

AUTOMOTIVE

Available

COMPLIANT

HALOGEN FREE



Vishay General Semiconductor

High Voltage Surface Mount Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-220AA (SMP)

PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM}	90 V, 100 V				
I _{FSM}	50 A				
E _{AS}	11.25 mJ				
V _F at I _F = 1.0 A	0.62 V				
I _R max.	1.0 µA				
T _J max.	175 °C				

TYPICAL APPLICATIONS

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

FEATURES

- Very low profile typical height of 1.0 mm
- · Ideal for automated placement
- Low forward voltage drop, low power losses
- · High efficiency
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

MECHANICAL DATA

Case: DO-220AA (SMP)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS compliant, and automotive grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS2PH9	SS2PH10	UNIT	
Device marking code		29	210		
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	2.0		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50		А	
Non-repetitive avalanche energy at $T_{J=}25^{\circ}C$, $I_{AS}=1.5A$, $L=10\text{mH}$	E _{AS}	11.25		mJ	
Voltage rate of change (rated V _R)	dV/dt	10 000		V/µs	
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 175		°C	

SS2PH9, SS2PH10

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	I _E = 2.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.77	0.80	- V
	I _F = 2.0 A	T _J = 125 °C		0.62	0.66	
Maximum reverse current at rated V _B		T _J = 25 °C	I _R ⁽²⁾	0.1	1.0	μΑ
Maximum reverse current at rated v _R		T _J = 125 °C		60	500	
Typical junction capacitance	4.0 V, 1 MHz		CJ	65	-	pF

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SS2PH9 SS2PH10		UNIT	
	R _{0JA} (1)	110		°C/W	
Typical thermal resistance	R _{0JL} (1)	15			
	R _{0JC} (1)	25			

Note

(1) Thermal resistance from junction to ambient and junction to lead mounted on PCB with 15 mm x 15 mm copper pad areas. R_{BJC} is measured at the top center of the body

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS2PH9-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel		
SS2PH9-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel		
SS2PH9HM3/84A ⁽¹⁾	0.024	84A	3000	7" diameter plastic tape and reel		
SS2PH9HM3/85A ⁽¹⁾	0.024	85A	10 000	13" diameter plastic tape and reel		

Note

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

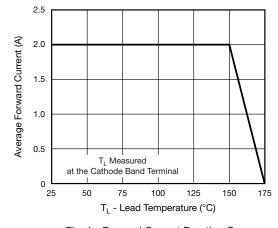


Fig. 1 - Forward Current Derating Curve

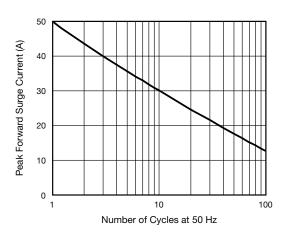


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ Automotive grade





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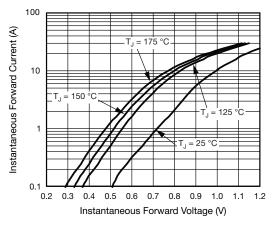


Fig. 3 - Typical Instantaneous Forward Characteristics

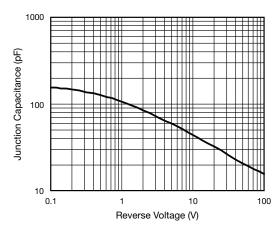


Fig. 5 - Typical Junction Capacitance

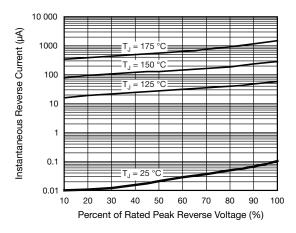


Fig. 4 - Typical Reverse Leakage Characteristics

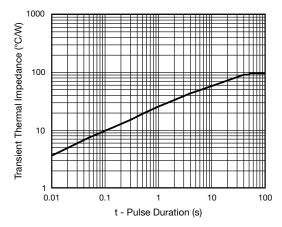
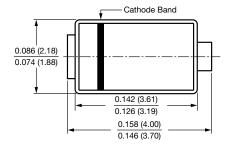
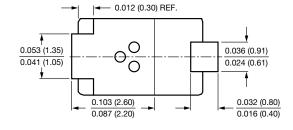


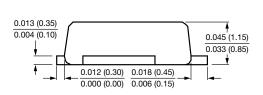
Fig. 6 - Typical Transient Thermal Impedance

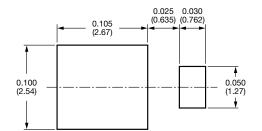
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)









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For technical questions within your region, please contact one of the following: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com





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