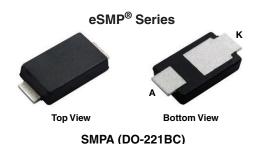
HALOGEN

FREE



Vishay General Semiconductor

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





LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	3.0 A			
V_{RRM}	50 V			
I _{FSM}	80 A			
V_F at $I_F = 3.0$ A ($T_A = 125$ °C)	0.40 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
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMPA (DO-221BC)

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 JESD22-B102

M3 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	V3PAN50	UNIT
Device marking code		3N5	
Maximum repetitive peak reverse voltage	V_{RRM}	50	V
Maximum DC forward current	I _F ⁽¹⁾	3.0	A
Maximum DC reverse voltage	V _{DC}	35	V
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM} 80		А
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +150	°C

Note

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



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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 = 1.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.40	-	V
	$I_F = 3.0 A$			0.47	0.54	
	I _F = 1.5 A	T _A = 125 °C		0.30	-	
	$I_F = 3.0 A$			0.40	0.48	
Reverse current	V _R = 35 V	T _A = 25 °C	I _R ⁽²⁾	8	-	μA
	v _R = 33 v	T _A = 125 °C		8.8	-	mA
	V _R = 50 V	T _A = 25 °C	IR (=/	-	600	μA
	v _R = 50 v	T _A = 125 °C		12	35	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	480	_	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	V3PAN50	UNIT	
Typical thermal resistance	R _{0JA} (1)	100	°C/W	
	R _{0JM} ⁽¹⁾	9		

Note

(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient; $R_{\theta JM}$ - junction to ambient

ORDERING INFORMATION (Example)					
PREFERRED P/N UNIT WEIGHT (g) PREFERRED PACKAGE CO		PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V3PAN50-M3/I	0.032	I	14 000	13" diameter plastic tape and reel	

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

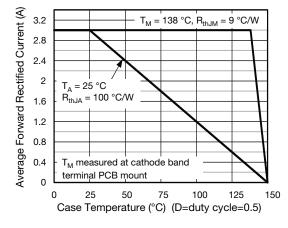


Fig. 1 - Maximum Forward Current Derating Curve

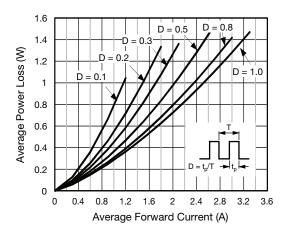


Fig. 2 - Forward Power Loss Characteristics



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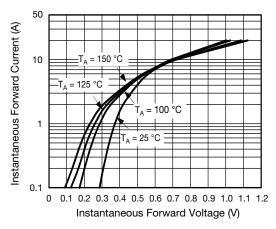


Fig. 3 - Typical Instantaneous Forward Characteristics

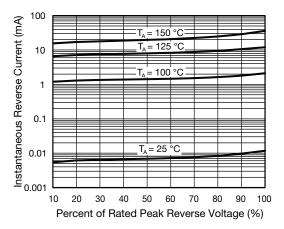


Fig. 4 - Typcial Reverse Leakage Characteristics

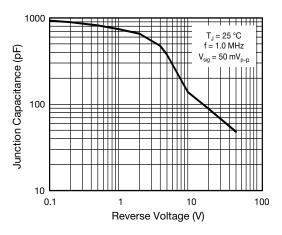


Fig. 5 - Typical Junction Capacitance

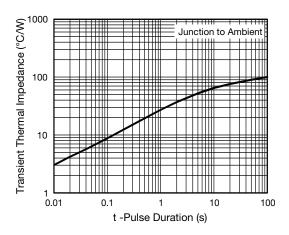


Fig. 6 - Typcial Transient Thermal Impedance

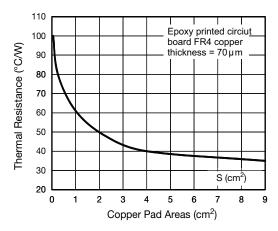


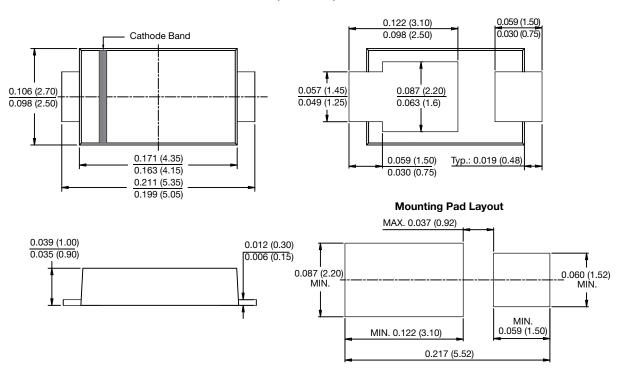
Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPA (DO-221BC)





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