

# Vishay General Semiconductor

## **Trench MOS Barrier Schottky Rectifier**

Ultra Low  $V_F = 0.58 \text{ V}$  at  $I_F = 2.5 \text{ A}$ 



PRIMARY CHARACTERISTICS				
Package	TO-220AB			
I <sub>F(AV)</sub>	2 x 5.0 A			
$V_{RRM}$	200 V			
I <sub>FSM</sub>	80 A			
V <sub>F</sub> at I <sub>F</sub> = 5.0 A	0.65 V			
T <sub>J</sub> max.	150 °C			
Diode variations	Common cathode			

#### **FEATURES**

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses

• High efficiency operation

RoHS COMPLIANT HALOGEN

- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters, and reverse battery protection.

#### **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 <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VT10200C	UNIT
Maximum repetitive peak reverse voltage		$V_{RRM}$	200	V
Maximum average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	10.0	- A
	per diode		5.0	
Peak forward surge current 8.3 ms single half sine-way on rated load per diode	I <sub>FSM</sub>	80	А	
Voltage rate 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>	-40 to +150	°C

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	$V_{BR}$	200 (minimum)	-	V
Instantaneous forward voltage per diode	I <sub>F</sub> = 2.5 A	- T <sub>A</sub> = 25 °C - T <sub>A</sub> = 125 °C	V <sub>F</sub> <sup>(1)</sup>	0.81	-	V
	I <sub>F</sub> = 5.0 A			1.10	1.60	
	I <sub>F</sub> = 2.5 A			0.58	-	
	I <sub>F</sub> = 5.0 A			0.65	0.73	
Reverse current per diode	V <sub>R</sub> = 180 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	1.7	-	μΑ
		T <sub>A</sub> = 125 °C		1.8	-	mA
	I Vn = 200 V -	T <sub>A</sub> = 25 °C		-	150	μA
		T <sub>A</sub> = 125 °C		2.5	10	mA

#### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms



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THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VT10200C	UNIT
Typical thermal resistance	per diode	$R_{ hetaJC}$	3.5	°C/W
	per device		2.5	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-220AB	VT10200C-M3/4W	1.88	4W	50/tube	Tube	

### **RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25$ °C unless otherwise noted)

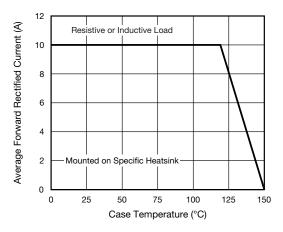


Fig. 1 - Maximum Forward Current Derating Curve

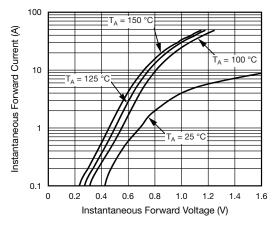


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

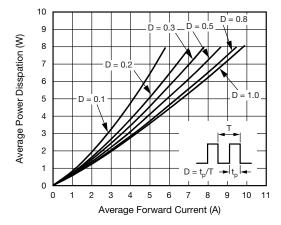


Fig. 2 - Forward Power Loss Characteristics Per Device

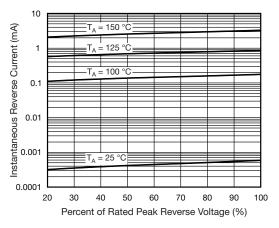


Fig. 4 - Typical Reverse Characteristics Per Diode



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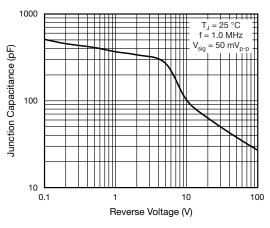


Fig. 5 - Typical Junction Capacitance Per Diode

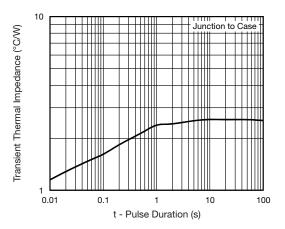
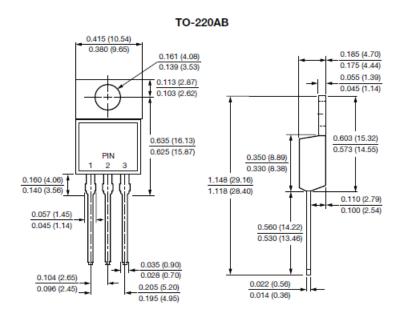


Fig. 6 - Typical Transient Thermal Impedance Per Device

#### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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