Vishay General Semiconductor

Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.58$ V at $I_F = 2.5$ A



PRIMARY CHARACTERISTICS					
Package	TO-220AB				
I _{F(AV)}	2 x 5.0 A				
V _{RRM}	200 V				
I _{FSM}	80 A				
V _F at I _F = 5.0 A	0.65 V				
T _J max.	150 °C				
Diode variations	Common cathode				

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
 FREE
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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 ($T_A = 25$ °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	1	10.0	^	
	per diode	IF(AV)	5.0	— A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	80	A	
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
Operating junction and storage temperature range		TJ, T _{STG}	-40 to +150	°C	

ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	l _R = 1.0 mA	T _A = 25 °C	V _{BR}	200 (minimum)	-	V	
Instantaneous forward voltage per diode	I _F = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.81	-	V	
	$I_{F} = 5.0 \text{ A}$			1.10	1.60		
	I _F = 2.5 A	T _A = 125 °C		0.58	-		
	I _F = 5.0 A			0.65	0.73		
Reverse current per diode	V _R = 180 V	T _A = 25 °C	I _R (2)	1.7	-	μA	
		T _A = 125 °C		1.8	-	mA	
	V _R = 200 V	T _A = 25 °C		-	150	μA	
		T _A = 125 °C		2.5	10	mA	

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 40 ms

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THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER		SYMBOL	VT10200C	UNIT	
Typical thermal resistance	per diode	$R_{ ext{ heta}JC}$	3.5	°C/W	
Typical thermal resistance	per device		2.5	0/10	

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)

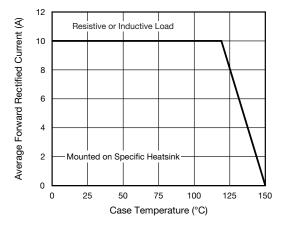


Fig. 1 - Maximum Forward Current Derating Curve

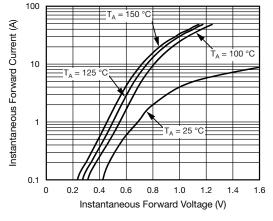


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

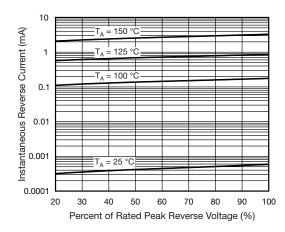


Fig. 4 - Typical Reverse Characteristics Per Diode

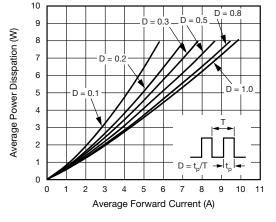
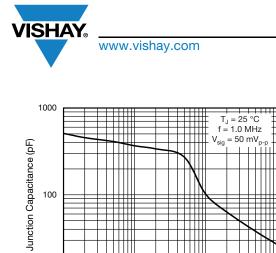


Fig. 2 - Forward Power Loss Characteristics Per Device

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1

10

0.1

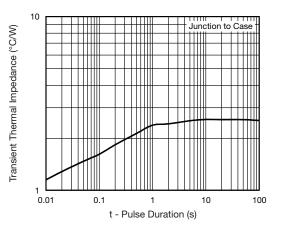


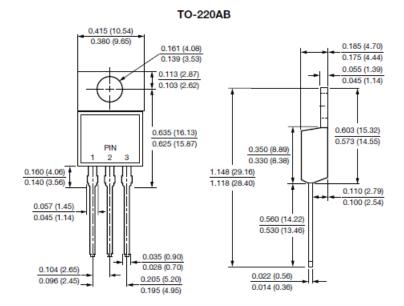
Fig. 6 - Typical Transient Thermal Impedance Per Device

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

10

Reverse Voltage (V) Fig. 5 - Typical Junction Capacitance Per Diode

100





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