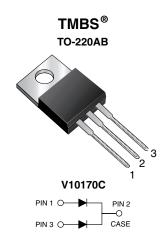


Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.57 \text{ V}$ at $I_F = 2.5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 5 A			
V_{RRM}	170 V			
I _{FSM}	80 A			
V _F at I _F = 5.0 A	0.65 V			
T _J max.	175 °C			
Package	TO-220AB			
Diode variation	Dual common cathode			

FEATURES

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

ROHS COMPLIANT HALOGEN

FREE

- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, 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	V10170C	UNIT	
Maximum repetitive peak reverse voltage		V _{RRM}	170	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	10	А	
	per diode		5		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	80	А	
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +175	°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.74	-	V	
	I _F = 5.0 A			0.84	1.03		
	$I_F = 2.5 A$	T _A = 125 °C		0.57	-		
	$I_F = 5.0 \text{ A}$			0.65	0.74		
Reverse current per diode	V _R = 136 V	T _A = 25 °C	I _R ⁽²⁾	0.3	-	μΑ	
		T _A = 125 °C		0.9	-	mA	
	V _R = 170 V	T _A = 25 °C		-	90	μΑ	
		T _A = 125 °C		1.3	10	mA	

Notes

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

(2) Pulse test: Pulse width \leq 20 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V10170C	UNIT	
Typical thermal resistance	per diode	$R_{ hetaJC}$	3.0	°C/W	
	per device		1.7		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V10170C-M3/4W	1.87	4W	50/tube	Tube		

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

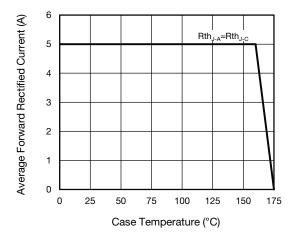


Fig. 1 - Maximum Forward Current Derating Curve

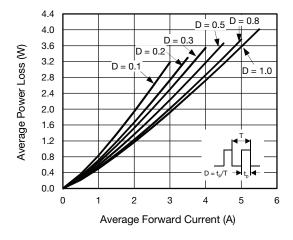


Fig. 2 - Forward Power Loss Characteristics Per Diode



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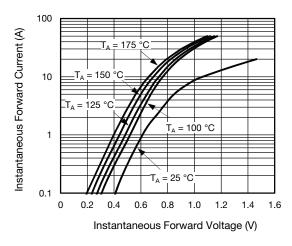


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

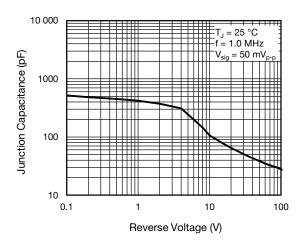


Fig. 5 - Typical Junction Capacitance Per Diode

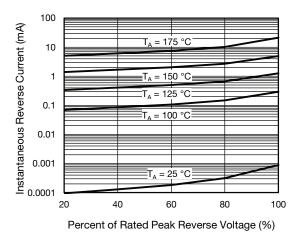


Fig. 4 - Typical Reverse Characteristics Per Diode

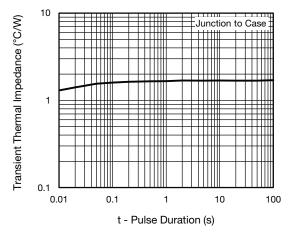


Fig. 6 - Typical Transient Thermal Impedance Per Device

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB 0.415 (10.54) 0.185 (4.70) 0.161 (4.08) 0.175 (4.44) 0.139 (3.53) 0.055 (1.39) 0.113 (2.87) 0.045 (1.14) 0.103 (2.62) 0.635 (16.13) 0.603 (15.32) 0.625 (15.87) PIN 0.350 (8.89) 0.330 (8.38 0.160 (4.06) 1.148 (29.16) 0.110 (2.79) 0.057 (1.45 0.045 (1.14) 0.560 (14.22) 0.104 (2.65) 0.022 (0.56) 0.205 (5.20) 0.014 (0.36 0.195 (4.95)



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