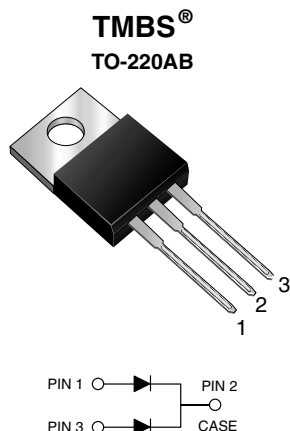




Dual Common-Cathode High-Voltage Schottky Rectifier



FEATURES

- Trench MOS Schottky technology
- Lower power losses, high efficiency
- Low forward voltage drop
- 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/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, 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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 10 A
V_{RRM}	90 V, 100 V
I_{FSM}	150 A
V_F	0.65 V
T_J max.	150 °C

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted)

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PARAMETER	SYMBOL	MBR2090CT	MBR20100CT	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 at T _C = 133 °C	total device	20		A
	per diode	10		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	150		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 + 150		°C

MBR2090CT, MBR20100CT

Vishay General Semiconductor



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

PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 10\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	$V_F^{(1)}$	0.80	V
		$T_C = 125\text{ }^{\circ}\text{C}$		0.65	
	$I_F = 20\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$		0.75	
Maximum reverse current per diode at working peak reverse voltage			$I_R^{(2)}$	100	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 ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR2090CT, MBR20100CT	UNIT
Typical thermal resistance per diode	$R_{\theta JA}$	60	$^{\circ}\text{C/W}$
	$R_{\theta JC}$	2.0	

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR20100CT-M3/4W	1.88	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

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

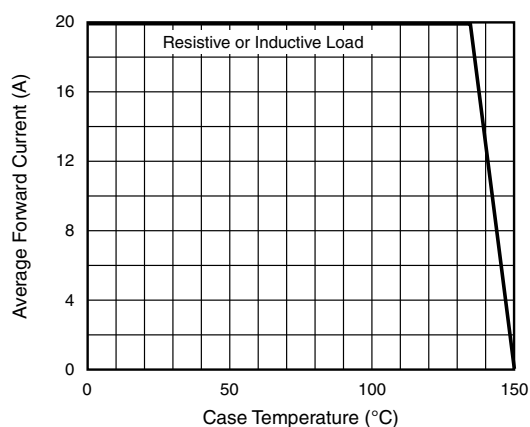


Figure 1. Forward Current Derating Curve

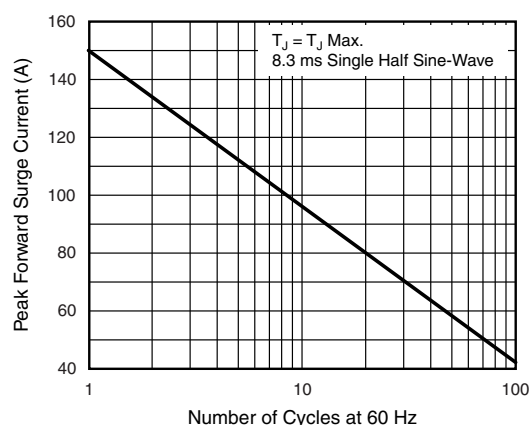


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

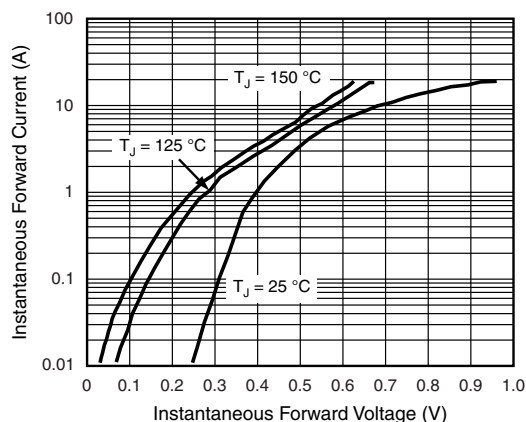


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

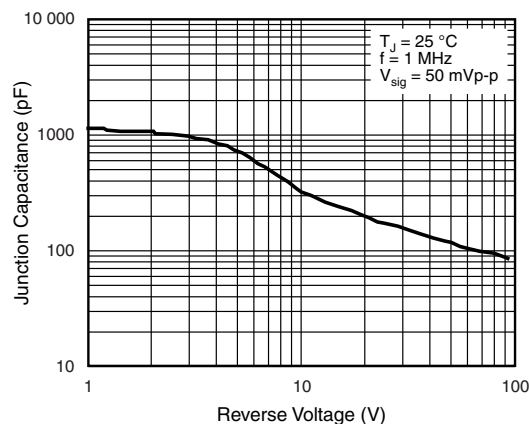


Figure 5. Typical Junction Capacitance Per Diode

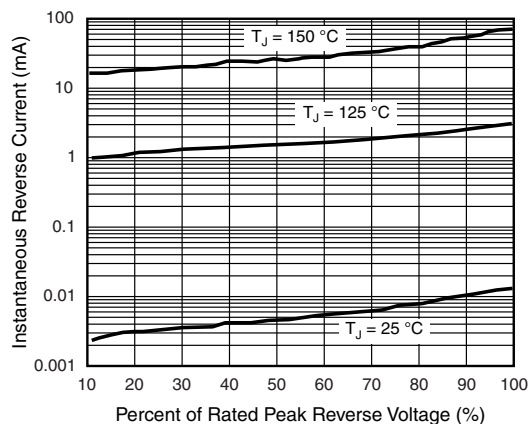


Figure 4. Typical Reverse Characteristics Per Diode

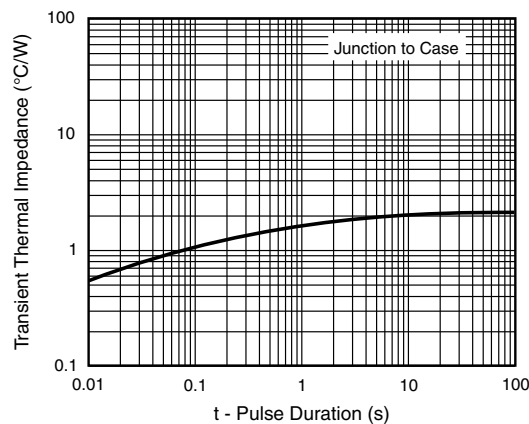
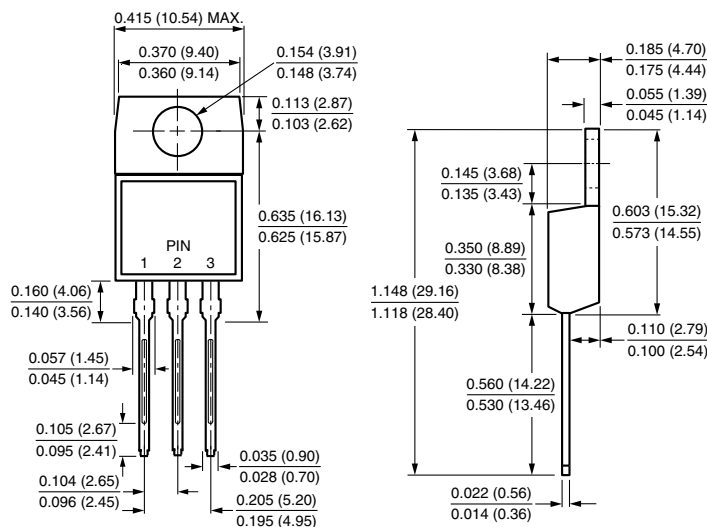


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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