Surface-Mount Glass Passivated Rectifier



SMC (DO-214AB)

Cathode ○—|◀—○ Anode

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5.0 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

AUTOMOTIVE GRADE Available

RoHS COMPLIANT HALOGEN FREE

- 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 www.vishay.com/doc?99912

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 ("_X" denotes revision code e.g. A, B,.....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3, M3, and HE3 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	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT
Device marking code		5A	5B	5D	5G	5J	5K	5M	
Maximum repetitive 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 = 75 °C	$I_{F(AV)}$	5.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	100							A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150							°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT
Maximum instantaneous forward voltage	5.0 A		V_F	1.15							V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	10							μA
		T_A = 125 °C		250							
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	2.5							μs
Typical junction capacitance	4.0 V, 1 MHz		C_J	40							pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT
Typical thermal resistance (1)	$R_{\theta JL}$	10							°C/W

Note

(1) Thermal resistance 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
S5J-E3/57T	0.211	57T	850	7" diameter plastic tape and reel
S5J-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel
S5J-M3/57T	0.211	57T	850	7" diameter plastic tape and reel
S5J-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel
S5JHE3_A/H (1)	0.211	H	850	7" diameter plastic tape and reel
S5JHE3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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

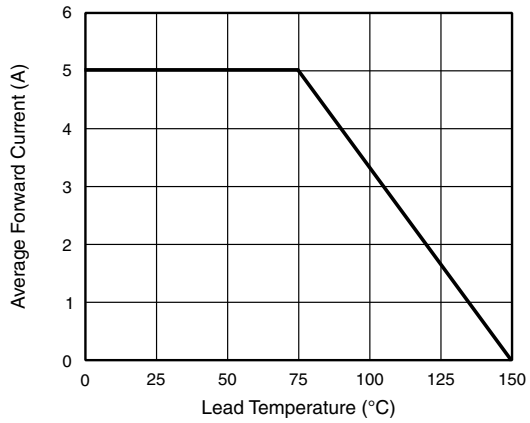


Fig. 1 - Forward Current Derating Curve

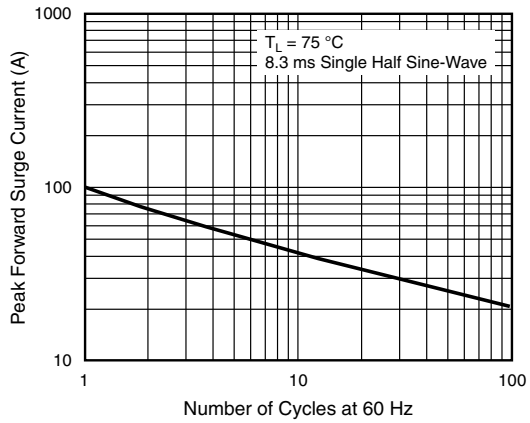


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

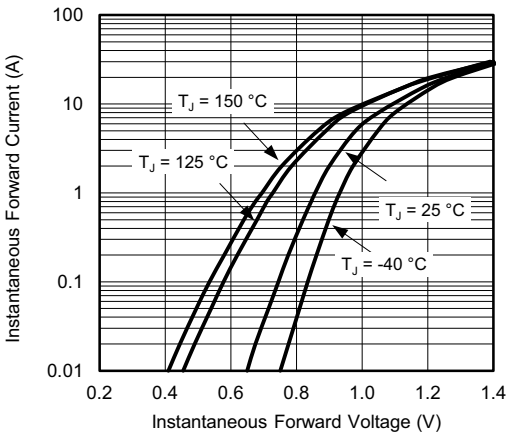


Fig. 3 - Typical Instantaneous Forward Characteristics

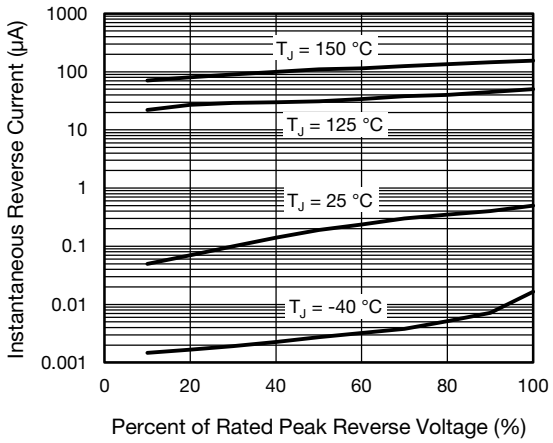


Fig. 4 - Typical Reverse Characteristics

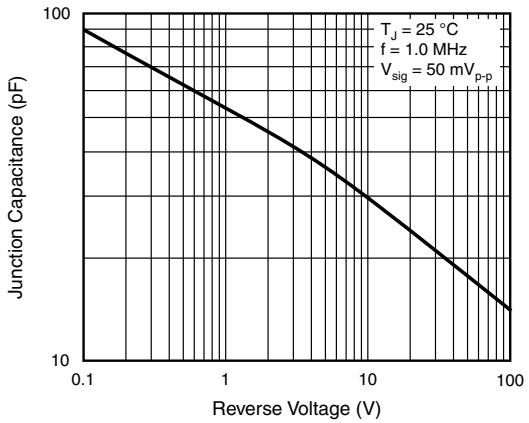
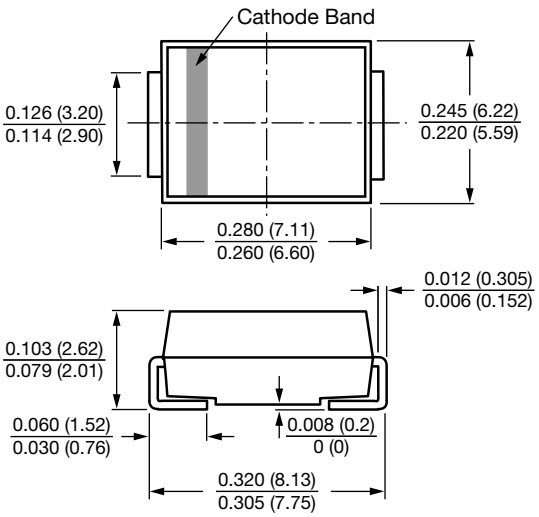


Fig. 5 - Typical Junction Capacitance

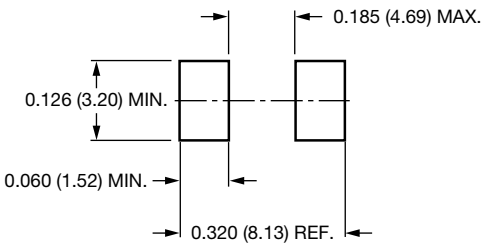
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMC (DO-214AB)



Mounting Pad Layout



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