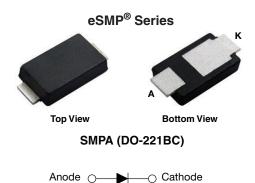
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Vishay General Semiconductor

Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	8.0 A		
V _{RRM}	120 V		
I _{FSM}	100 A		
V_F at I_F = 8.0 A (T_A = 125 °C)	0.65 V		
T _J max.	175 °C		
Package	SMPA (DO-221BC)		
Circuit configuration	Single		

FEATURES

- Very low profile typical height of 0.95 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code: P/NHM3
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in commercial and automotive applications.

MECHANICAL DATA

Case: SMPA (DO-221BC) Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V8PAM12	UNIT	
Device marking code		8M12		
Maximum repetitive peak reverse voltage	V _{RRM}	120	V	
Maximum DC forward current	I _{F(AV)} ⁽¹⁾	8.0	Α	
	I _{F(AV)} ⁽²⁾	2.7		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100	А	
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +175	°C	

Notes

 $^{(1)}\,$ Units mounted on 3 cm x 3 cm aluminum PCB

⁽²⁾ Free air, mounted on recommended copper pad area





FREE

V8PAM12



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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	T _A = 25 °C		0.63	-	V
	I _F = 8.0 A			0.8	0.88	
	$I_{F} = 4.0 \text{ A}$	- T _A = 125 °C		0.54	-	
	I _F = 8.0 A			0.65	0.73	
Reverse current	V _R = 90 V	$V_{R} = 90 V = \frac{T_{A} = 25 \degree C}{T_{A} = 125 \degree C}$	I _R (2)	0.01	-	mA
	v _R = 90 v	T _A = 125 °C		1.5	-	
	V 100.V	T _A = 25 °C T _A = 125 °C		-	0.5	
	V _R = 120 V	T _A = 125 °C		3	10	
Typical junction capacitance	4.0 V, 1 M⊦	4.0 V, 1 MHz		730	-	pF

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 5 ms

THERMAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise specified)				
PARAMETER SYMBOL V8PAM12				
Typical thermal resistance	R _{0JA} ⁽¹⁾⁽²⁾	100	°C/W	
	R _{0JM} ⁽³⁾	5	0/10	

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, mounted on recommended PCB, 2 oz. pad area; thermal resistance R_{0JA} - junction to ambient

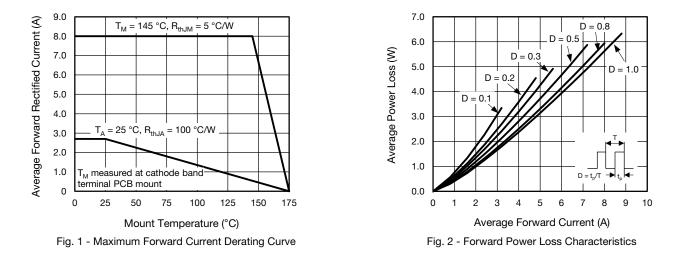
 $^{(3)}$ Units mounted on 3 cm x 3 cm aluminum PCB; thermal resistance $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V8PAM12-M3/I	0.032	I	14 000	13" diameter plastic tape and reel	
V8PAM12HM3/I ⁽¹⁾	0.032	l	14 000	13" diameter plastic tape and reel	

Note

(1) AEC-Q101 qualified

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



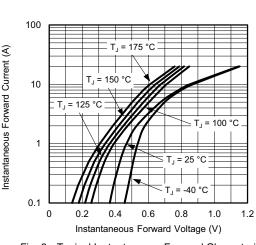
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Fig. 3 - Typical Instantaneous Forward Characteristics

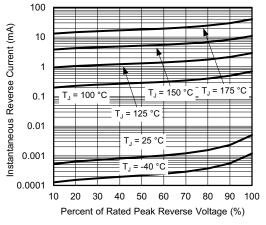
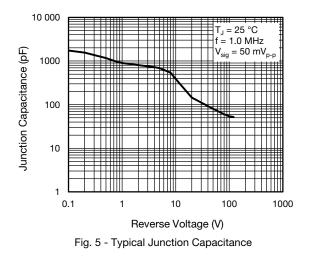


Fig. 4 - Typical Reverse Leakage Characteristics



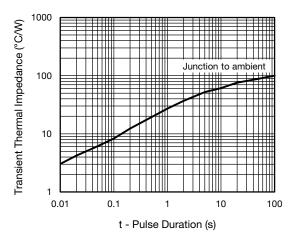


Fig. 6 - Typical Transient Thermal Impedance

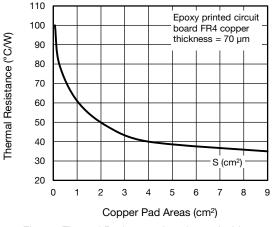


Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas

Revision: 16-Jun-2020

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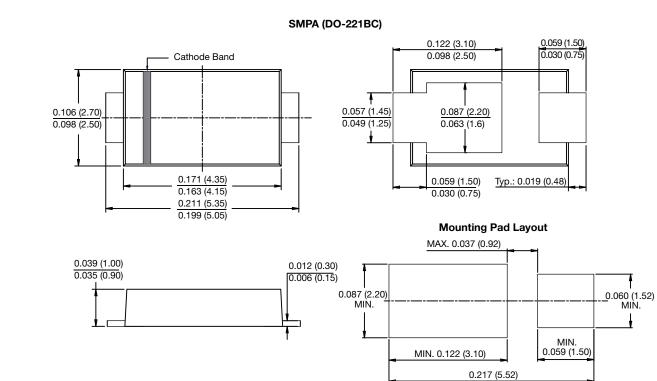
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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