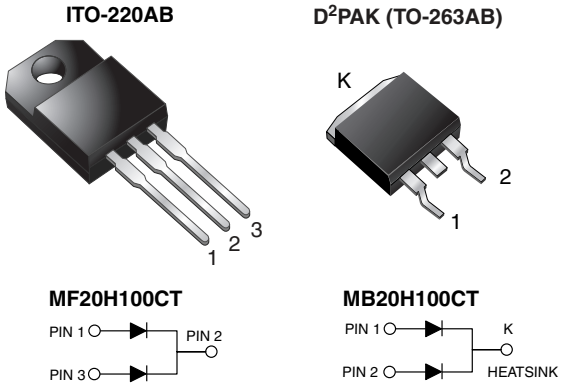
Dual Common Cathode High Voltage Schottky Rectifier

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 D²PAK (TO-263AB) package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for ITO-220AB package)
- AEC-Q101 qualified
- 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: ITO-220AB, D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,.....)

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

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

HE3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
V_{RRM}	100 V
I_{FSM}	250 A
I_R	4.5 µA
V_F	0.64
T_J max.	175 °C
Package	ITO-220AB, D²PAK (TO-263AB)
Circuit configuration	Common cathode

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

PARAMETER		SYMBOL	MB20H100CT	MF20H100CT	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	total device	$I_{F(AV)}$	20		A
	per diode		10		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I_{FSM}	250		
Peak repetitive reverse 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

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**	**MB20H100CT**	**MF20H100CT**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	5.8	°C/W

ORDERING INFORMATION					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
ITO-220AB	MF20H100CTHE3_B/P	1.99	P	50/tube	Tube
D^2PAK (TO-263AB)	MB20H100CTHM3/I	1.35	I	800/reel	Tape and reel

