

Vishay General Semiconductor

Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.36 \text{ V}$ at $I_F = 5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 30 A			
V_{RRM}	100 V			
I _{FSM}	320 A			
V _F at I _F = 30 A	0.66 V			
T _J max.	150 °C			
Package	TO-220AB			
Diode variation	Common cathode			

FEATURES

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

High efficiency operation

RoHS HALOGEN FREE

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

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 max.

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V60100C	UNIT	
Max. repetitive peak reverse voltage		V _{RRM}	100	V	
Max. average forward rectified current (fig. 1)	per device	,	60	^	
	per diode	I _F (AV)	30	A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	320	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 +150	°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V_{BR}	100 (min.)	-	V	
Instantaneous forward voltage per diode	I _F = 5 A		V _F ⁽¹⁾	0.45	-	V	
	I _F = 10 A			0.52	-		
	I _F = 15 A	T _A = 25 °C		0.58	0.63		
	I _F = 20 A			0.63	-		
	I _F = 30 A			0.73	0.79		
	I _F = 5 A	T _A = 125 °C		0.36	-		
	I _F = 10 A			0.45	-		
	I _F = 15 A		°C	0.53	0.58		
	I _F = 20 A			0.58	-		
	I _F = 30 A			0.66	0.70		
Reverse current at rated V _R per diode	V _R = 80 V	T _A = 25 °C T _A = 125 °C	I _R ⁽²⁾	24	500	μΑ	
	v _R = 60 v			13	20	mA	
	V _R = 100 V	T _A = 25 °C		65	1000	μΑ	
	v _R = 100 v	T _A = 125 °C		30	-	mA	

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V60100C	UNIT	
Typical thermal resistance per diode	$R_{\theta JC}$	2.5	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-220AB	V60100C-M3/4W	1.89	4W	50/tube	Tube	

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

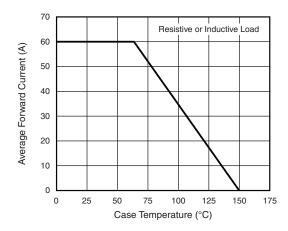


Fig. 1 - Forward Current Derating Curve

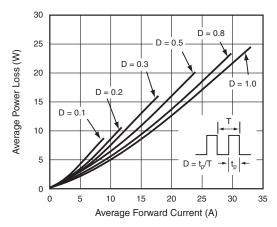


Fig. 2 - Forward Power Loss Characteristics Per Diode



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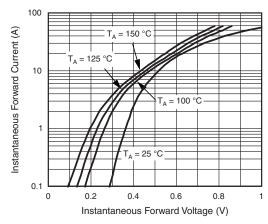


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

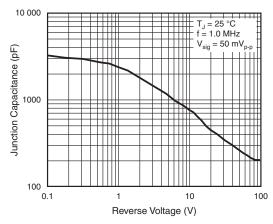


Fig. 5 - Typical Junction Capacitance Per Diode

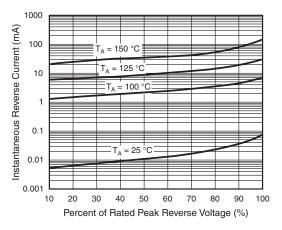


Fig. 4 - Typical Reverse Characteristics Per Diode

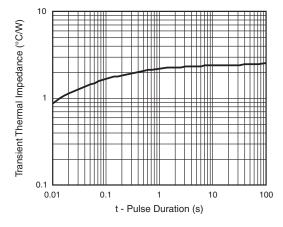


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB 0.415 (10.54) 0.380 (9.65) 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) 0.603 (15.32) 0.635 (16.13) 0.573 (14.55) 0.625 (15.87) PIN 0.350 (8.89) 0.330 (8.38) 0.160 (4.06) 1.148 (29.16) 0.140 (3.56) 1.118 (28.40) 0.110 (2.79) 0.100 (2.54) 0.057 (1.45) 0.045 (1.14) 0.560 (14.22) 0.530 (13.46) 0.035 (0.90) 0.028 (0.70) 0.104 (2.65) 0.022 (0.56) 0.205 (5.20) 0.096 (2.45) 0.014 (0.36) 0.195 (4.95)



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