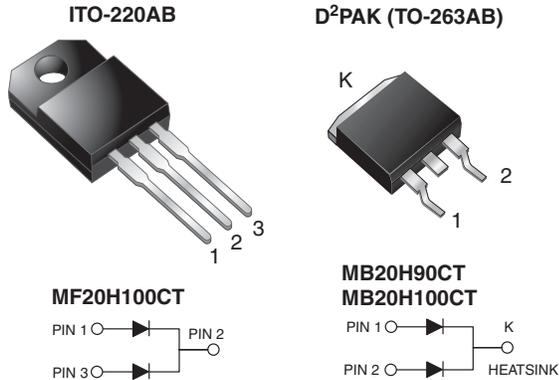


# Dual Common Cathode High Voltage Schottky Rectifier

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 D<sup>2</sup>PAK (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](http://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:** ITO-220AB, D<sup>2</sup>PAK (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,.....)

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

HE3 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
$V_{RRM}$	90 V to 100 V
$I_{FSM}$	250 A
$I_R$	4.5 $\mu$ A
$V_F$	0.64
$T_J$ max.	175 °C
Package	ITO-220AB, D <sup>2</sup> PAK (TO-263AB)
Diode variations	Common cathode

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	MB20H90CT	MB20H100CT	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	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 $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		
Voltage rate of change (rated $V_F$ )	dV/dt	10 000		V/ $\mu$ s
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 <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C	0.77	V
		I <sub>F</sub> = 10 A	T <sub>C</sub> = 125 °C	0.64	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 25 °C	0.88	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 125 °C	0.73	
Maximum reverse current at working peak reverse voltage per diode	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	4.5	μA
			T <sub>J</sub> = 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 <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MB	MF	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.0	5.8	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	MF20H100CTHE3_A/P <sup>(1)</sup>	1.99	P	50/tube	Tube
TO-263AB	MB20H100CTHE3_A/P <sup>(1)(2)</sup>	1.35	P	50/tube	Tube
TO-263AB	MB20H100CTHE3_A/I <sup>(1)(2)</sup>	1.35	I	800/reel	Tape and reel

