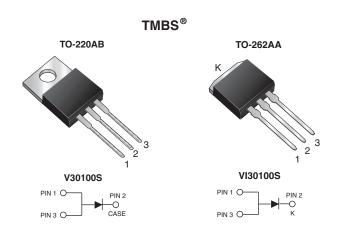


Vishay General Semiconductor

High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.39 \text{ V}$ at $I_F = 5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	30 A			
V _{RRM}	100 V			
I _{FSM}	250 A			
V _F at I _F = 30 A	0.69 V			
T _J max.	150 °C			
Package	TO-220AB, TO-262AA			
Diode variations	Single			

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 DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB and TO-262AA

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	V30100S	VI30100S	UNIT		
Maximum repetitive peak reverse voltage	V _{RRM}	100		V		
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	30		А		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	250		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
Instantaneous forward voltage	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.47	-	V
	I _F = 10 A			0.55	-	
	I _F = 30 A			0.80	0.91	
	I _F = 5 A	T _A = 125 °C		0.39	-	
	I _F = 10 A			0.49	-	
	I _F = 30 A			0.69	0.78	
Reverse current	V _R = 70 V	T _A = 25 °C	I _R (2)	27	-	μΑ
		T _A = 125 °C		11	-	mA
	V _R = 100 V	T _A = 25 °C		70	1000	μΑ
		T _A = 125 °C		23	45	mA

Notes

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

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V30100S VI30100S		UNIT
Typical thermal resistance	$R_{\theta JC}$	2.0		°C/W

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-220AB	V30100S-M3/4W	1.88	4W	50/tube	Tube	
TO-262AA	VI30100S-M3/4W	1.45	4W	50/tube	Tube	



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

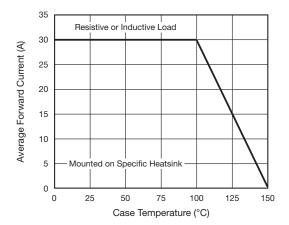


Fig. 1 - Forward Current Derating Curve

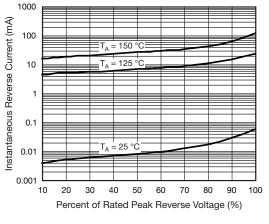


Fig. 4 - Typical Reverse Characteristics

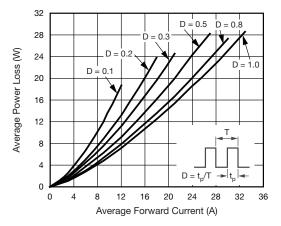


Fig. 2 - Forward Power Loss Characteristics

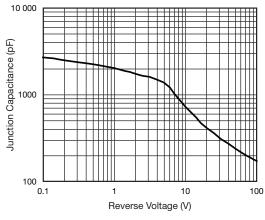


Fig. 5 - Typical Junction Capacitance

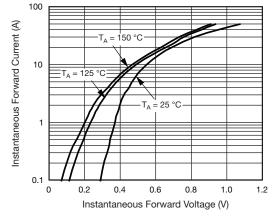


Fig. 3 - Typical Instantaneous Forward Characteristics

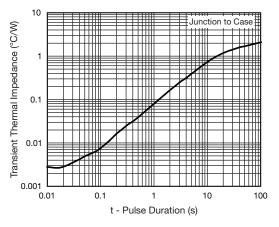


Fig. 6 - Typical Transient Thermal Impedance

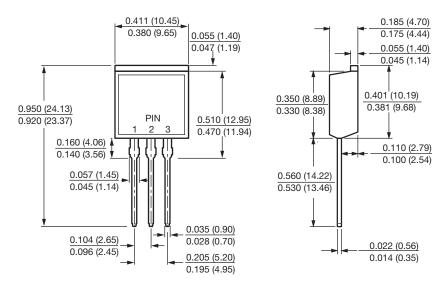


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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) 2 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) 0.096 (2.45) 0.205 (5.20) 0.014 (0.36) 0.195 (4.95)

TO-262AA





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