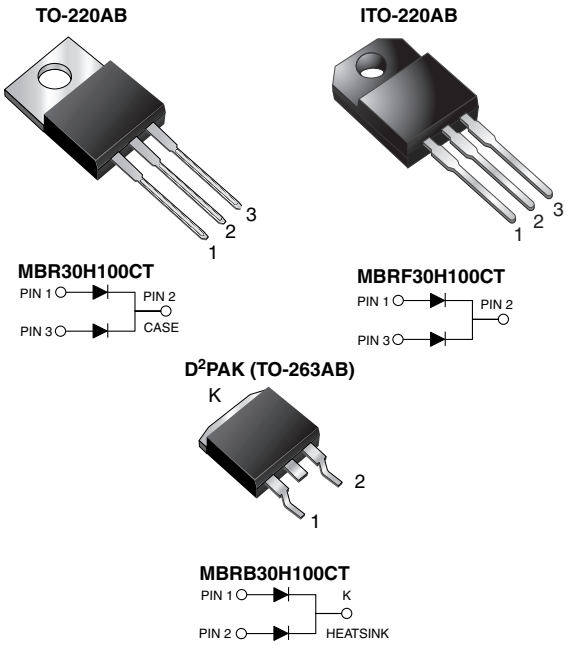
MBR30H100CT, MBRF30H100CT, MBRB30H100CT

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

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, 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 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

3D Models

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 µA
T_J max.	175 °C
Package	TO-220AB, ITO-220AB, D²PAK (TO-263AB)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	MBR30H100CT MBRF30H100CT MBRB30H100CT	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	$I_{F(AV)}$	30	A
	per diode		15	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	275	
Peak repetitive reverse surge current per diode at t_p = 2.0 µs, 1 kHz		I_{RRM}	1.0	
Voltage rate of change (rated V_R)		dV/dt	10 000	V/µs
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_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**VALUE**	**UNIT**
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 15 A	T_J = 25 °C	0.82	V
		I_F = 15 A	T_J = 125 °C	0.67	
		I_F = 30 A	T_J = 25 °C	0.93	
		I_F = 30 A	T_J = 125 °C	0.80	
Maximum reverse current per diode	I_R (2)	Rated V_R	T_J = 25 °C	5.0	µA
			T_J = 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_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MBR30H100CT**	**MBRF30H100CT**	**MBR30H100CT**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	1.9	4.6	1.9	°C/W

ORDERING INFORMATION					
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
D^2PAK (TO-263AB)	MBRB30H100CT-M3/I	1.35	I	800/reel	Tape and reel

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RATINGS AND CHARACTERISTICS CURVES (T_C = 25 °C unless otherwise noted)

