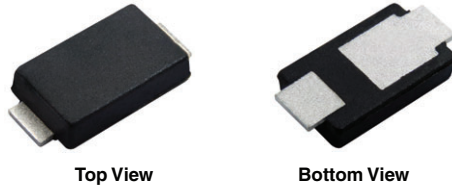


Surface-Mount TMBS[®] (Trench MOS Barrier Schottky) Rectifier

eSMP[®] Series



Top View

Bottom View

SMPA (DO-221BC)

Anode Cathode

LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	100 V
I_{FSM}	90 A
V_F at $I_F = 8.0$ A ($T_J = 125$ °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 www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available


RoHS
COMPLIANT
HALOGEN
FREE

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 current	$I_{F(AV)}$ ⁽¹⁾	8.0	A
	$I_{F(AV)}$ ⁽²⁾	2.8	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	90	A
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: $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.61	-	V
	I _F = 8.0 A			0.75	0.84	
	I _F = 4.0 A	T _J = 125 °C		0.53	-	
	I _F = 8.0 A			0.63	0.71	
Reverse current	V _R = 70 V	T _J = 25 °C	I _R ⁽²⁾	0.003	-	mA
		T _J = 125 °C		1.5	-	
	V _R = 100 V	T _J = 25 °C		-	0.18	
		T _J = 125 °C		3	9	
Typical junction capacitance	4.0 V, 1 MHz		C _J	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 _{θJA} ⁽¹⁾⁽²⁾	100	°C/W
	R _{θJM} ⁽³⁾	5	

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP_D/dT_J < 1/R_{θJA}
- (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_{θJM} - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V8PAM10S-M3/H	0.032	H	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	H	3500	7" diameter plastic tape and reel
V8PAM10SHM3/I ⁽¹⁾	0.032	I	14 000	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified

