AUTOMOTIVE

RoHS

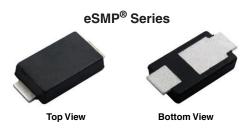
COMPLIANT

HALOGEN



Vishay General Semiconductor

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



SMPA (DO-221BC)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	8.0 A		
V_{RRM}	100 V		
I _{FSM}	90 A		
V_F at $I_F = 8.0$ A $(T_J = 125 ^{\circ}C)$	0.63 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	V8PAM10S	UNIT	
Device marking code		8MBS		
Maximum repetitive peak reverse voltage	V _{RRM}	100	V	
Maximum DC forward augrent	I _{F(AV)} (1)	8.0	A	
Maximum DC forward current	I _{F(AV)} (2)	2.8		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	90	А	
Operating junction temperature range	T _J ⁽³⁾	-40 to +175	°C	
Storage temperature range	T _{STG}	-55 to +175	°C	

Notes

- (1) Units mounted on 3 cm x 3 cm aluminum PCB
- (2) Free air, mounted on recommended copper pad area, 2 oz., FR4 PCB
- $^{(3)}$ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$



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ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)							
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT	
Instantaneous forward voltage	I _F = 4.0 A	T _J = 25 °C	V _E (1)	0.61	-	V	
	I _F = 8.0 A			0.75	0.84		
	$I_F = 4.0 A$	T _J = 125 °C	T 105 °C	VF ('')	0.53	-]
	I _F = 8.0 A			0.63	0.71		
Reverse current	V _R = 70 V	T _J = 25 °C	I _D (2)	0.003	-		
	v _R = 70 v	T _J = 125 °C		1.5	-	m ^	
	V = 100 V	T _J = 25 °C T _J = 125 °C		-	0.18	- mA	
	V _R = 100 V	T _J = 125 °C		3	9		
Typical junction capacitance	4.0 V, 1 MHz		СЈ	600	-	pF	

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 specified)				
PARAMETER	SYMBOL	V8PAM10S	UNIT	
Typical thermal resistance	R ₀ JA (1)(2)	100	°C/W	
Typical thermal resistance	R _{0JM} (3)	5] 0/1	

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_{θJA} 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	
V8PAM10S-M3/H	0.032	Н	3500	7" diameter plastic tape and reel	
V8PAM10S-M3/I	0.032	I	14 000	13" diameter plastic tape and reel	
V8PAM10SHM3/H (1)	0.032	Н	3500	7" diameter plastic tape and reel	
V8PAM10SHM3/I (1)	0.032	I	14 000	13" diameter plastic tape and reel	

Note

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

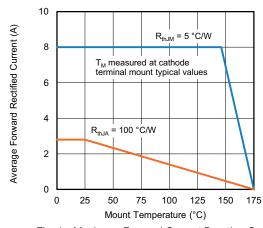


Fig. 1 - Maximum Forward Current Derating Curve

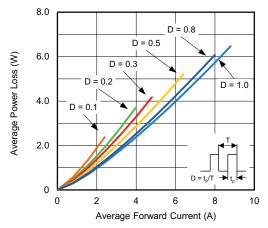


Fig. 2 - Forward Power Loss Characteristics

⁽¹⁾ AEC-Q101 qualified



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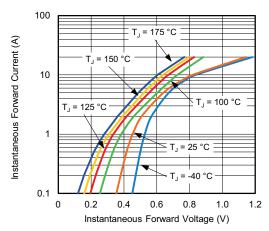


Fig. 3 - Typical Instantaneous Forward Characteristics

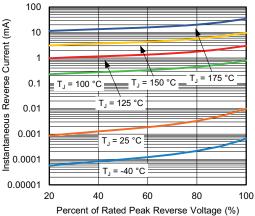
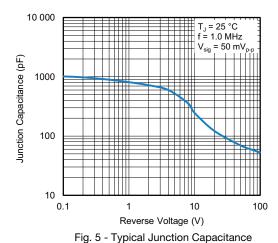


Fig. 4 - Typical Reverse Leakage Characteristics



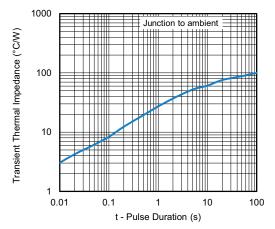


Fig. 6 - Typical Transient Thermal Impedance

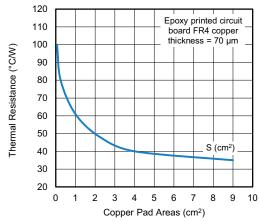


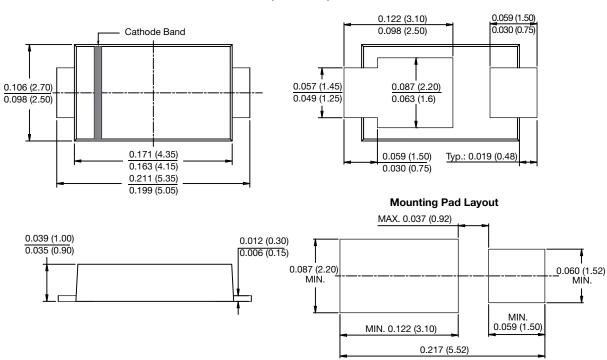
Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPA (DO-221BC)





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