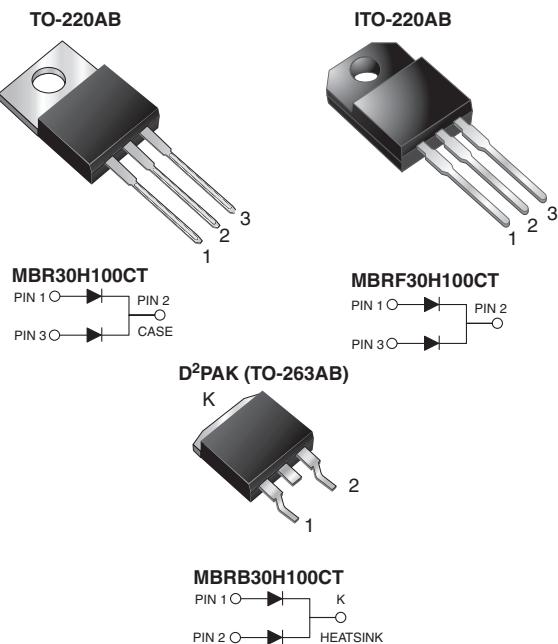


Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DESIGN SUPPORT TOOLS


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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

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

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 μ A
T_J max.	175 °C
Package	TO-220AC, ITO-220AC, D ² 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)	$I_{F(AV)}$	30	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		15	
Peak repetitive reverse surge current per diode at $t_p = 2.0$ μ s, 1 kHz	I_{RRM}	275	
Voltage rate of change (rated V_R)	dV/dt	1.0	
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 ($T_C = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	V_F (1)	$I_F = 15 \text{ A}$	$T_J = 25^\circ\text{C}$	0.82	V
		$I_F = 15 \text{ A}$	$T_J = 125^\circ\text{C}$	0.67	
		$I_F = 30 \text{ A}$	$T_J = 25^\circ\text{C}$	0.93	
		$I_F = 30 \text{ A}$	$T_J = 125^\circ\text{C}$	0.80	
Maximum reverse current per diode	I_R (2)	Rated V_R	$T_J = 25^\circ\text{C}$	5.0	μA
			$T_J = 125^\circ\text{C}$	6.0	mA

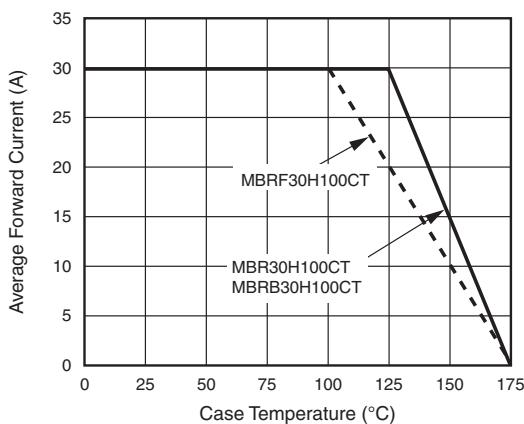
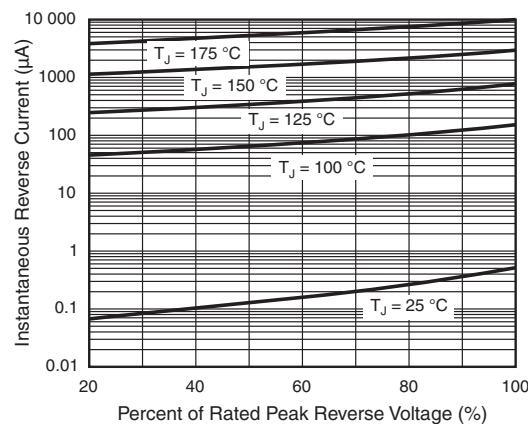
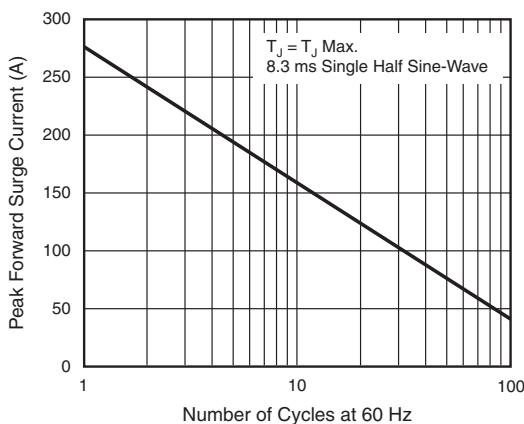
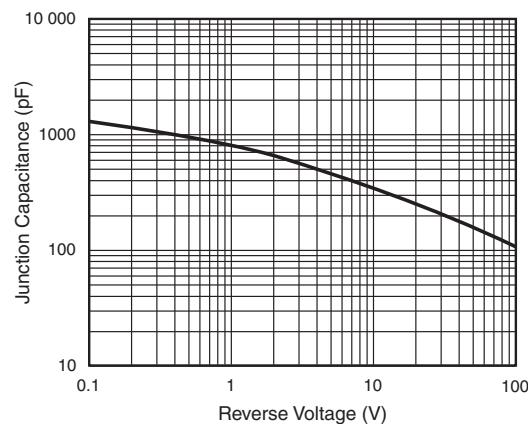
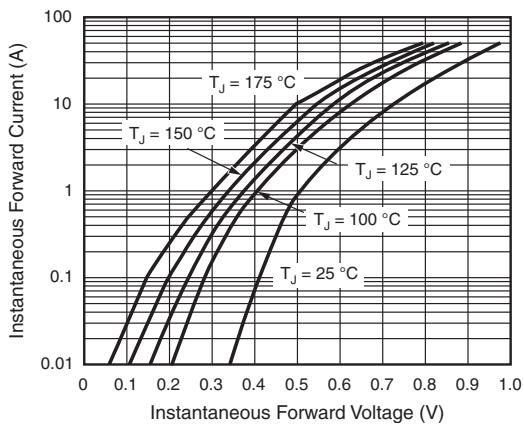
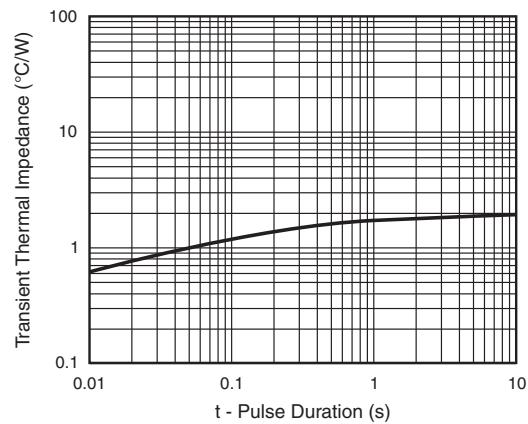
Note

