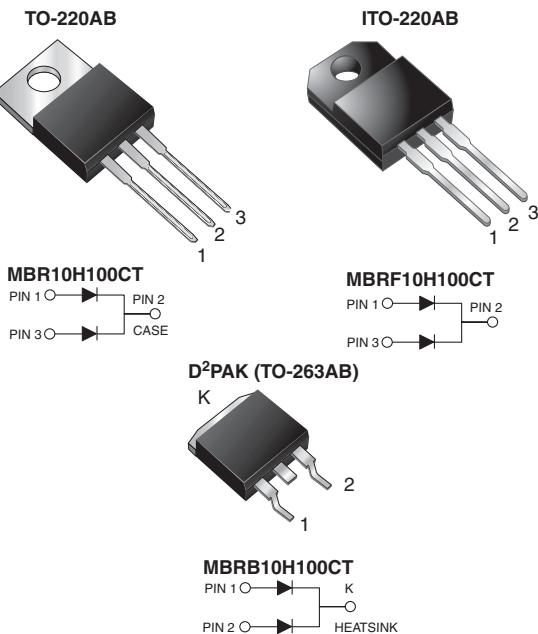


Dual Common Cathode High Voltage Schottky Rectifier

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 5 A
V _{RRM}	100 V
I _{FSM}	150 A
V _F	0.61 V
I _R	3.5 µA
T _J max.	175 °C
Package	TO-220AC, ITO-220AC, D ² PAK (TO-263AB)
Circuit configurations	Common cathode

MAXIMUM RATINGS (T _C = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	MBR10H100CT	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 at T _C = 105 °C	I _{F(AV)}	10	A
per diode		5.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	150	
Peak repetitive reverse current per diode at t _p = 2.0 µs, 1 kHz	I _{RRM}	0.5	
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

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 5\text{ A}$	$T_J = 25^\circ\text{C}$	0.76	V
		$I_F = 5\text{ A}$	$T_J = 125^\circ\text{C}$	0.61	
		$I_F = 10\text{ A}$	$T_J = 25^\circ\text{C}$	0.85	
		$I_F = 10\text{ A}$	$T_J = 125^\circ\text{C}$	0.71	
Maximum reverse current per diode	$I_R^{(1)}$	Rated V_R	$T_J = 25^\circ\text{C}$	3.5	μA
			$T_J = 100^\circ\text{C}$	4.5	mA

Notes

(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	$R_{\theta JC}$	2.2	5.2	2.2	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR10H100CT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	MBRF10H100CT-E3/45	1.79	45	50/tube	Tube
TO-263AB	MBRB10H100CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB10H100CT-E3/81	1.35	81	800/reel	Tape and reel

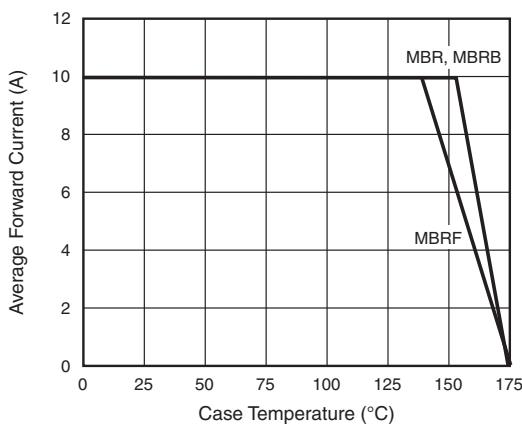
RATINGS AND CHARACTERISTICS CURVES ($T_C = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve Per Diode

