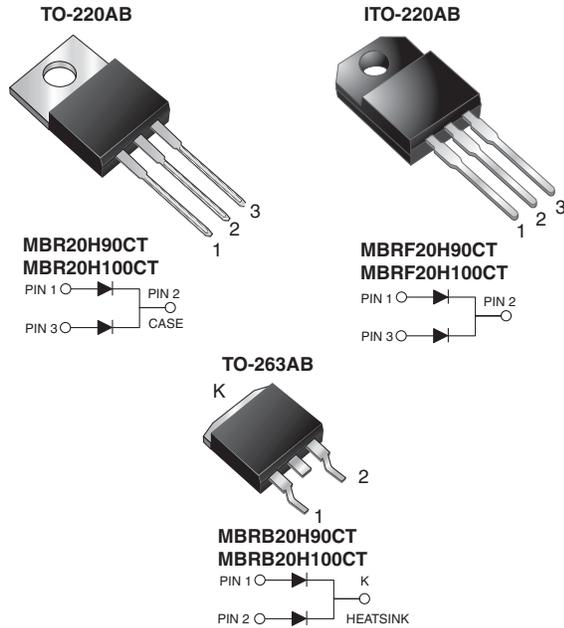


Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



FEATURES

- 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)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see 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, TO-263AB

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10 A x 2
V_{RRM}	90 V to 100 V
I_{FSM}	250 A
I_R	4.5 μ A
V_F	0.64
T_J max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	MBR20H90CT	MBR20H100CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V
Working peak reverse voltage	V_{RWM}	90	100	
Maximum DC blocking voltage	V_{DC}	90	100	
Maximum average forward rectified current	$I_{F(AV)}$	total device		A
		per diode		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	250		A
Peak repetitive reverse current per diode at $t_p = 2.0$ μ s, 1 kHz	I_{RRM}	1.0		
Voltage rate of change (rated V_R)	dV/dt	10 000		
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 _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	V _F ⁽¹⁾	I _F = 10 A	T _C = 25 °C	0.77	V
		I _F = 10 A	T _C = 125 °C	0.64	
		I _F = 20 A	T _C = 25 °C	0.88	
		I _F = 20 A	T _C = 125 °C	0.73	
Maximum reverse current at working peak reverse voltage per diode	I _R ⁽²⁾	Rated V _R	T _J = 25 °C	4.5	μA
			T _J = 125 °C	6.0	mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	R _{θJC}	2.0	5.8	2.0	°C/W

ORDERING INFORMATION (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
TO-263AB	MBRB20H100CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB20H100CT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	MBR20H100CTHE3/45 ⁽¹⁾	1.85	45	50/tube	Tube
ITO-220AB	MBRF20H100CTHE3/45 ⁽¹⁾	1.99	45	50/tube	Tube
TO-263AB	MBRB20H100CTHE3/45 ⁽¹⁾	1.35	45	50/tube	Tube
TO-263AB	MBRB20H100CTHE3/81 ⁽¹⁾	1.35	81	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

