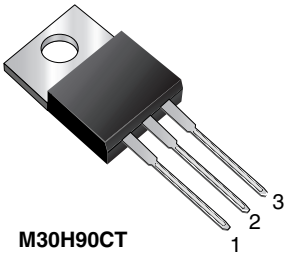
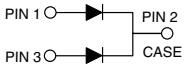
Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

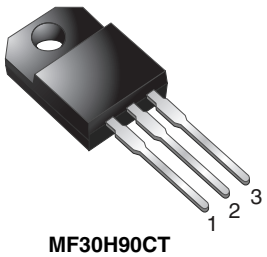
TO-220AB



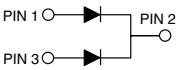
M30H90CT
M30H100CT



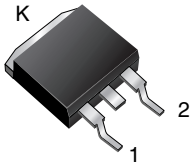
ITO-220AB



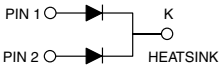
MF30H90CT
MF30H100CT



TO-263AB



MB30H90CT
MB30H100CT



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)
- 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, and polarity protection application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, 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	
$I_{F(AV)}$	15 A x 2
V_{RRM}	90 V to 100 V
I_{FSM}	275 A
V_F	0.67 V
I_R	5.0 µA
T_J max.	175 °C
Package	TO-220AB, ITO-220AB, TO-263AB
Diode variations	Dual common cathode

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

PARAMETER		SYMBOL	M30H90CT	M30H100CT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	90	100	V
Working peak reverse voltage		V_{RWM}	90	100	V
Maximum DC blocking voltage		V_{DC}	90	100	V
Maximum average forward rectified current (fig.1)	total device	$I_{F(AV)}$	30		A
	per diode		15		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	275		A
Peak repetitive reverse surge current per diode at t_p = 2.0 µs, 1 kHz		I_{RRM}	1.0		A
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

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MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**M30H90CT**	**M30H100CT**	**UNIT**
Isolation voltage (ITO-220AB only) from terminal to heat sink 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 per diode	V_F (1)	I_F = 15 A	T_J = 25 °C	0.82	V
		I_F = 15 A	T_J = 125 °C	0.67	
		I_F = 30 A	T_J = 25 °C	0.93	
		I_F = 30 A	T_J = 125 °C	0.80	
Maximum reverse current per diode	I_R (2)	Rated V_R	T_J = 25 °C	5.0	μA
			T_J = 125 °C	6.0	mA

Note

(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 per diode	$R_{\theta JC}$	1.9	1.9	4.6	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	M30H100CTHE3_A/P (1)	1.85	P	50/tube	Tube
ITO-220AB	MF30H100CTHE3_A/P (1)	1.99	P	50/tube	Tube
TO-263AB	MB30H100CTHE3_A/P (1)	1.35	P	50/tube	Tube
TO-263AB	MB30H100CTHE3_A/I (1)	1.35	I	800/reel	Tape and reel

