

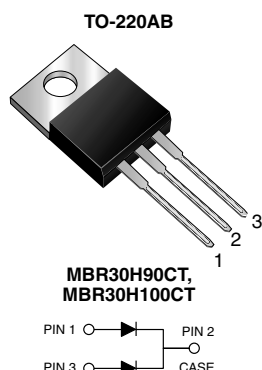


MBR30H90CT, MBR30H100CT

Vishay General Semiconductor

Dual Common-Cathode High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters or polarity protection application.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

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

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	90 V, 100 V
I_{FSM}	275 A
V_F	0.67 V
I_R	5.0 μ A
T_J max.	175 °C

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

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PARAMETER		SYMBOL	MBR30H90CT	MBR30H100CT	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		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	275		A
Peak repetitive reverse current per diode at t _p = 2 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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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage per diode	I _F = 15 A	T _J = 25 °C	V _F ⁽¹⁾	0.82	V
		T _J = 125 °C		0.67	
	I _F = 30 A	T _J = 25 °C		0.93	
		T _J = 125 °C		0.80	
Maximum reverse current at rated V _R per diode			I _R ⁽²⁾	5.0	μA
				6.0	mA

Notes

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

(2) Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MBR30H90CT	MBR30H100CT	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	1.9		$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR30H100CT-M3/4W	1.85	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

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

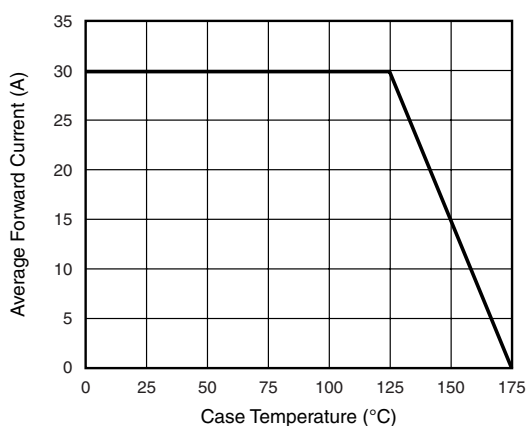


Fig. 1 - Forward Derating Curve Per Diode

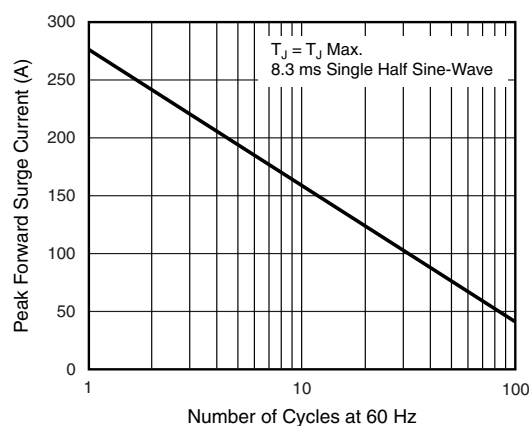


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

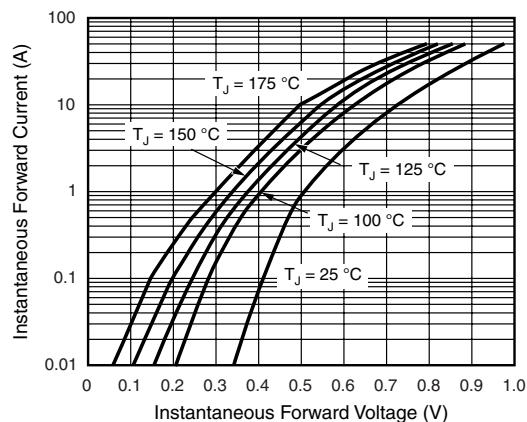


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

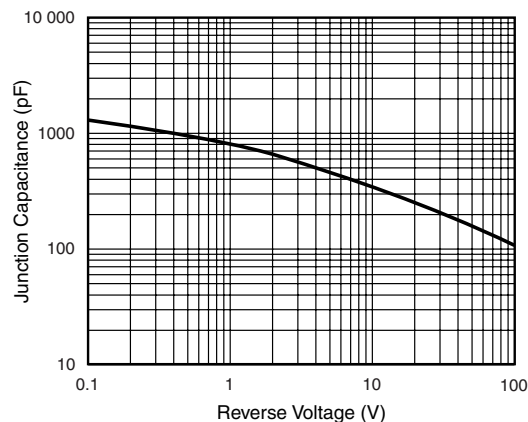


Fig. 5 - Typical Junction Capacitance Per Diode

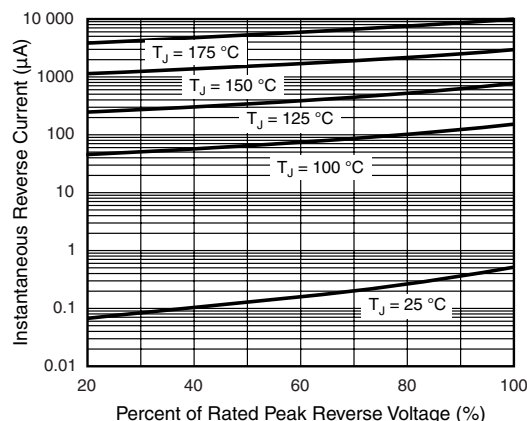


Fig. 4 - Typical Reverse Characteristics Per Diode

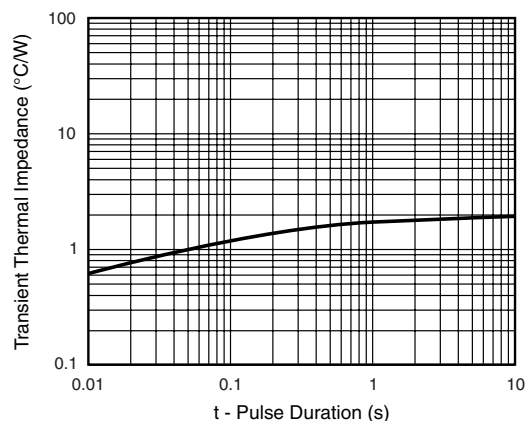
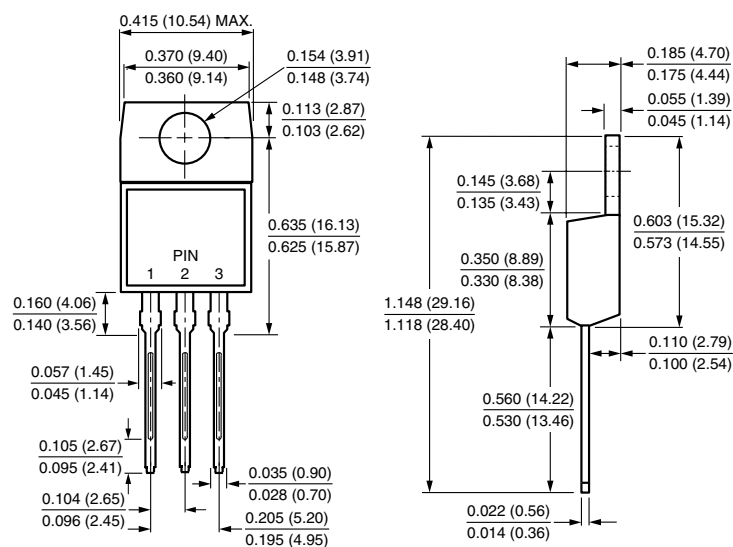


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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