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Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN FREE

Surface Mount Glass Passivated Rectifier



SMB (DO-214AA)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.5 A						
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I _{FSM}	50 A						
I _R	1.0 µA						
V _F	1.15 V						
T _J max.	175 °C						
Package	SMB (DO-214AA)						
Circuit configuration	Single						

FEATURES

- Low profile package
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Low forward voltage drop
- Low leakage current
- · High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial

grade

Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified 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

E3, M3, HE3, 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	S2A	S2B	S2D	S2G	S2J	S2K	S2M	UNIT
Device marking code		SA	SB	SD	SG	SJ	SK	SM	
Max. repetitive peak reverse voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Max. RMS voltage	V _{RMS}	35	70	140	280	420	560	700	V
Max. DC blocking voltage	V _{DC}	50	100	200	400	600	800	1000	V
Max. average forward rectified current at T _L = 125 °C	I _{F(AV)}	1.5						Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50						Α	
Operating and storage temperature range	T _J , T _{STG}	, T _{STG} -55 to +175						°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	S2A	S2B	S2D	S2G	S2J	S2K	S2M	UNIT
Max. instantaneous forward voltage	1.5 A	V _F	1.15							V
Max. DC reverse current at	T _J = 25 °C	1.0							μA	
rated DC blocking voltage	T _J = 125 °C	^I R 125						μΛ		
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t _{rr}	2.0					μs		
Typical junction capacitance	4.0 V, 1 MHz	CJ	C _J 16			pF				

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL S2A S2B S2D S2G S2J S2K S2M							UNIT	
Typical thermal resistance (1)	$R_{\theta JA}$	53							°C/W
Typical thermal resistance (*)	$R_{\theta JL}$	16						•	C/VV

Note

⁽¹⁾ Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
S2J-E3/52T	0.096	52T	750	7" diameter plastic tape and reel					
S2J-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel					
S2JHE3_A/H ⁽¹⁾	0.096	Н	750	7" diameter plastic tape and reel					
S2JHE3_A/I ⁽¹⁾	0.096	I	3200	13" diameter plastic tape and reel					
S2J-M3/52T	0.096	52T	750	7" diameter plastic tape and reel					
S2J-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel					
S2JHM3_A/H ⁽¹⁾	0.096	Н	750	7" diameter plastic tape and reel					
S2JHM3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel					

Note

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

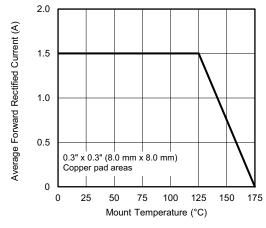


Fig. 1 - Forward Current Derating Curve

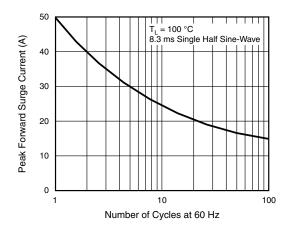


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

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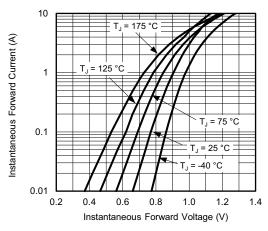


Fig. 3 - Typical Instantaneous Forward Characteristics

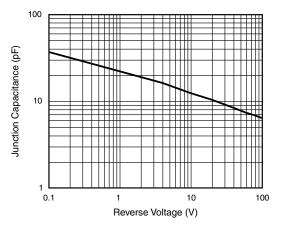


Fig. 5 - Typical Junction Capacitance

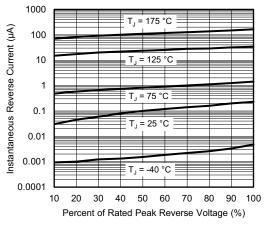


Fig. 4 - Typical Reverse Characteristics

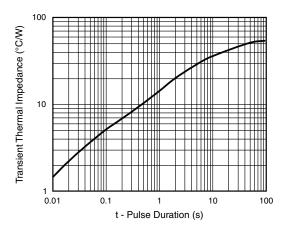
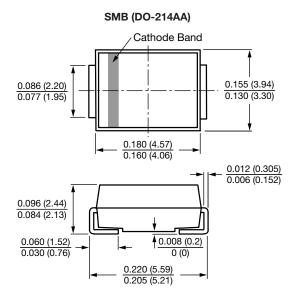
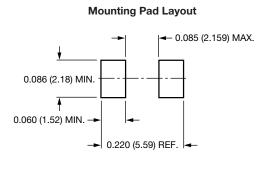


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)









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