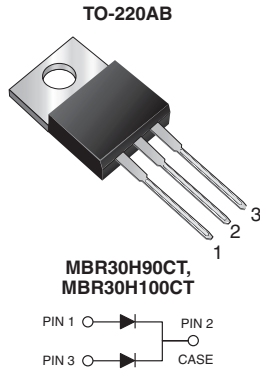


# Dual Common-Cathode High-Voltage Schottky Rectifier

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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## TYPICAL APPLICATIONS

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

## 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 $\mu$ A
$T_J$ max.	175 °C

## MECHANICAL DATA

**Case:** TO-220AB

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

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

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	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 $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175		°C



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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT	
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 15\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	0.82	V
			$T_J = 125\text{ }^\circ\text{C}$	0.67	
		$I_F = 30\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	0.93	
			$T_J = 125\text{ }^\circ\text{C}$	0.80	
Maximum reverse current at rated $V_R$ per diode	$I_R^{(2)}$	$T_J = 25\text{ }^\circ\text{C}$	5.0	$\mu\text{A}$	
		$T_J = 125\text{ }^\circ\text{C}$	6.0	mA	

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  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	$R_{\theta\text{JC}}$	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)

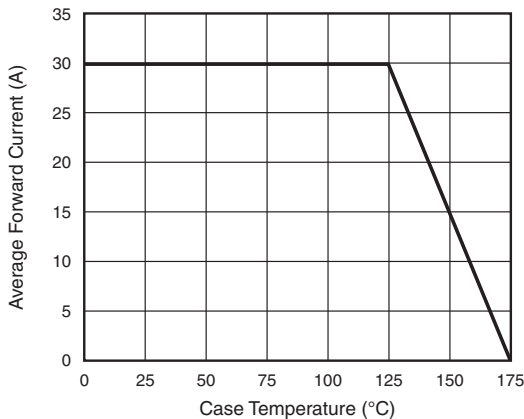


Fig. 1 - Forward Derating Curve Per Diode

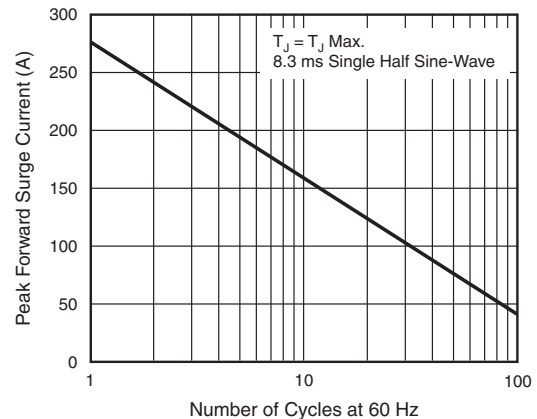


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

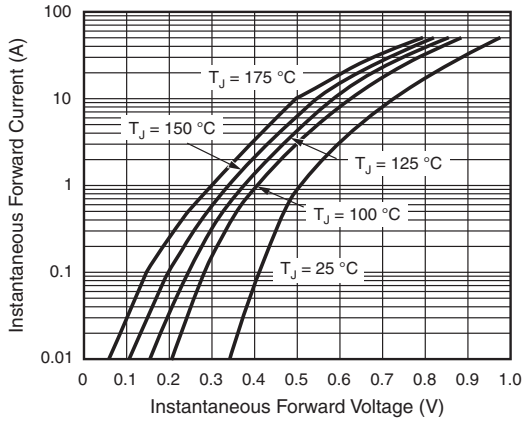


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

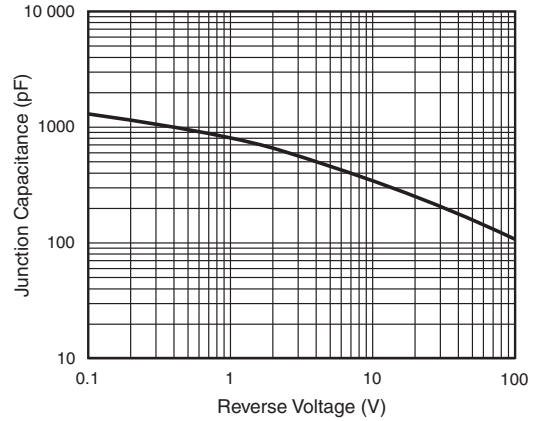


Fig. 5 - Typical Junction Capacitance Per Diode

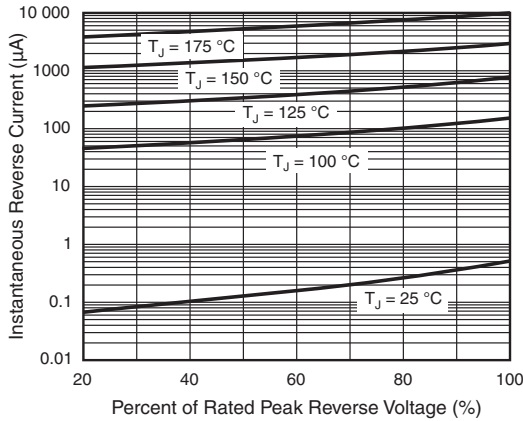


Fig. 4 - Typical Reverse Characteristics Per Diode

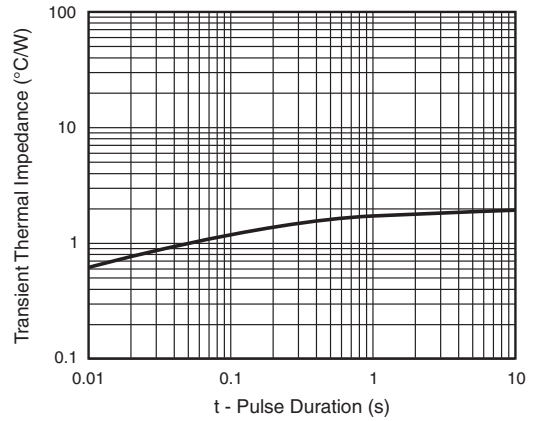
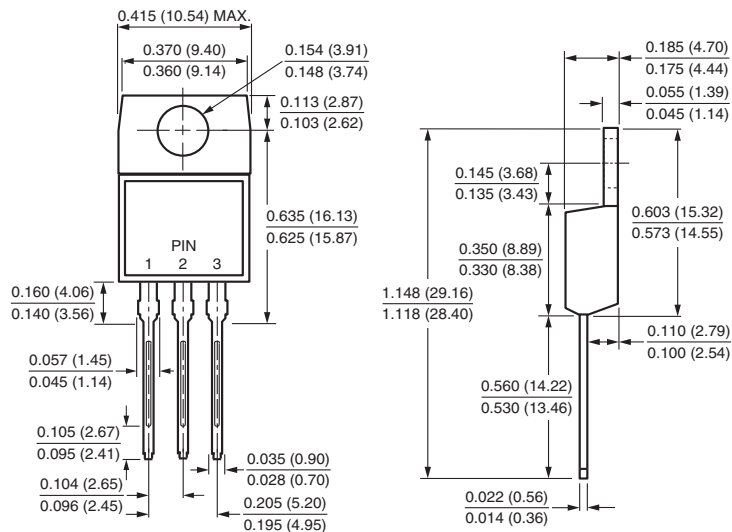


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB





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