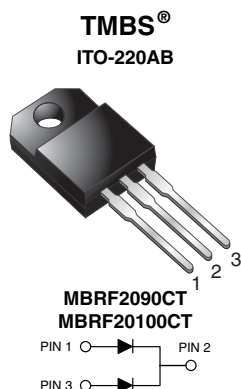




# MBRF2090CT, MBRF20100CT

Vishay General Semiconductor

## Dual Common-Cathode High-Voltage Schottky Rectifier



### FEATURES

- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 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:** ITO-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
$V_F$ at $I_F = 10$ A	0.65 V
$T_J$ max.	150 °C

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

PARAMETER	SYMBOL	MBRF2090CT	MBRF20100CT	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	90	100	V
Working peak reverse voltage	V <sub>RWM</sub>	90	100	V
Maximum DC blocking voltage	V <sub>DC</sub>	90	100	V
Maximum average forward rectified current at T <sub>C</sub> = 133 °C	total device	I <sub>F(AV)</sub>	20	A
	per diode		10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	150		A
Voltage rating of change (rated V <sub>R</sub> )	dV/dt	10 000		V/μs
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 150		°C
Isolation voltage from termal to heatsink t = 1 min	V <sub>AC</sub>	1500		V

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**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 <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.80	V
		T <sub>C</sub> = 125 °C		0.65	
	I <sub>F</sub> = 20 A			0.75	
Maximum reverse current per diode at working peak reverse voltage			I <sub>R</sub> <sup>(2)</sup>	100	μA
				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** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	MBRF	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	3.5	$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	MBRF20100CT-M3/4W	1.75	4W	50/tube	Tube

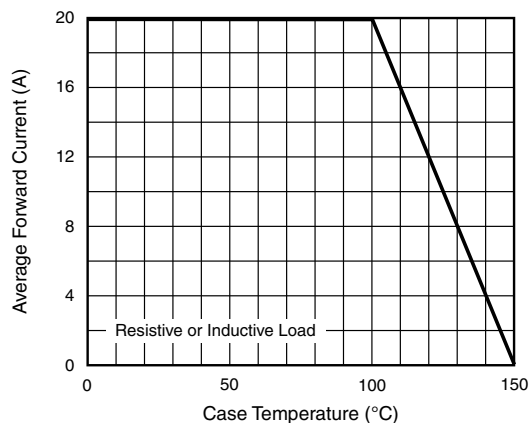
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

