

Vishay General Semiconductor

Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.53 \text{ V}$ at $I_F = 5 \text{ A}$

TMBS® TO-220AB



V30M100M



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15 A			
V _{RRM}	100 V			
I _{FSM}	120 A			
V _F at I _F = 15 A (T _A = 125 °C)	0.70 V			
T _J max.	175 °C			
Package	TO-220AB			
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 RoHS

Material categorization: for definitions of

compliance please see www.vishav.com/doc?99912

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-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 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	V30M100M	UNIT		
Maximum repetitive peak reverse voltage		V_{RRM}	100	V		
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	30	Α		
	per diode		15			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	120	А		
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs		
Operating junction and storage temperature range		T_J , T_{STG}	-55 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 = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.59	-	V	
	$I_F = 7.5 A$			0.66	-		
	I _F = 15 A			0.85	0.93		
	I _F = 5 A	T _A = 125 °C		0.53	-		
	I _F = 7.5 A			0.59	-		
	I _F = 15 A			0.70	0.78		
Reverse current per diode	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	3.0	-	μA	
		T _A = 125 °C		1.0	-	mA	
	V _R = 100 V	T _A = 25 °C		-	1000	μA	
		T _A = 125 °C		3.0	16	mA	

Notes

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

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL V30M100M		UNIT	
Typical thermal resistance	per diode	R _θ JC	1.8		
	per device		0.9	°C/W	
	per device	R ₀ JA (1)(2)	40		

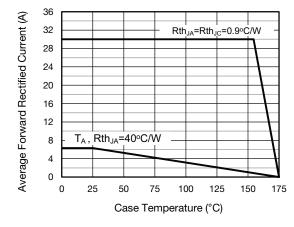
Notes

(1) The heat generated must be less than the thermal conductivity from junction-to-ambient $dP_D/dT_J < 1/R_{\theta JA}$

⁽²⁾ Free air, without heatsink

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V30M100M-E3/4W	1.88	4W	50/tube	Tube		

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





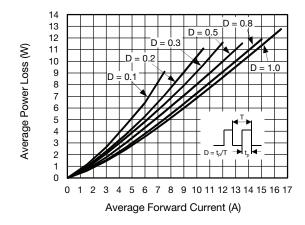


Fig. 2 - Forward Power Loss Characteristics Per Diode



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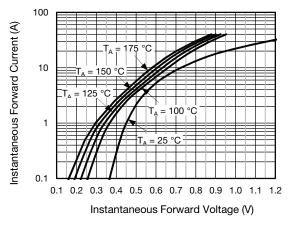


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

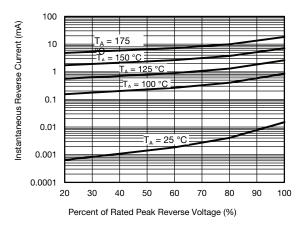


Fig. 4 - Typical Reverse Characteristics Per Diode

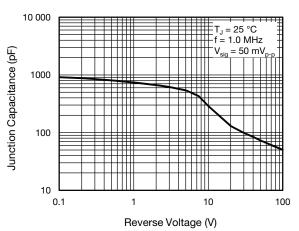


Fig. 5 - Typical Junction Capacitance Per Diode

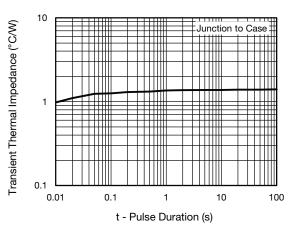


Fig. 6 - Typical Transient Thermal Impedance Per Device

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) 1.148 (29.16) 1.118 (28.40) 0.160 (4.06) 0.140 (3.56) 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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