Note

(1)AEC-Q101 qualified

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

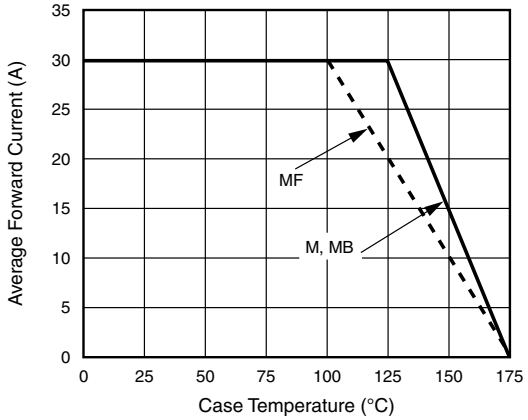


Fig. 1 - Forward Derating Curve Per Diode

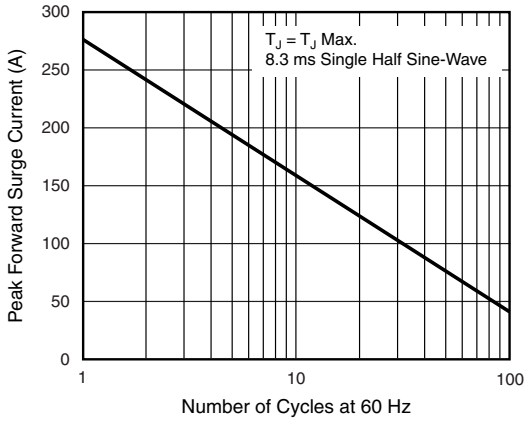


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

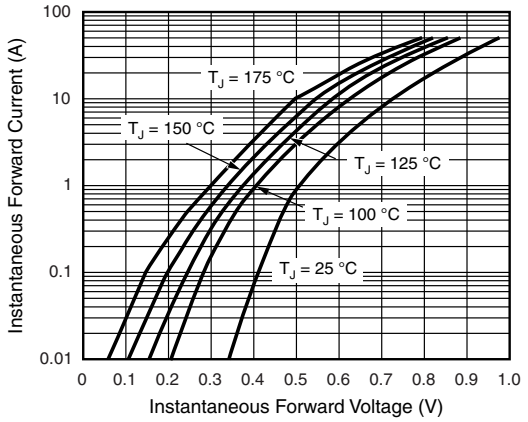


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

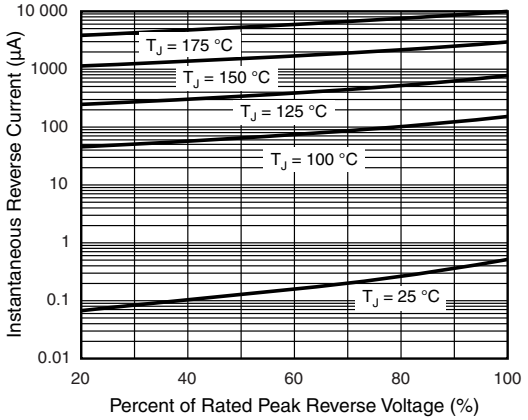


Fig. 4 - Typical Reverse Characteristics Per Diode

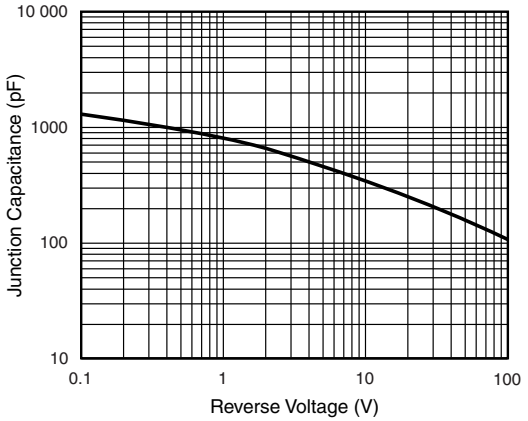


Fig. 5 - Typical Junction Capacitance Per Diode

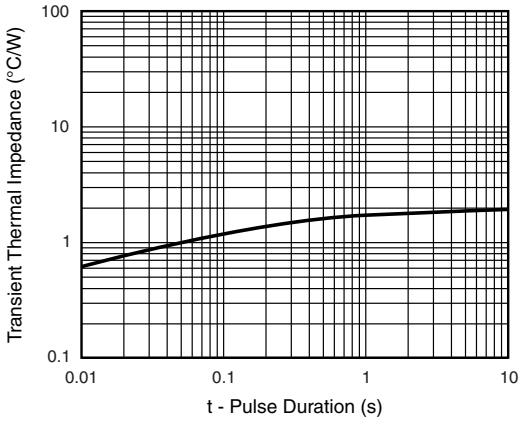
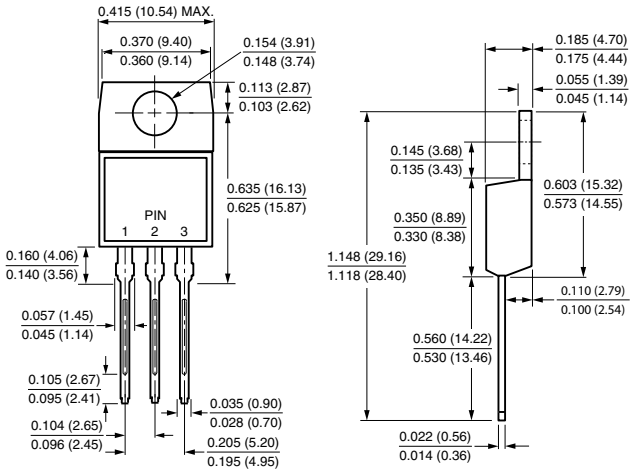


Fig. 6 - Typical Transient Thermal Impedance Per Diode

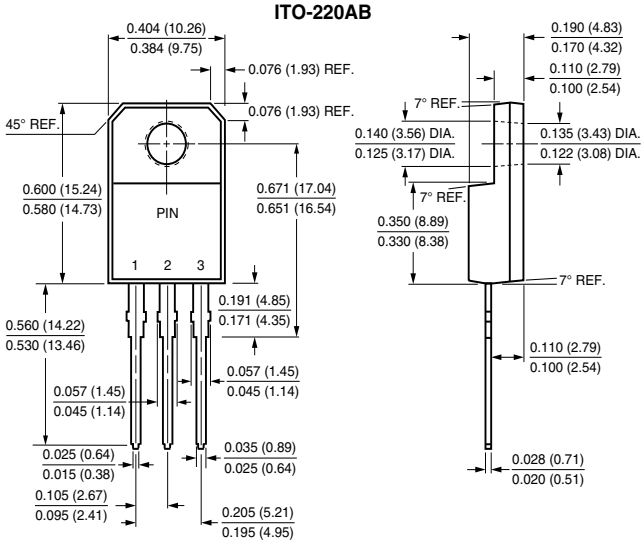
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

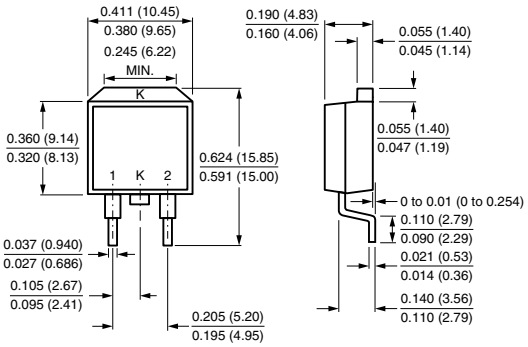
TO-220AB



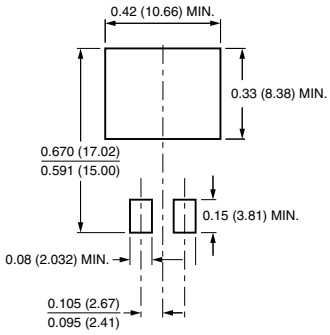
ITO-220AB



TO-263AB



Mounting Pad Layout



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