AUTOMOTIVE

RoHS

COMPLIANT

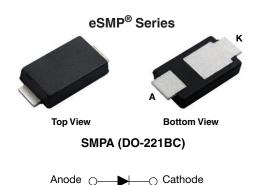
HALOGEN

FREE



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}	60 V		
I _{FSM}	100 A		
V_F at $I_F = 8.0 \text{ A } (T_A = 125 \text{ °C})$	0.49 V		
T _J max.	150 °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

TYPICAL APPLICATIONS

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

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	V8PA6	UNIT	
Device marking code		V86		
Maximum repetitive peak reverse voltage	V _{RRM}	60	V	
Maximum DC forward current	I _{F(AV)} (1)	8.0	Α	
	I _{F(AV)} (2)	3.2		
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 +150	°C	

Note

- (1) Units mounted on 3 cm x 3 cm aluminum PCB
- (2) Free air, mounted on recommended copper pad area



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	1 25 °(:	V _F (1)	0.48	-	V
	I _F = 8.0 A			0.55	0.63	
	$I_F = 4.0 A$	T _A = 125 °C		0.38	-	
	I _F = 8.0 A			0.49	0.57	
Reverse current	V _R = 60 V	T _A = 25 °C T _A = 125 °C	I _R ⁽²⁾	-	0.6	- mA
	v _R = 60 v			14	30	
Typical junction capacitance	4.0 V, 1 MH	4.0 V, 1 MHz		1030	-	pF

Notes

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

(2) Pulse test: Pulse width $\leq 5 \text{ ms}$

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)			
PARAMETER SYMBOL V8PA6			
Typical thermal resistance	R ₀ JA (1)(2)	100	°C/W
	R _{0JM} (3)	5	

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 $R_{\theta,JA}$ 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)	BASE QUANTITY	DELIVERY MODE		
V8PA6-M3/I	0.032	I	14 000	13" diameter plastic tape and reel	
V8PA6HM3/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)

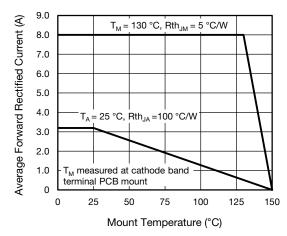


Fig. 1 - Maximum Forward Current Derating Curve

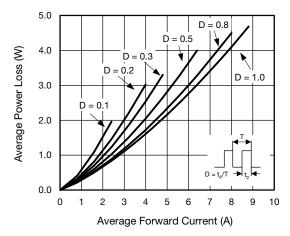


Fig. 2 - Forward Power Loss Characteristics



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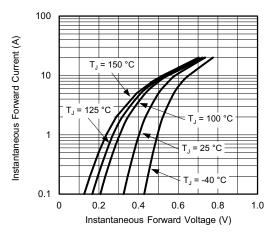


Fig. 3 - Typical Instantaneous Forward Characteristics

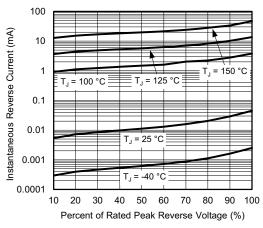


Fig. 4 - Typical Reverse Leakage Characteristics

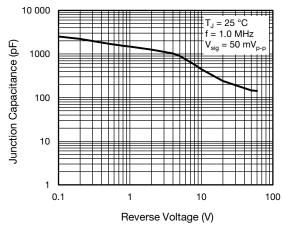


Fig. 5 - Typical Junction Capacitance

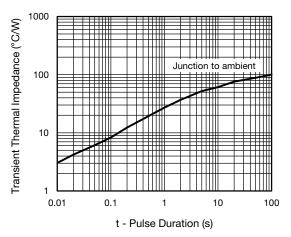


Fig. 6 - Typical Transient Thermal Impedance

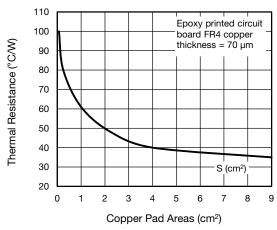


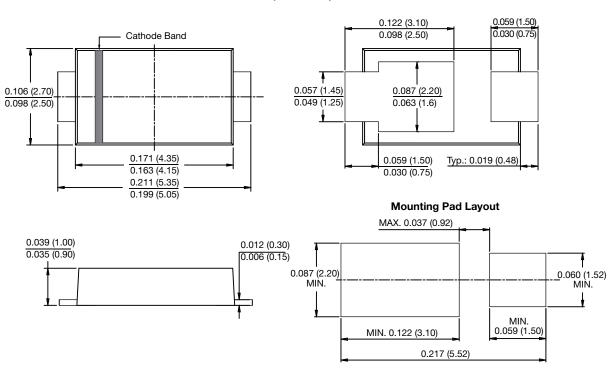
Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPA (DO-221BC)





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