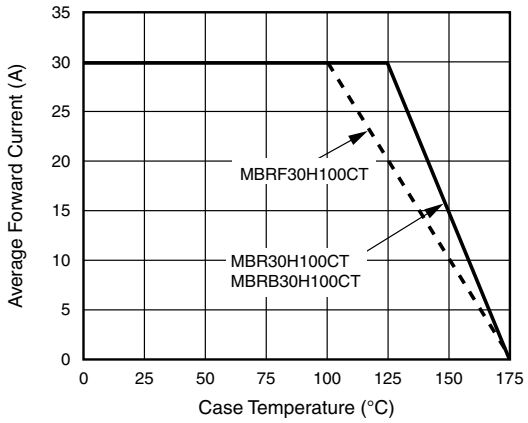

Fig. 1 - Forward Derating Curve Per Diode

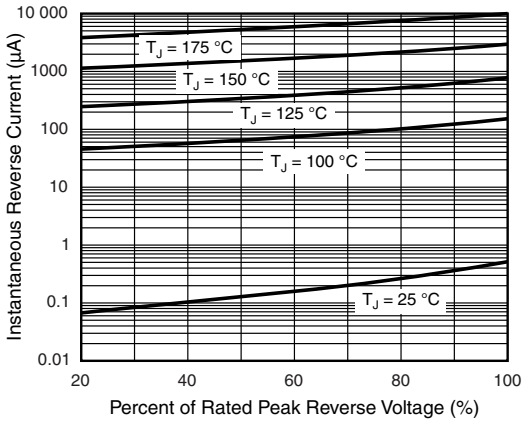

Fig. 4 - Typical Reverse Characteristics Per Diode

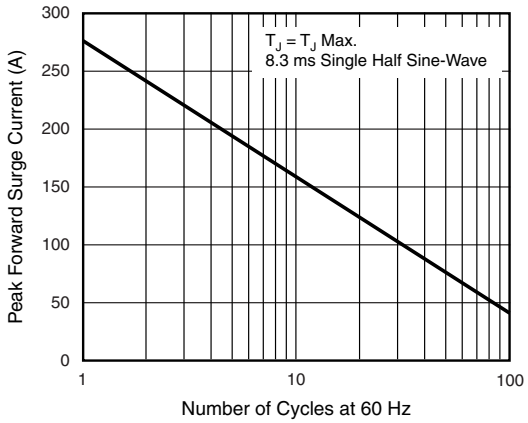

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

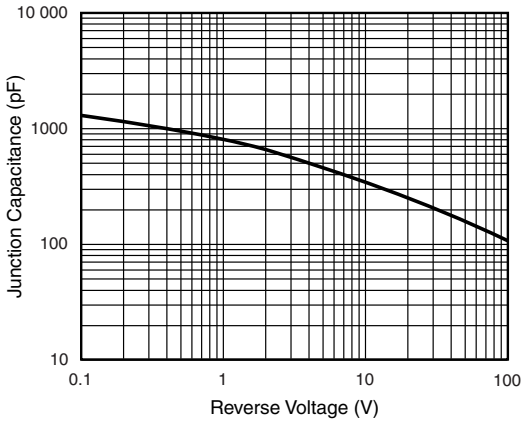

Fig. 5 - Typical Junction Capacitance Per Diode

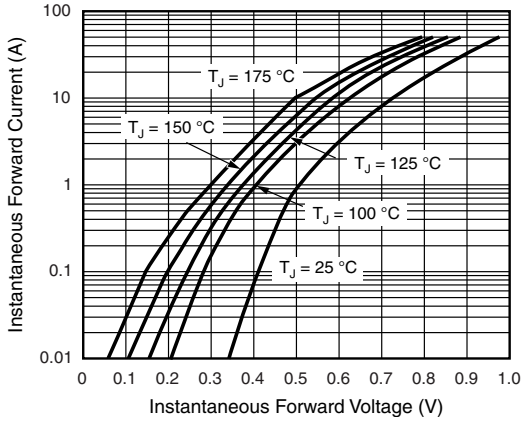

Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

