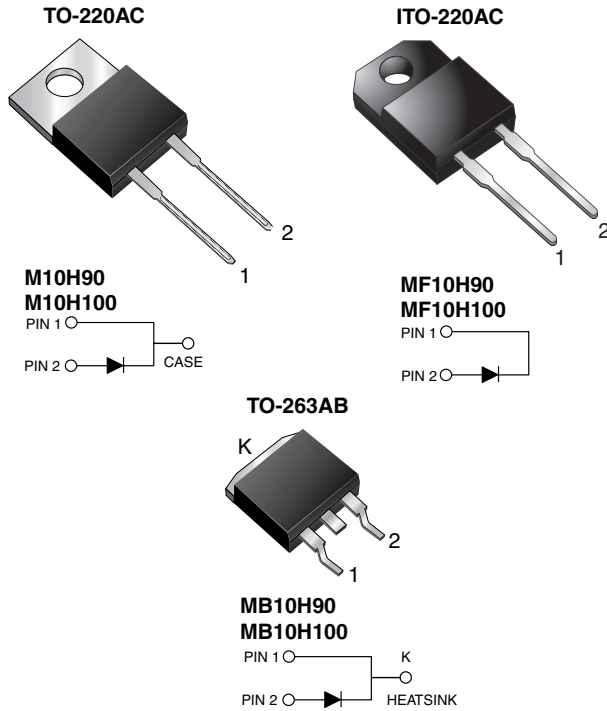


High Voltage Schottky Rectifier

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 TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHE3_A
- 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, or polarity protection application.

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, 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

$I_{F(AV)}$	10 A
V_{RRM}	90 V to 100 V
I_{FSM}	250 A
V_F	0.64 V
I_R	4.5 μ A
T_J max.	175 °C
Package	TO-220AC, ITO-220AC, TO-263AB
Diode variations	Single

MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	M10H90	M10H100	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	$I_{F(AV)}$	10		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	250		
Peak repetitive reverse current at $t_p = 2.0$ μ s, 1 kHz	I_{RRM}	0.5		
Voltage rate of change (rated V_F)	dV/dt	10 000		V/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175		°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1$ min	V_{AC}	1500		V



ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage	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	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 _C = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	M	MB	MF	UNIT
Typical thermal resistance	R _{θJC}	2.7	2.7	5.8	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	M10H100HE3_A/P ⁽¹⁾	1.80	P	50/tube	Tube
ITO-220AC	MF10H100HE3_A/P ⁽¹⁾	1.94	P	50/tube	Tube
TO-263AB	MB10H100HE3_A/P ⁽¹⁾	1.33	P	50/tube	Tube
TO-263AB	MB10H100HE3_A/I ⁽¹⁾	1.33	I	800/reel	Tape and reel

