

Vishay General Semiconductor

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



Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	2.0 A		
V _{RRM}	200 V		
I _{FSM}	50 A		
V _F at I _F = 2.0 A	0.68 V		
T _J max.	175 °C		
Package	SMP (DO-220AA)		
Circuit configuration	Single		

FEATURES

- Low profile package
- 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 gualified available - Automotive ordering code; base P/NHM3
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMP (DO-220AA) Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade Base P/NHM3_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102 M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V2P22L	UNIT
Device marking code		V2D	
Maximum repetitive peak reverse voltage	V _{RRM}	200	V
Maximum DC forward current	I _{F(AV)} ⁽¹⁾	2	A
	I _{F(AV)} ⁽²⁾	1.6	А
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	50	А
Operating junction and storage temperature range	T _J ⁽³⁾	-40 to +175	°C
Operating junction and storage temperature range	T _{STG}	-55 to +175	°C

Notes

⁽¹⁾ Mounted on 10 mm x 10 mm PCB pad area

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

 $^{(3)}$ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{0,JA}$



RoHS COMPLIANT HALOGEN FREE





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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 = 1.0 A	- T _A = 25 °C	V _F ⁽¹⁾	0.76	-	V
	I _F = 2.0 A			0.83	0.91	
	I _F = 1.0 A	- T _A = 125 °C		0.60	-	
	I _F = 2.0 A			0.68	0.76	
Reverse current	V - 160 V	T _A = 25 °C	I _R (2)	0.001	-	mA mA
	v _R = 100 v	T _A = 25 °C T _A = 125 °C		0.2	-	
	V - 200 V	T _A = 25 °C T _A = 125 °C		-	0.04	
	v _R = 200 v	T _A = 125 °C		0.4	2.0	
Typical junction capacitance	4.0 V, 1 M⊦	4.0 V, 1 MHz		90.0	-	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	V2P22L	UNIT	
Typical thermal resistance	R _{0JA} (1)(2)	125	°C/W	
	R _{0JM} ⁽³⁾	15		

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 copper pad area; thermal resistance R_{0JA} - junction-to-ambient

 $^{(3)}$ Mounted on 10 mm x 10 mm 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		
V2P22L-M3/H	0.024	Н	3000	7" diameter plastic tape and reel		
V2P22L-M3/I	0.024	I	10 000	13" diameter plastic tape and reel		
V2P22LHM3_A/H ⁽¹⁾	0.024	Н	3000	7" diameter plastic tape and reel		
V2P22LHM3_A/I ⁽¹⁾	0.024	I	10 000	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 gualified



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

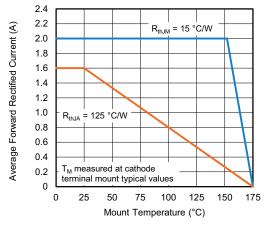


Fig. 1 - Maximum Forward Current Derating Curve

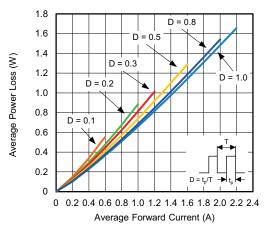


Fig. 2 - Forward Power Loss Characteristics

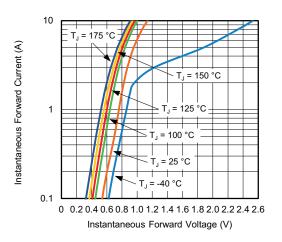


Fig. 3 - Typical Instantaneous Forward Characteristics

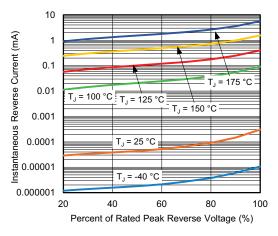


Fig. 4 - Typical Reverse Characteristics

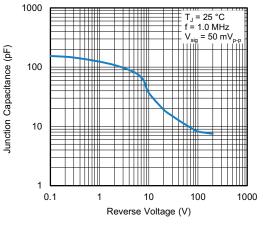


Fig. 5 - Typical Junction Capacitance

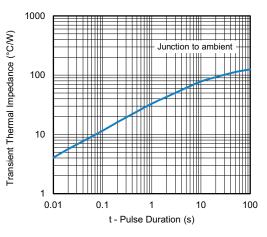


Fig. 6 - Typical Transient Thermal Impedance

Revision: 09-Jan-2024

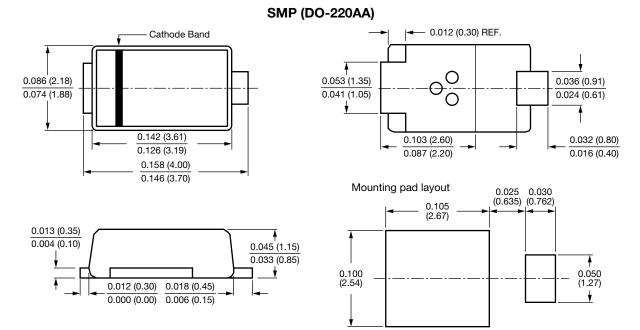
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Document Number: 87470

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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Revision: 01-Jul-2024