



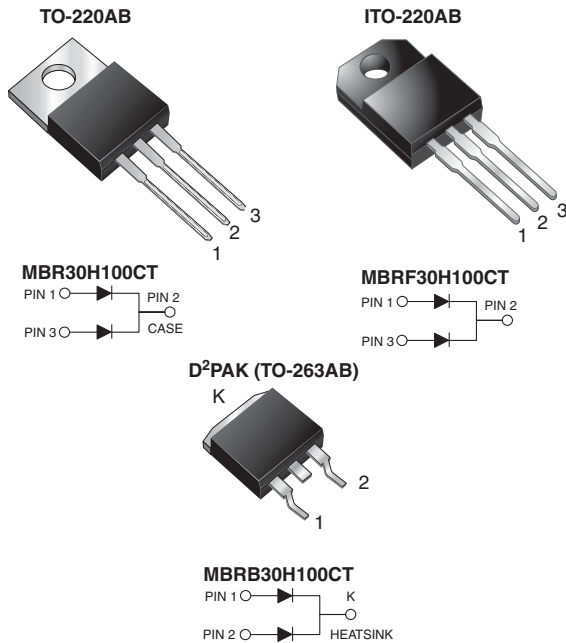
**THE DATASHEET OF  
MBRF30H45CT-E3/45**





## 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

### 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

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

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

### DESIGN SUPPORT TOOLS

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PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	100 V
$I_{FSM}$	275 A
$V_F$	0.67 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	175 °C
Package	TO-220AC, ITO-220AC, D <sup>2</sup> PAK (TO-263AB)
Circuit configuration	Dual common cathode

MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	MBR30H100CT	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 (fig.1)	total device per diode	$I_{F(AV)}$	30
		$I_{F(AV)}$	15
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	275	A
Peak repetitive reverse surge 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



ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	V <sub>F</sub> (1)	I <sub>F</sub> = 15 A	T <sub>J</sub> = 25 °C	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 per diode	I <sub>R</sub> (2)	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	5.0	μA
			T <sub>J</sub> = 125 °C	6.0	mA