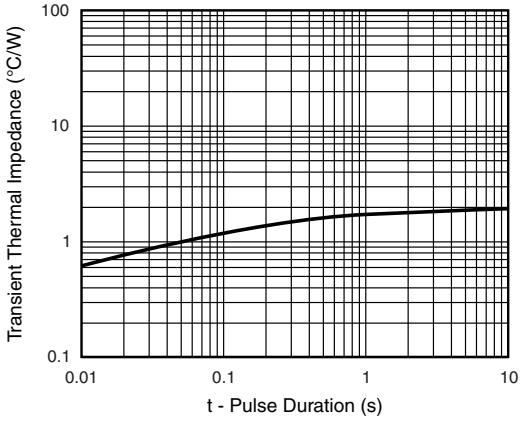

Fig. 6 - Typical Transient Thermal Impedance Per Diode

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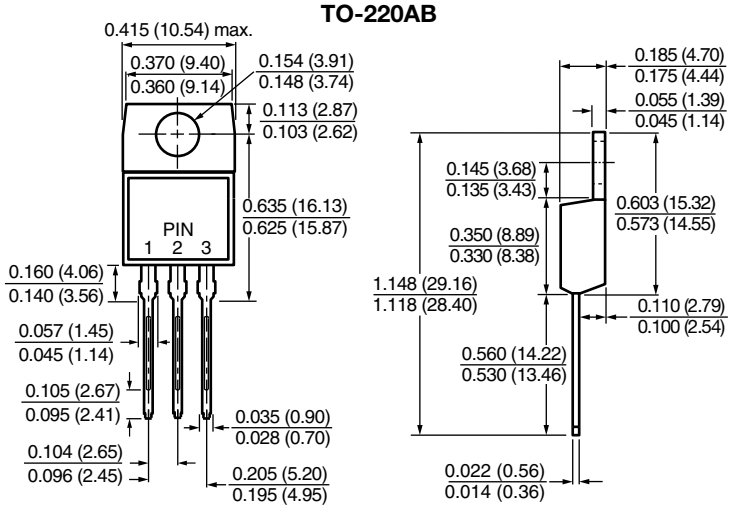
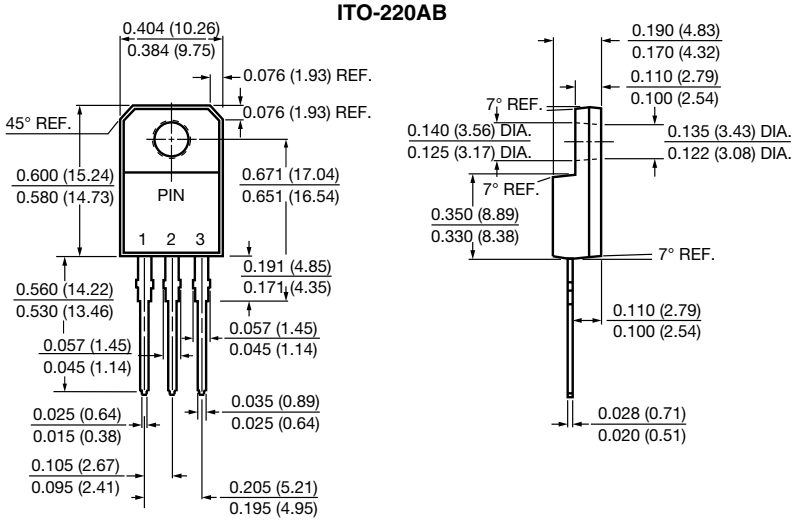
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

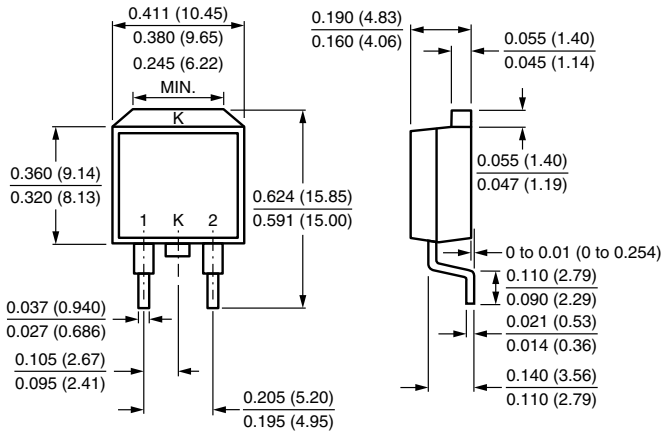
TO-220AB



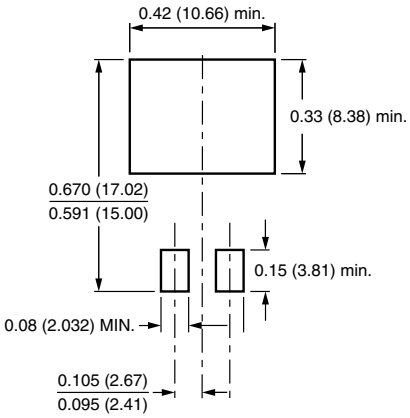
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout



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