**Note**

(1) AEC-Q101 qualified

(2) 90 V device available in D<sup>2</sup>PAK (TO-263AB) package only



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

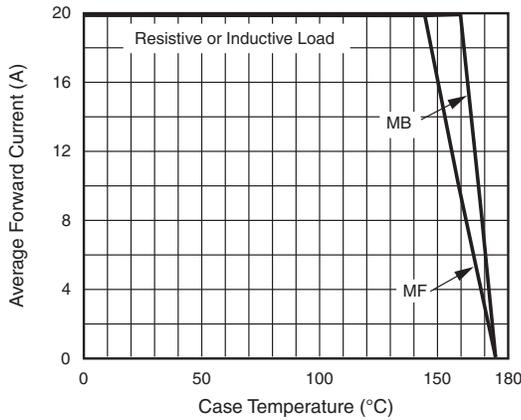


Fig. 1 - Forward Current Derating Curve

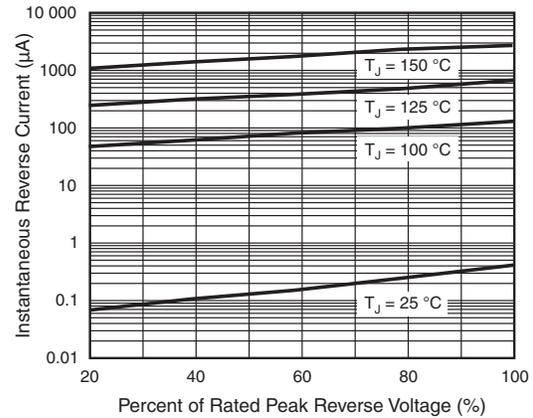


Fig. 4 - Typical Reverse Characteristics Per Diode

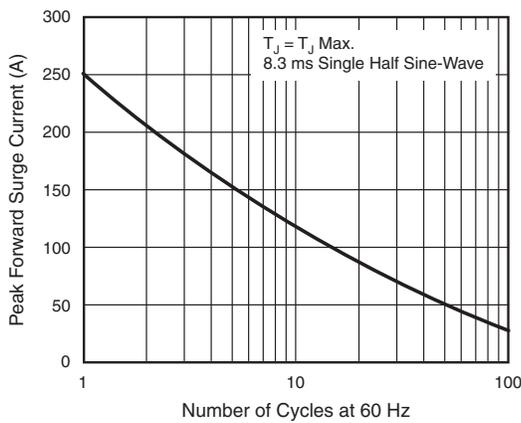


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

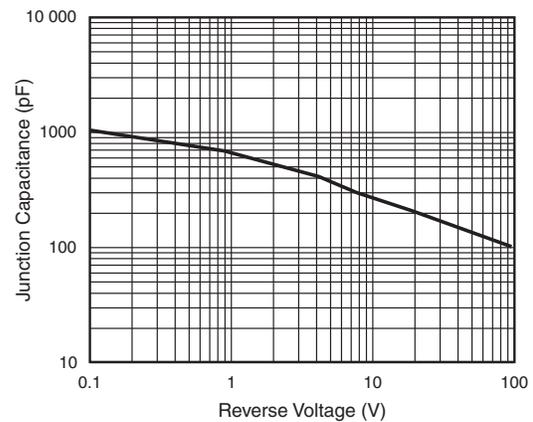


Fig. 5 - Typical Junction Capacitance Per Diode

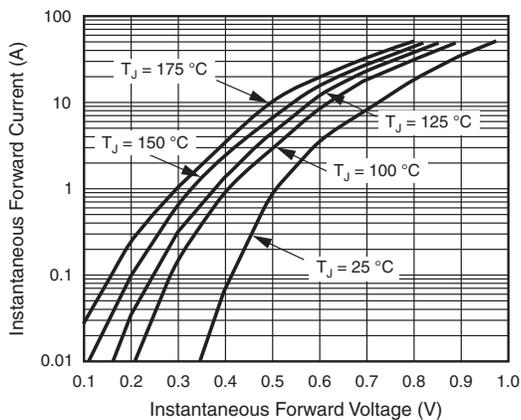


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

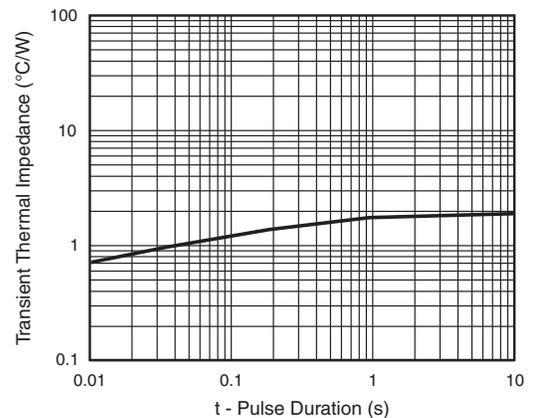
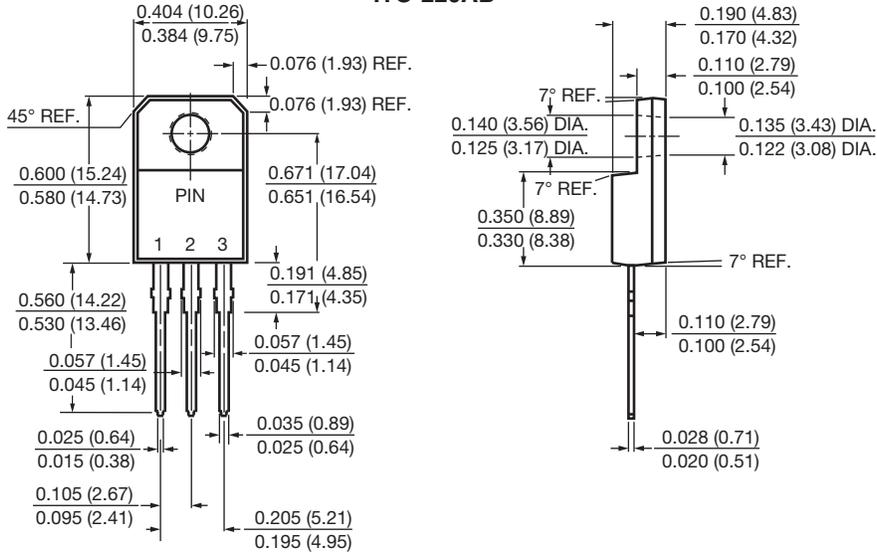


Fig. 6 - Typical Transient Thermal Impedance Per Diode

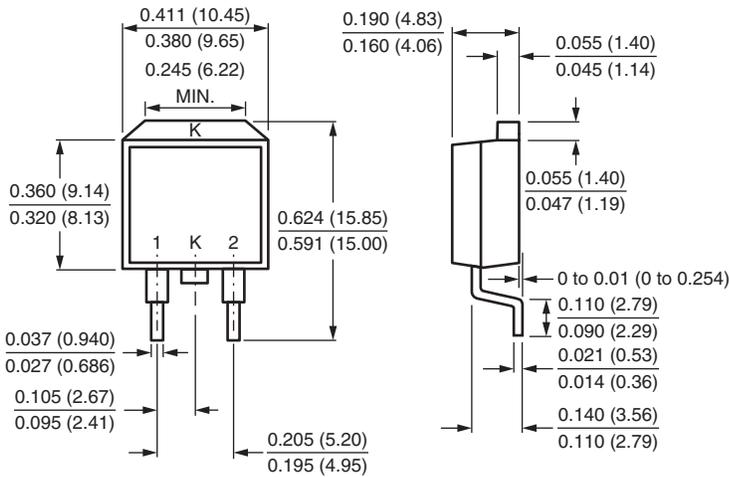


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

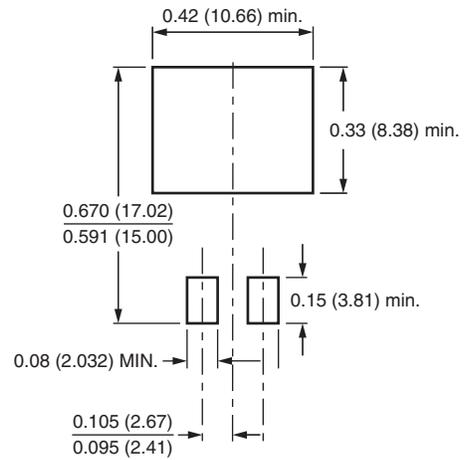
#### ITO-220AB



#### D<sup>2</sup>PAK (TO-263AB)



#### Mounting Pad Layout





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