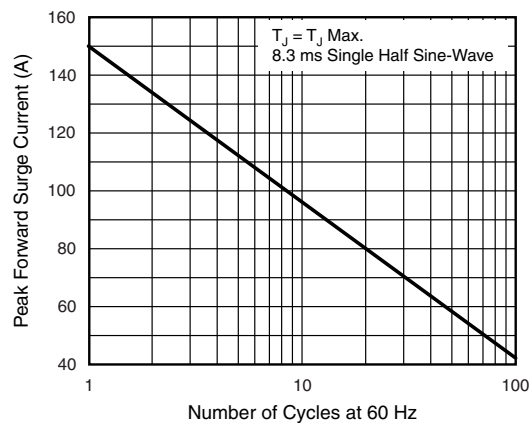


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

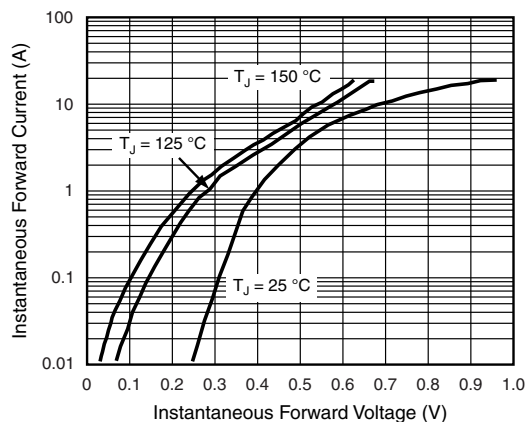


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

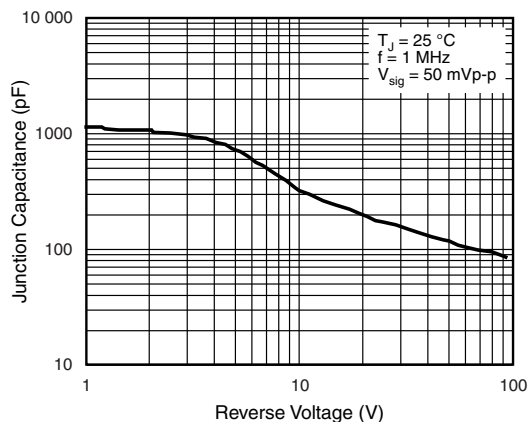


Fig. 5 - Typical Junction Capacitance Per Diode

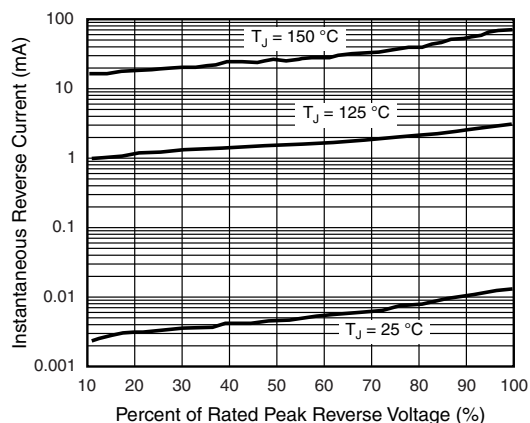


Fig. 4 - Typical Reverse Characteristics Per Diode

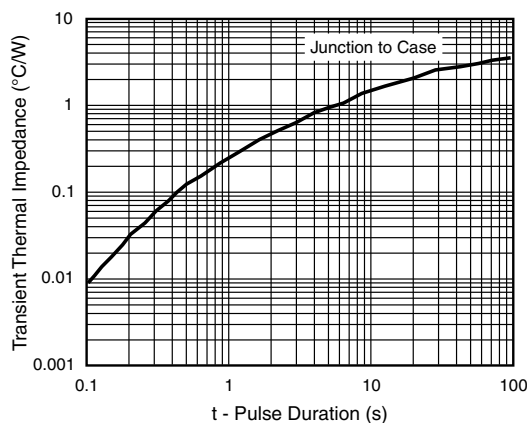
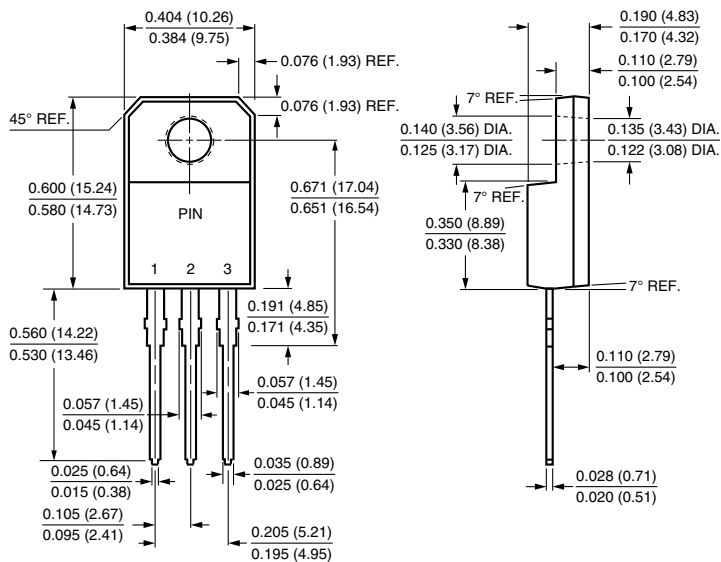


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### ITO-220AB





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