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Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN FREE

Surface-Mount Glass Passivated Rectifier



SMC (DO-214AB)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS								
I _{F(AV)}	3.0 A							
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V							
I _{FSM}	100 A							
I _R	10 μΑ							
V _F	1.15 V							
T _J max.	175 °C							
Package	SMC (DO-214AB)							
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: SMC (DO-214AB)

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	S3A	S3B	S3D	S3G	S3J	S3K	S3M	UNIT
Device marking code		SA	SB	SD	SG	SJ	SK	SM	
Maximum recurrent peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at T _L = 133 °C	I _{F(AV)}	3.0							Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100						Α	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175							°C



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S3A	S3B	S3D	S3G	S3J	S3K	S3M	UNIT
Maximum instantaneous forward voltage	2.5 A		V _F	1.15					V		
Maximum DC reverse current at rated		T _J = 25 °C	l _o	10					μA		
DC blocking voltage		T _J = 125 °C	IR	250					μΛ		
Typical reverse recovery time	$I_F = 0.5 A$, $I_R = 1.0 A$, $I_{rr} = 0.25 A$				2.5			t _{rr} 2.5			μs
Typical junction capacitance	4.0 V, 1	MHz	CJ	C _J 60				•	pF		

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL S3A S3B S3D S3G S3J S3K S3M UNIT							UNIT	
Typical thermal resistance (1)		47							°C/W
Typical trieffilal resistance 🗸	$R_{\theta JL}$				13	•			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 area

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
S3J-E3/57T	0.211	57T	850	7" diameter plastic tape and reel					
S3J-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel					
S3JHE3_A/H (1)	0.211	Н	850	7" diameter plastic tape and reel					
S3JHE3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel					
S3J-M3/57T	0.211	57T	850	7" diameter plastic tape and reel					
S3J-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel					
S3JHM3_A/H (1)	0.211	Н	850	7" diameter plastic tape and reel					
S3JHM3_A/I ⁽¹⁾	0.211	I	3500	13" diameter plastic tape and reel					

Note

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

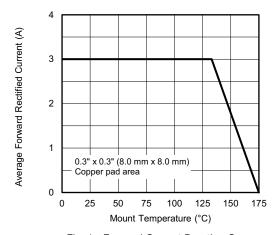


Fig. 1 - Forward Current Derating Curve

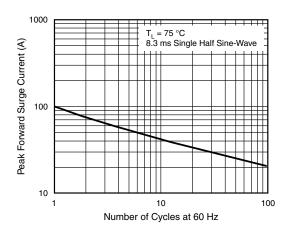


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

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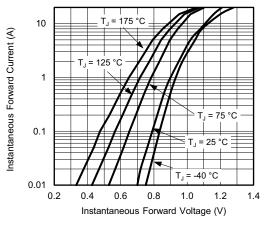
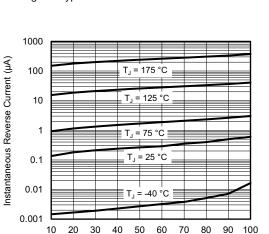


Fig. 3 - Typical Instantaneous Forward Characteristics



Percent of Rated Peak Reverse Voltage (%)
Fig. 4 - Typical Reverse Characteristics

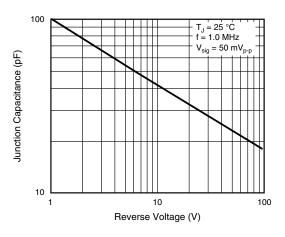


Fig. 5 - Typical Junction Capacitance

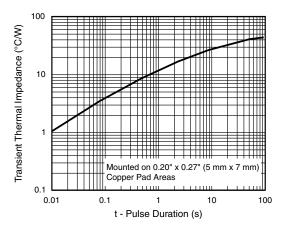
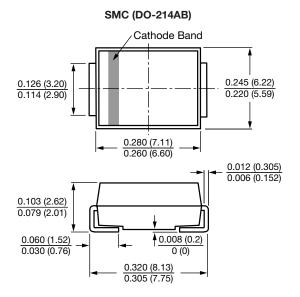
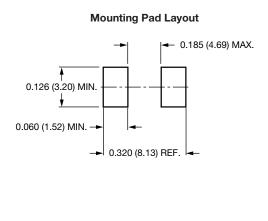


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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