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

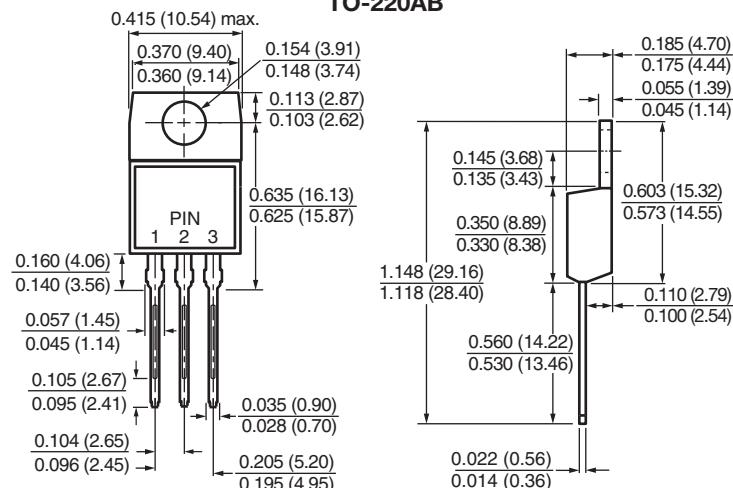
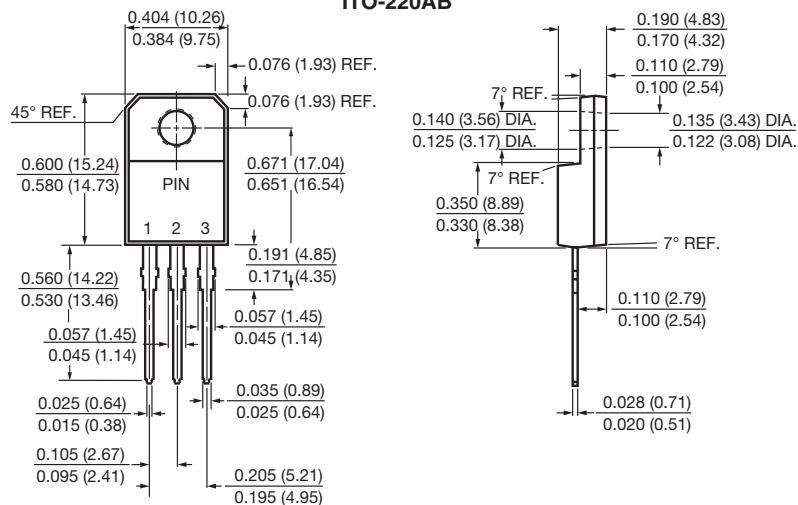
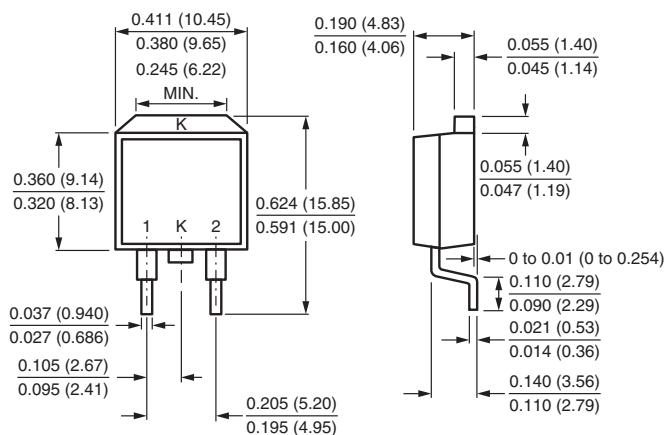
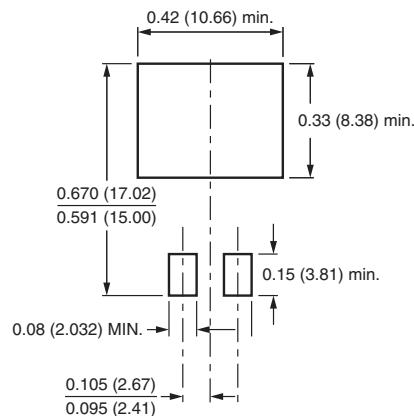
(2) Pulse test: Pulse width, $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	$R_{\theta\text{JC}}$	1.9	4.6	1.9	$^\circ\text{C/W}$

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 ($T_C = 25^\circ\text{C}$ 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)

TO-220AB

ITO-220AB

D²PAK (TO-263AB)

Mounting Pad Layout


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