**Note**

- (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



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

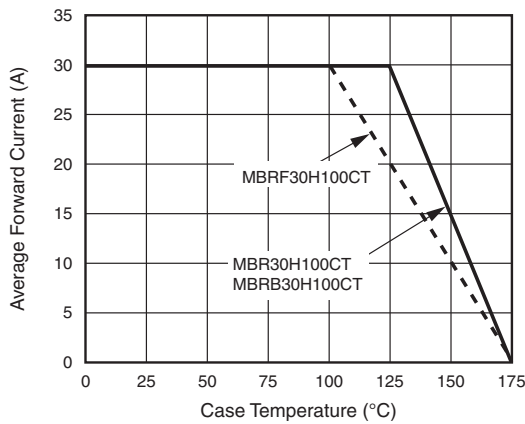


Fig. 1 - Forward Derating Curve Per Diode

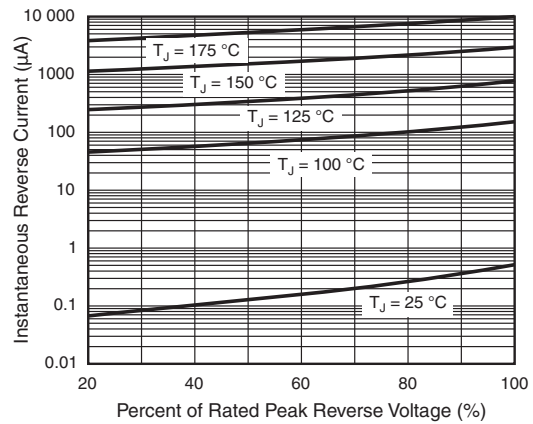


Fig. 4 - Typical Reverse Characteristics Per Diode

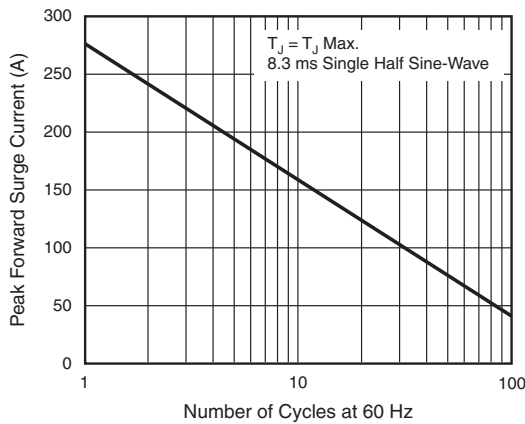


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

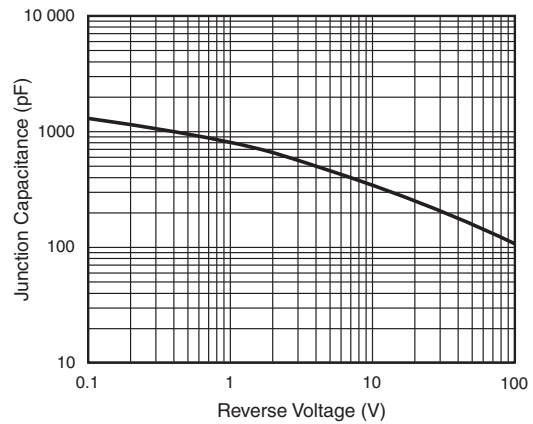


Fig. 5 - Typical Junction Capacitance Per Diode

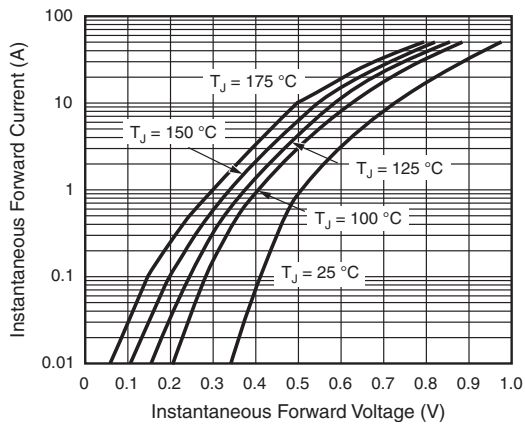


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

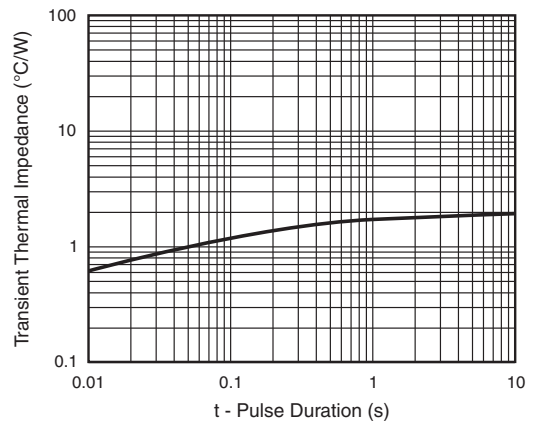
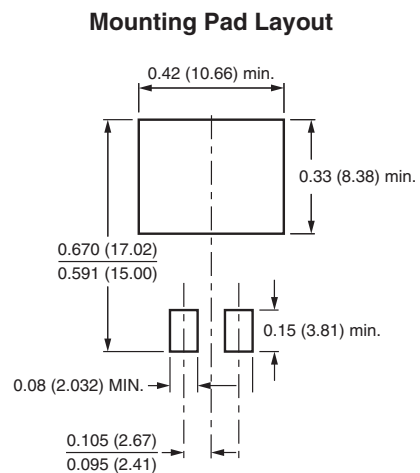
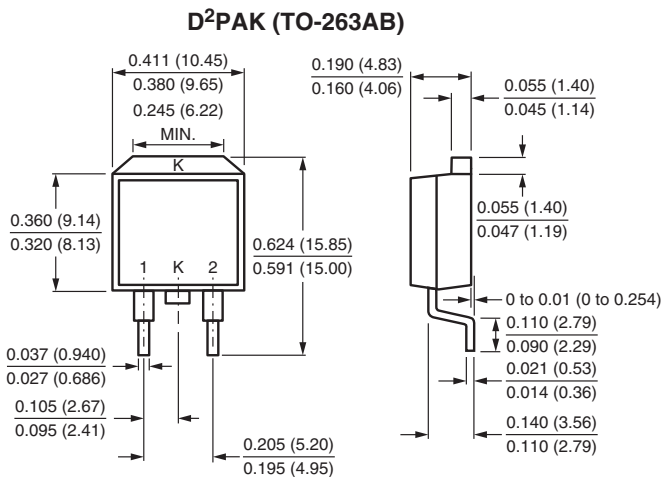
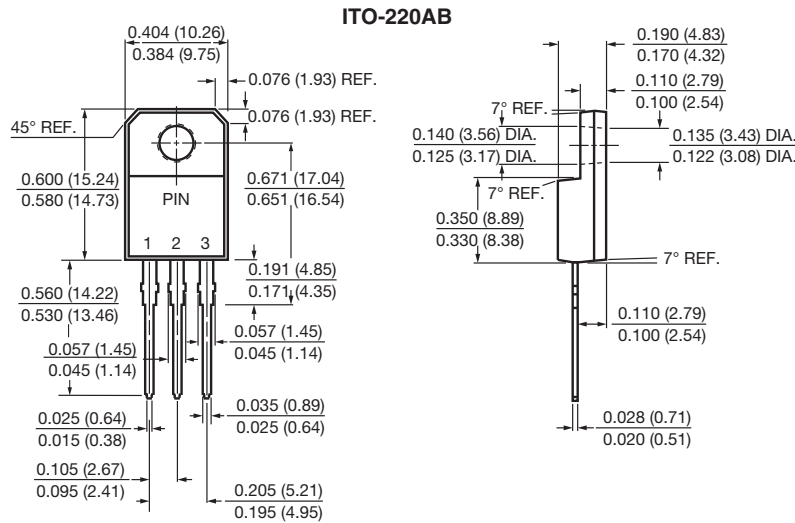
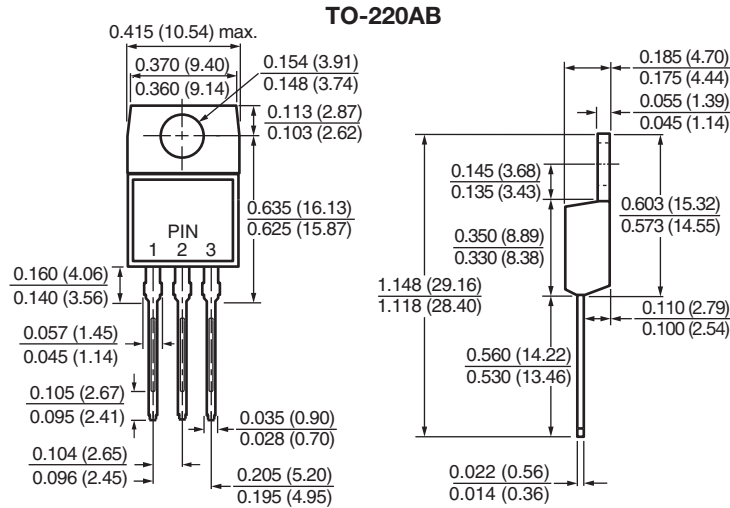


Fig. 6 - Typical Transient Thermal Impedance Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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