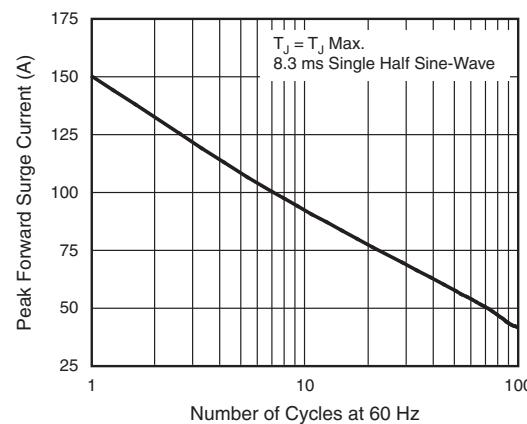


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

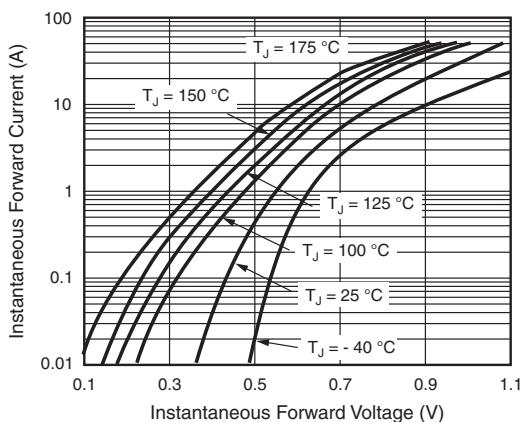


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

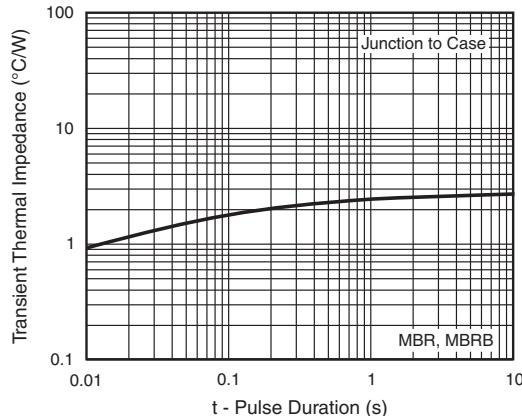


Fig. 6 - Typical Transient Thermal Impedance Per Diode

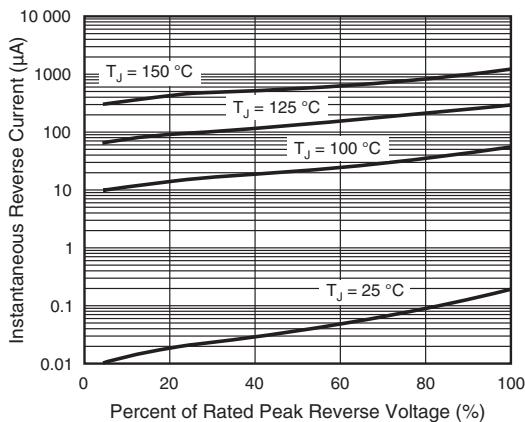


Fig. 4 - Typical Reverse Characteristics Per Diode

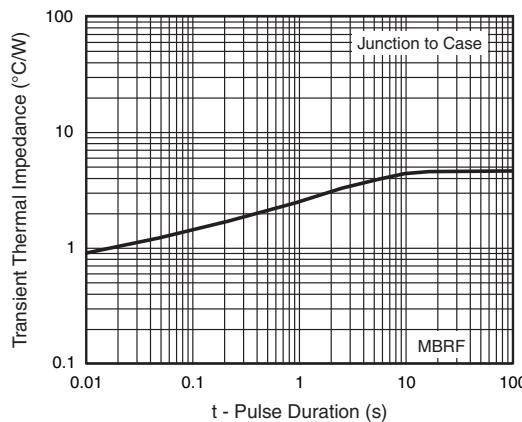


