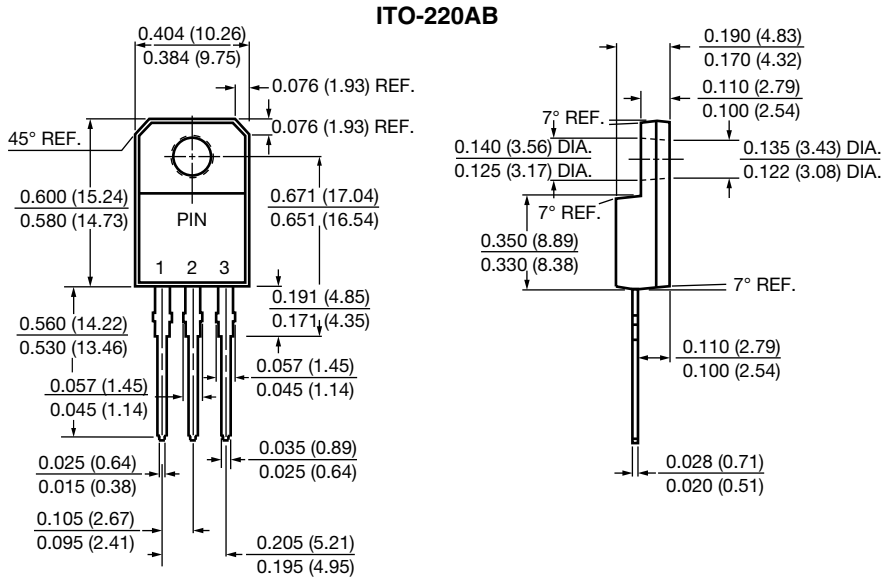
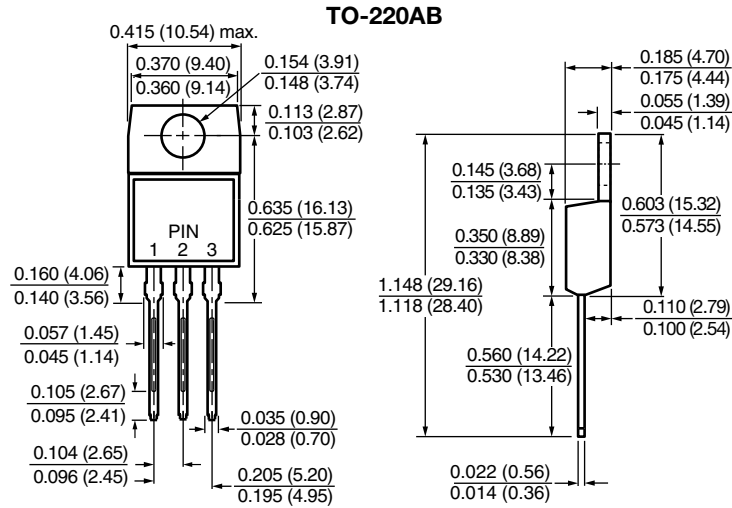


Fig. 6 - Typical Transient Thermal Impedance Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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