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

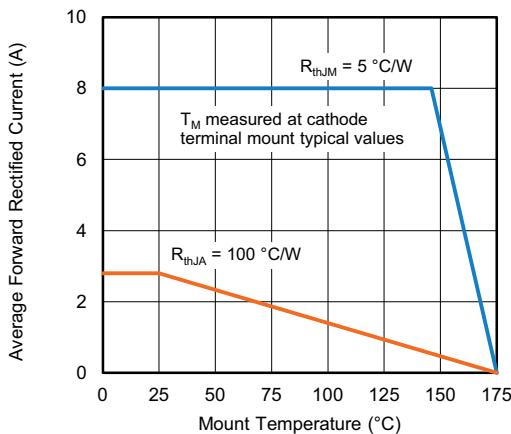


Fig. 1 - Maximum Forward Current Derating Curve

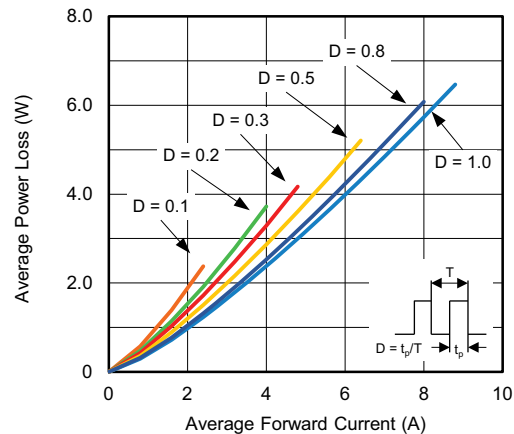


Fig. 2 - Forward Power Loss Characteristics

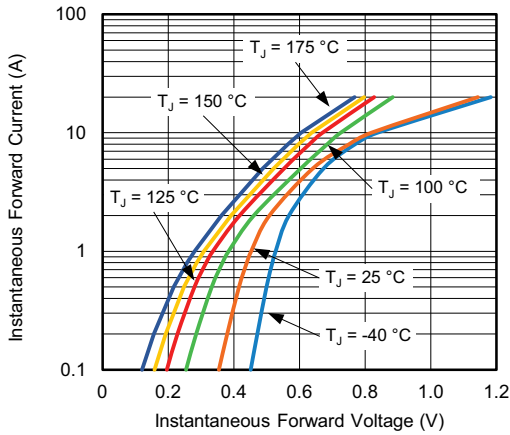


Fig. 3 - Typical Instantaneous Forward Characteristics

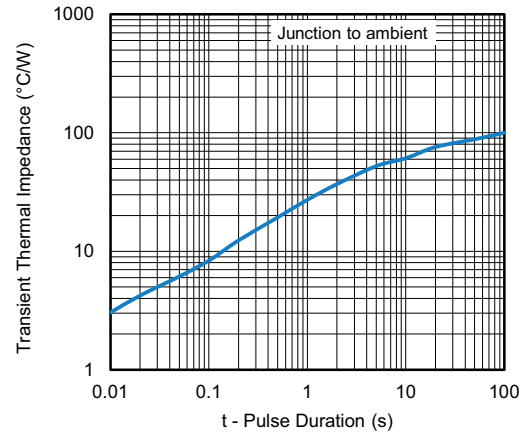


Fig. 6 - Typical Transient Thermal Impedance

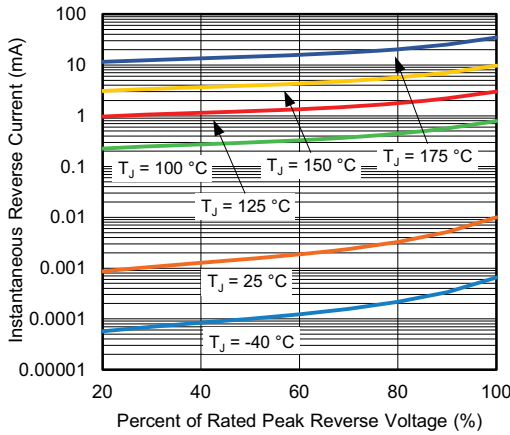


Fig. 4 - Typical Reverse Leakage Characteristics

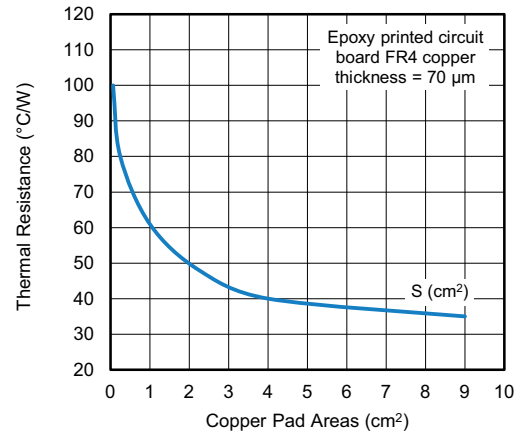


Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas

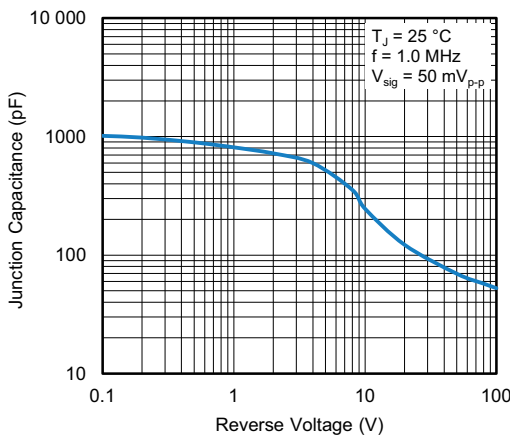
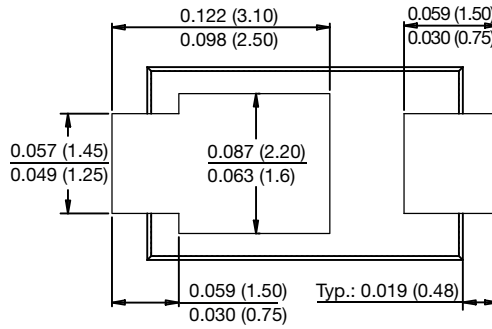
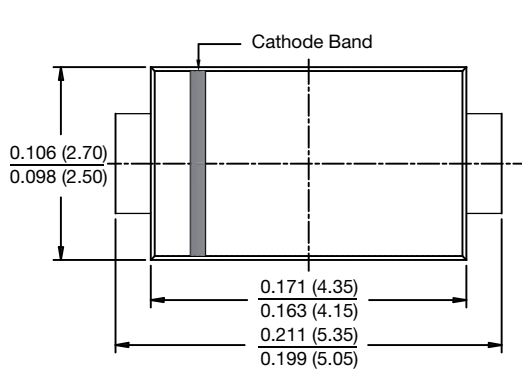


Fig. 5 - Typical Junction Capacitance

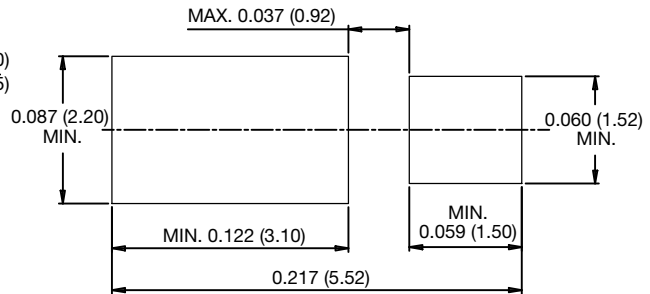
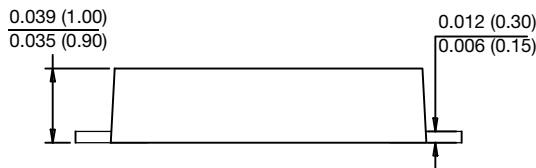


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPA (DO-221BC)



Mounting Pad Layout





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