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

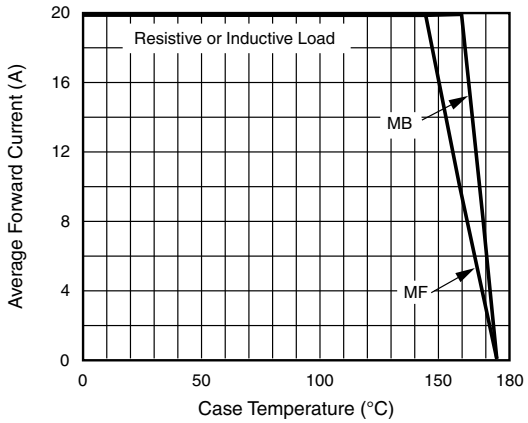


Fig. 1 - Forward Current Derating Curve

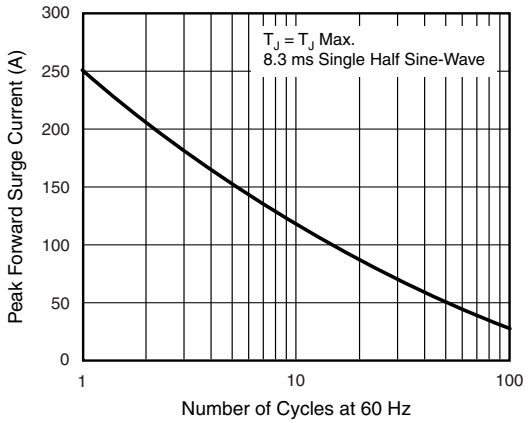


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

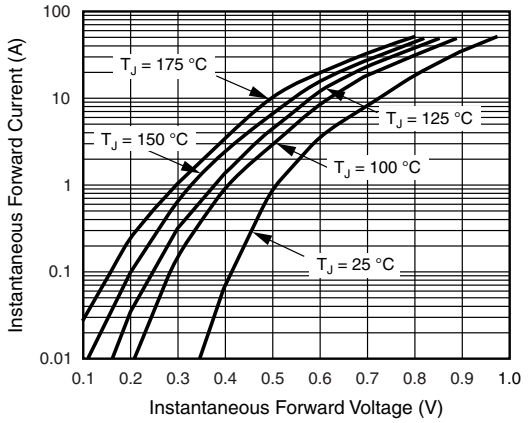


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

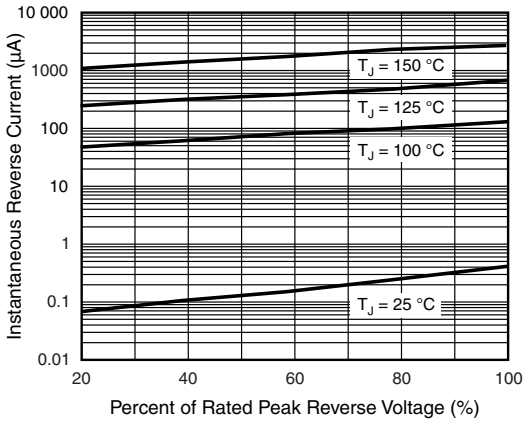


Fig. 4 - Typical Reverse Characteristics Per Diode

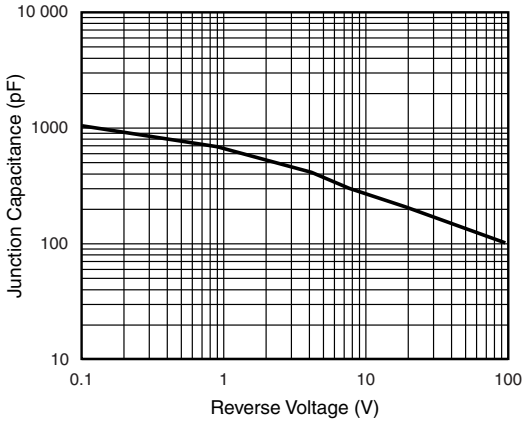


Fig. 5 - Typical Junction Capacitance Per Diode

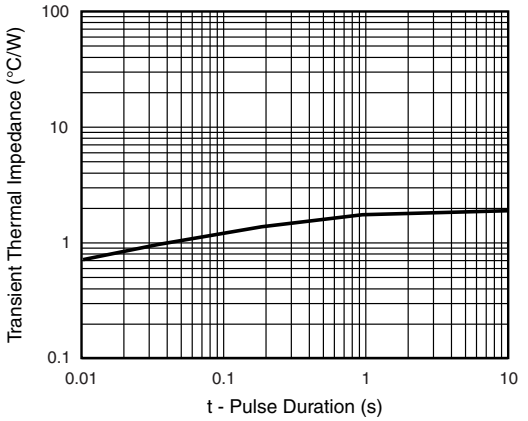
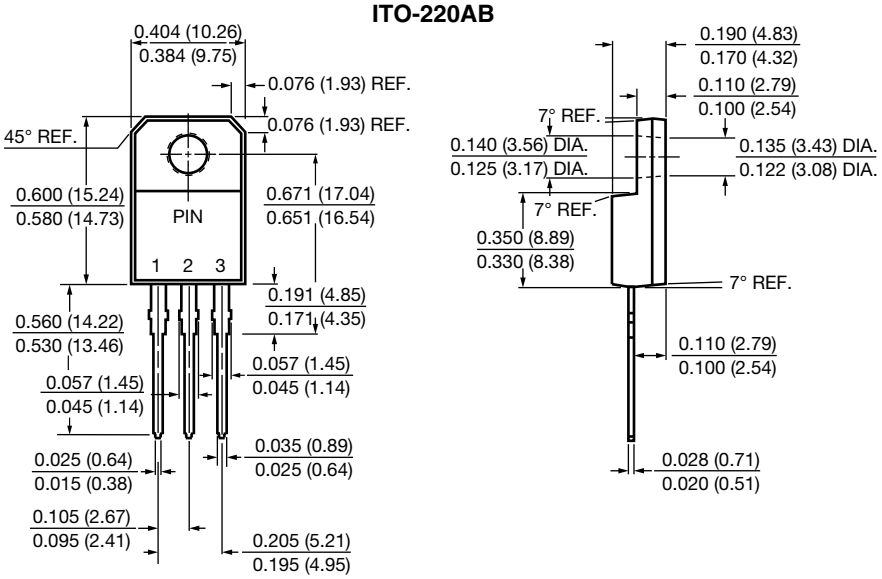


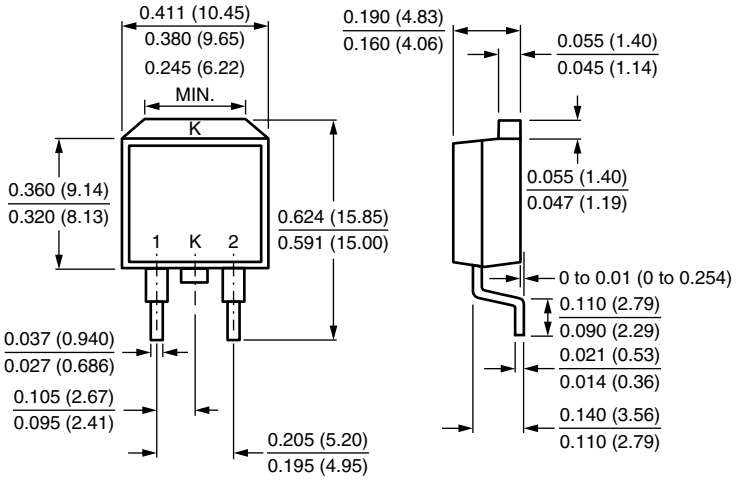
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

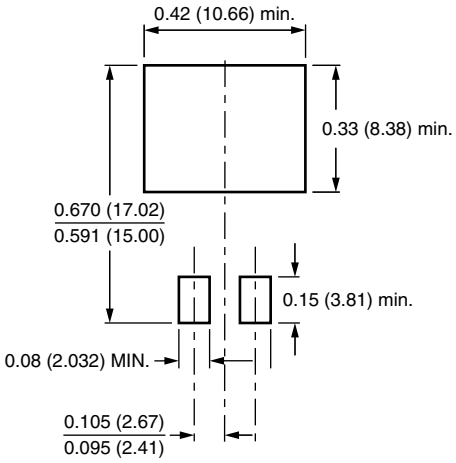
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout



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