Note

- (1) AEC-Q101 qualified

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

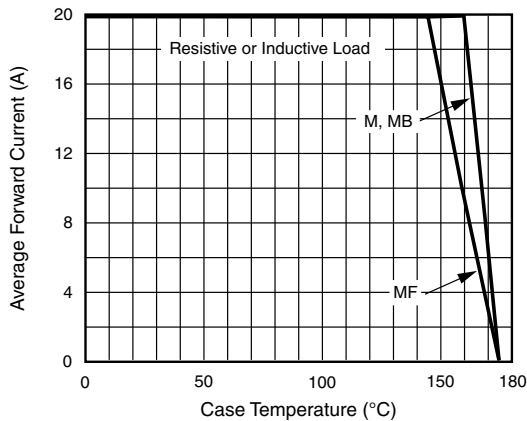


Fig. 1 - Forward Current Derating Curve

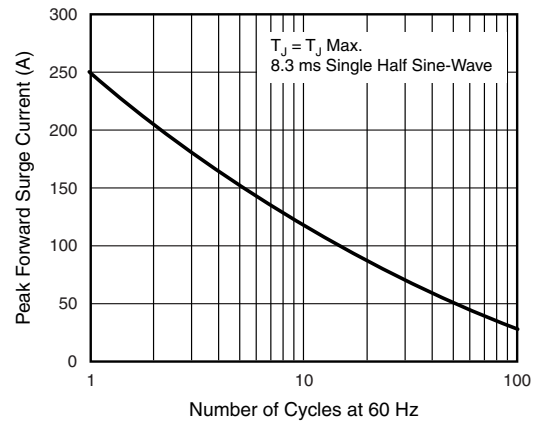


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

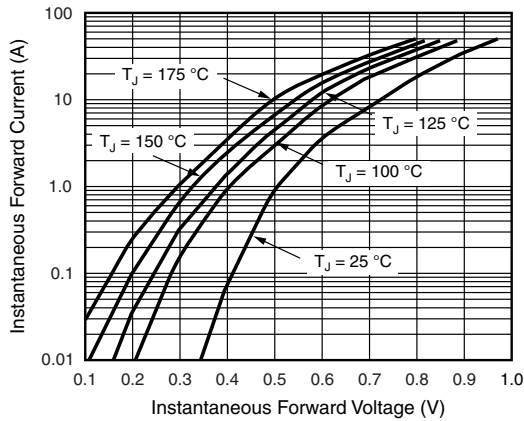


Fig. 3 - Typical Instantaneous Forward Characteristics

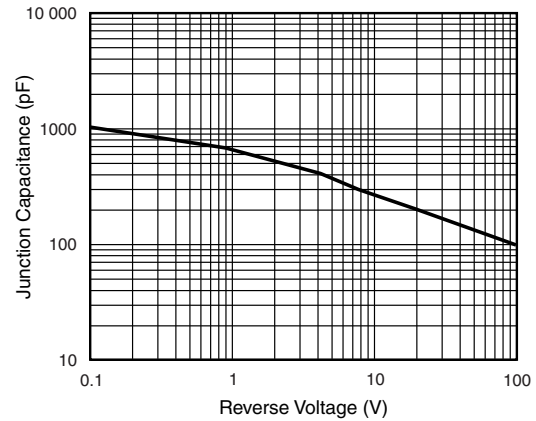


Fig. 5 - Typical Junction Capacitance

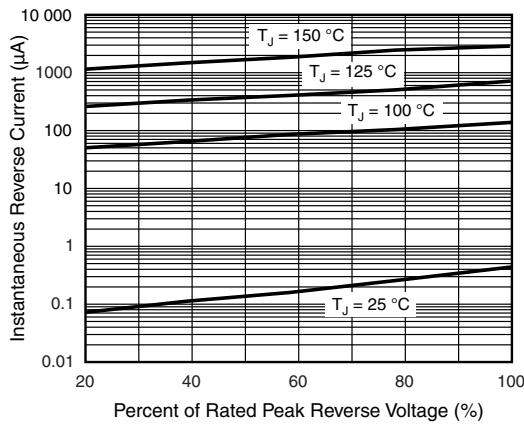


Fig. 4 - Typical Reverse Characteristics

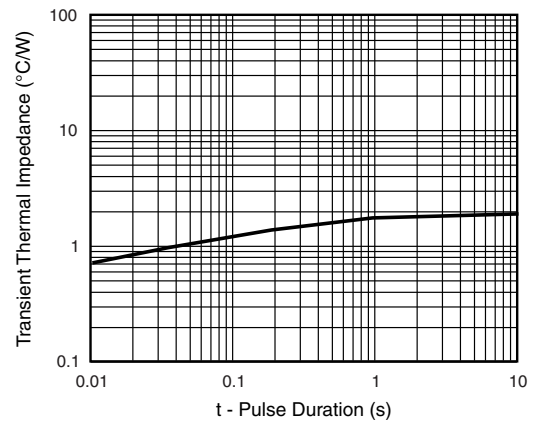
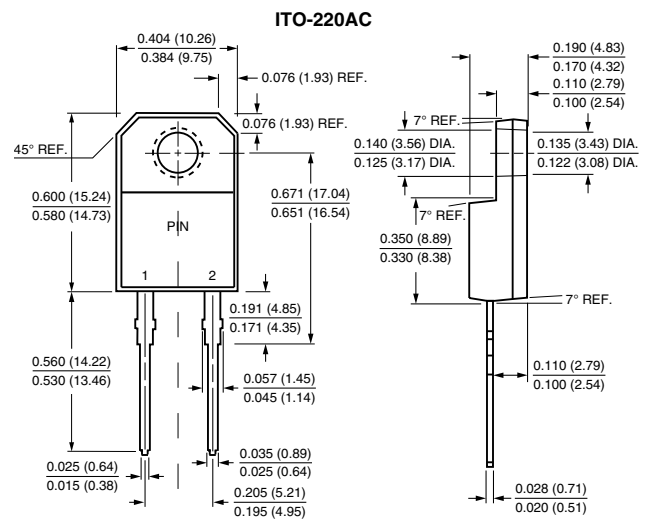
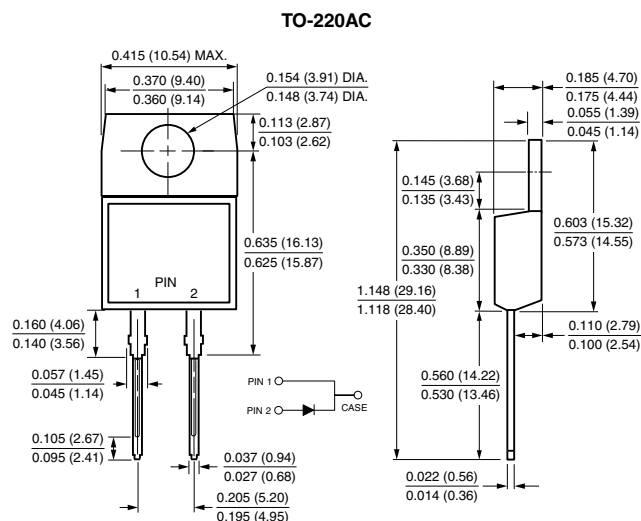


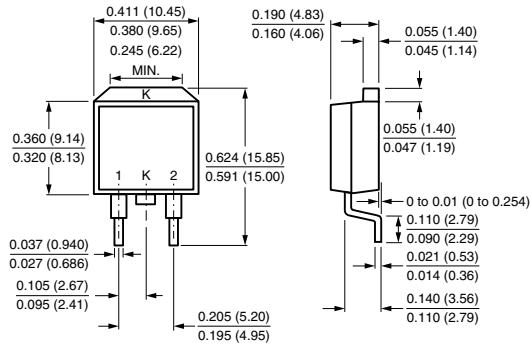
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

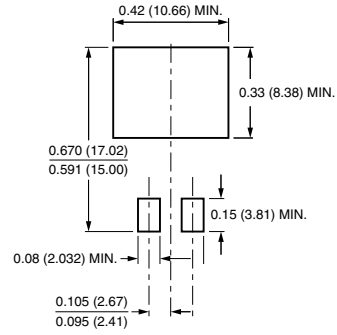




TO-263AB



Mounting Pad Layout





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