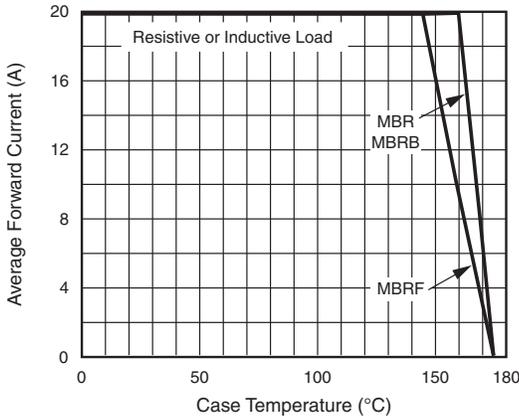


Fig. 1 - Forward Current Derating Curve

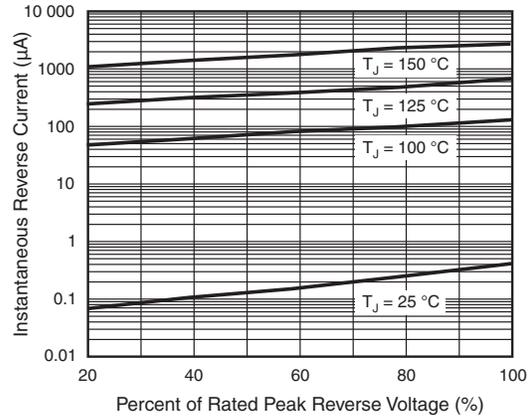


Fig. 4 - Typical Reverse Characteristics Per Diode

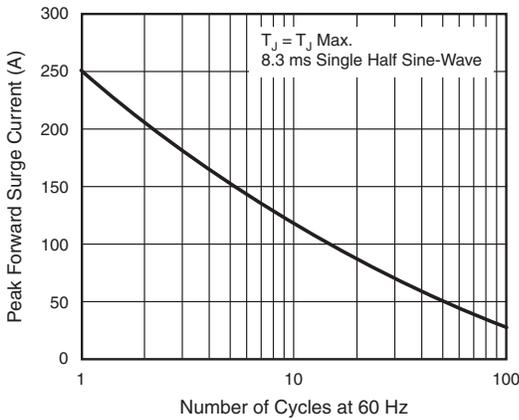


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

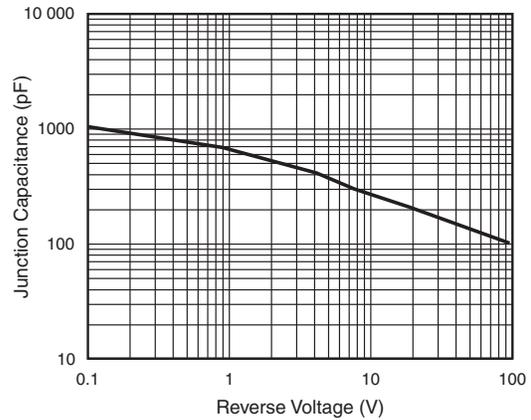


Fig. 5 - Typical Junction Capacitance Per Diode

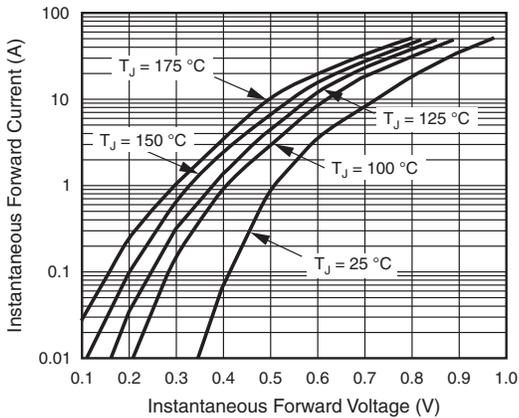


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

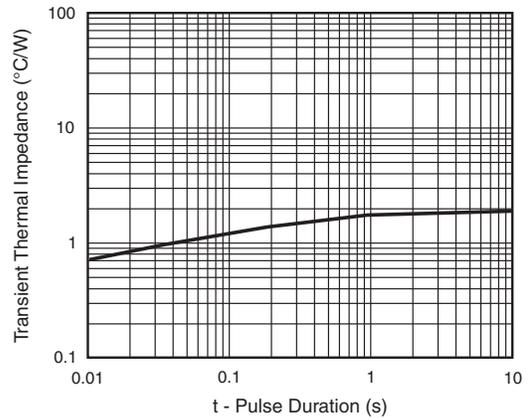
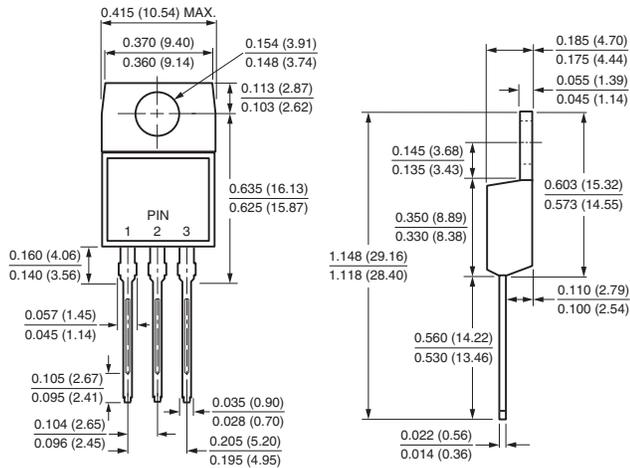


Fig. 6 - Typical Transient Thermal Impedance Per Diode

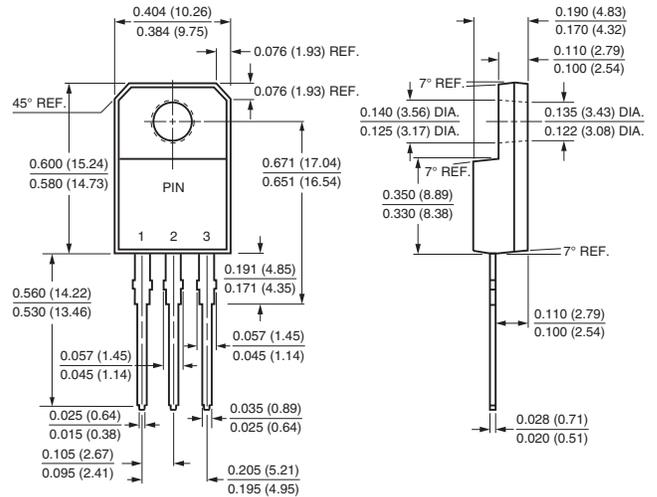


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

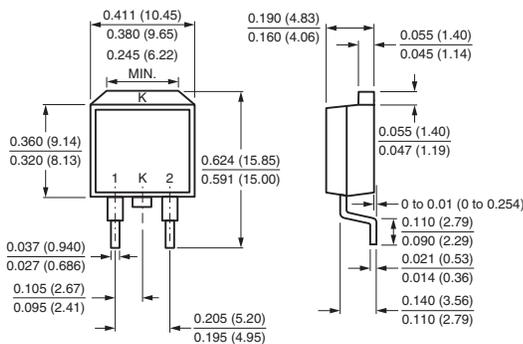
TO-220AB



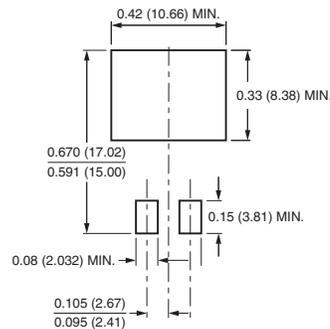
ITO-220AB



TO-263AB



Mounting Pad Layout





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