Fig. 7 - Typical Transient Thermal Impedance Per Diode

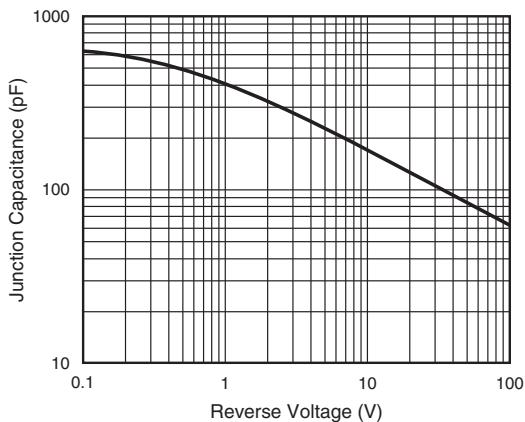
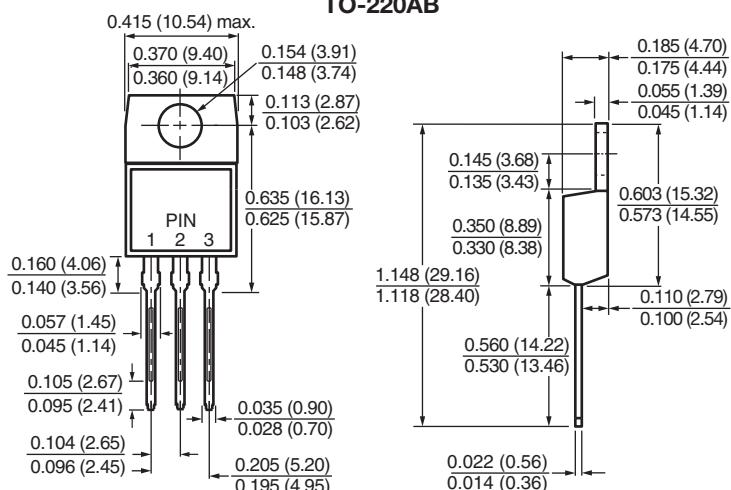
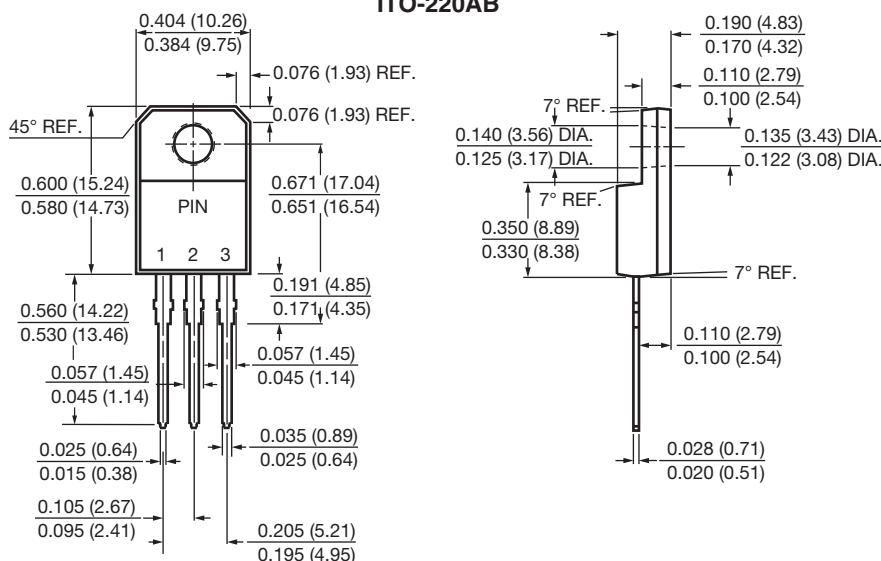
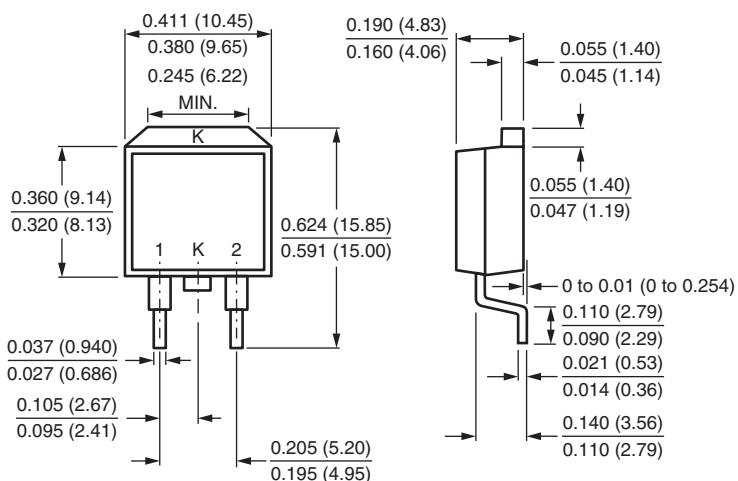
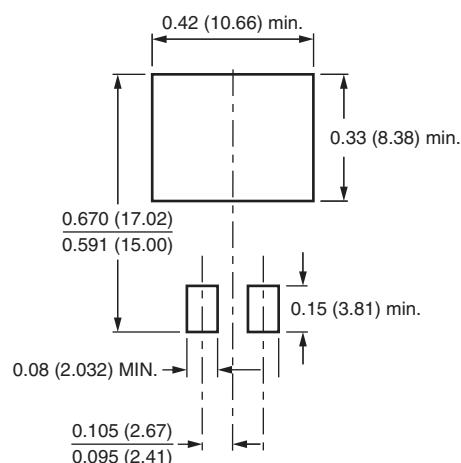


Fig. 5 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

ITO-220AB

D²PAK (TO-263AB)

Mounting Pad Layout


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