

Vishay General Semiconductor

Surface-Mount Glass Passivated Rectifier



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SMC (DO-214AB)

Cathode O Anode

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 µA							
V _F	1.15 V							
T _J max.	150 °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 $T_L = 103 \text{ °C}$	I _{F(AV)}	3.0						А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100						А	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150						°C	

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RoHS

COMPLIANT

HALOGEN

S3A, S3B, S3D, S3G, S3J, S3K, S3M



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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				1.15			V
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C T _A = 125 °C	I _R	10 250					μA		
Typical reverse recovery time	$I_F = 0.5$ $I_{rr} = 0.2$	A, I _R = 1.0 A, 5 A	= 1.0 A, t _{rr} 2.5				μs				
Typical junction capacitance	4.0 V, 1	MHz	CJ	C _J 60				pF			

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)									
PARAMETER SYMBOL S3A S3B S3D S3G S3J S3K S3M U								UNIT	
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	47							°C/W
	$R_{\theta JL}$	13							0/11

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	l	3500	13" diameter plastic tape and reel					

Note

⁽¹⁾ AEC-Q101 qualified

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

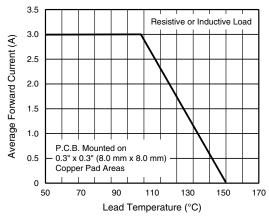


Fig. 1 - Forward Current Derating Curve

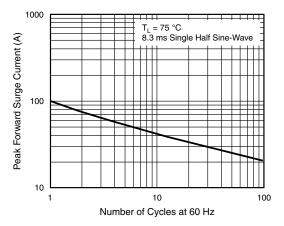


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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S3A, S3B, S3D, S3G, S3J, S3K, S3M

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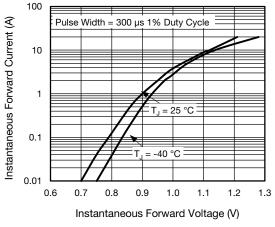
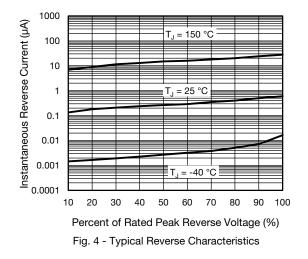
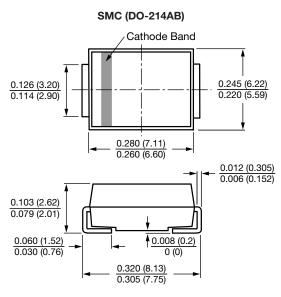


Fig. 3 - Typical Instantaneous Forward Characteristics







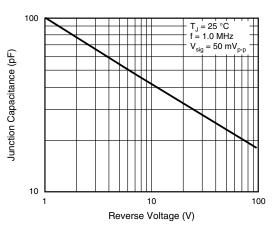


Fig. 5 - Typical Junction Capacitance

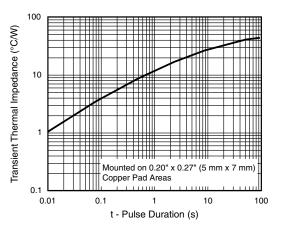


Fig. 6 - Typical Transient Thermal Impedance

0.126 (3.20) MIN.

--- 0.320 (8.13) REF. ---

0.060 (1.52) MIN. -

Mounting Pad Layout

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