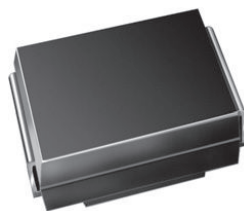


## Surface-Mount Glass Passivated Rectifier


**SMB (DO-214AA)**

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, medical 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, and commercial grade

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

E3 and M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** color band denotes the cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5.0 A
$V_{RRM}$	400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	90 A
$I_R$	5.0 $\mu$ A
$V_F$ at $I_F = 5.0$ A	0.95 V
$T_J$ max.	150 °C
Package	SMB (DO-214AA)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	S5BG	S5BJ	S5BK	S5BM	UNIT
Device marking code		5G	5J	5K	5M	
Maximum repetitive peak reverse voltage	$V_{RRM}$	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	280	420	560	700	V
Maximum DC forward current (fig. 1)	$I_F^{(1)}$	5.0				A
	$I_F^{(2)}$	1.4				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	90				A
Operating and storage temperature range	$T_J^{(3)}, T_{STG}$	-55 to +150				°C

### Notes

(1) Mounted on aluminum PCB 3 cm x 3 cm with infinite heatsink

(2) Free air mounted on recommended copper pad area

(3) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 2.5\text{ A}$	$V_F^{(1)}$	0.95	-	V
	$I_F = 5.0\text{ A}$		1.0	1.15	
	$I_F = 2.5\text{ A}$		0.85	-	
	$I_F = 5.0\text{ A}$		0.95	1.1	
Reverse current	Rated $V_R$	$I_R^{(2)}$	0.16	5.0	$\mu\text{A}$
			39	200	
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	2.5		$\mu\text{s}$
Typical junction capacitance	Rated $V_R = 4.0\text{ V}$ , 1 MHz	$C_J$	22		pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width,  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	S5BG	S5BJ	S5BK	S5BM	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	107				°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	7.2				

**Notes**(1) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ 

(2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz. standard footprint

(3) Thermal resistance junction-to-mount to follow JEDEC® 51-14, transient dual interface test method (TDIM)

**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S5BJ-M3/I	0.1	I	3200	13" diameter plastic tape and reel
S5BJ-E3/I	0.1	I	3200	13" diameter plastic tape and reel

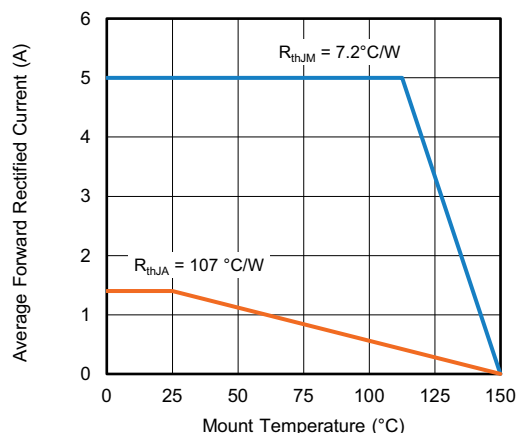
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

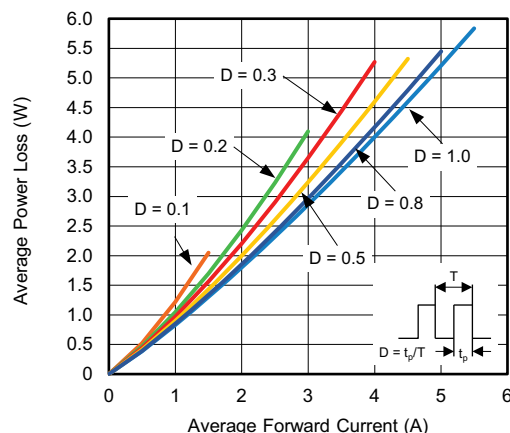


Fig. 2 - Forward Power Loss Characteristics

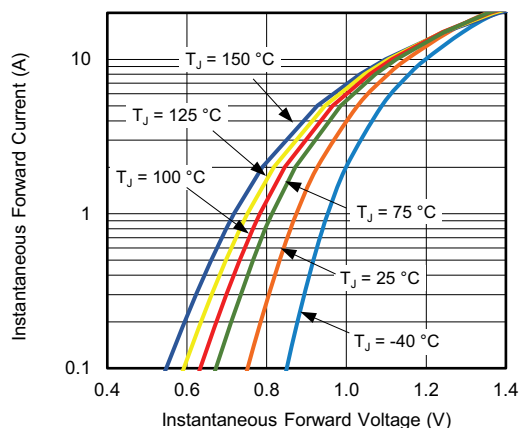


Fig. 3 - Typical Instantaneous Forward Characteristics

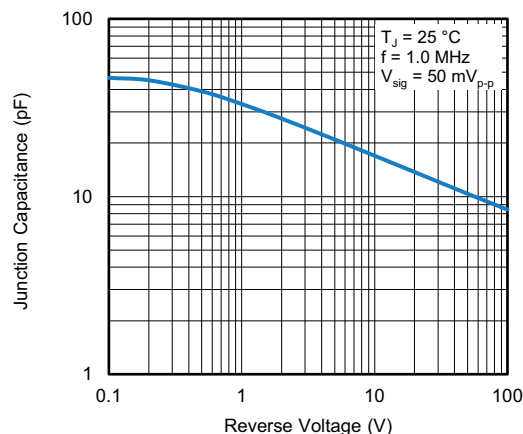


Fig. 5 - Typical Junction Capacitance

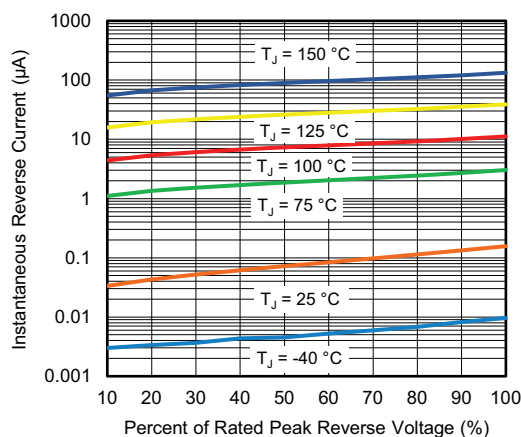


Fig. 4 - Typical Reverse Characteristics

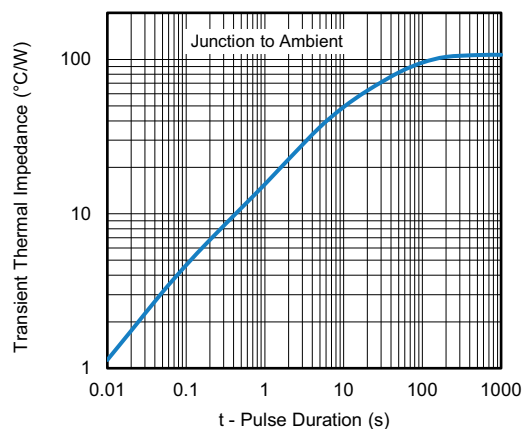
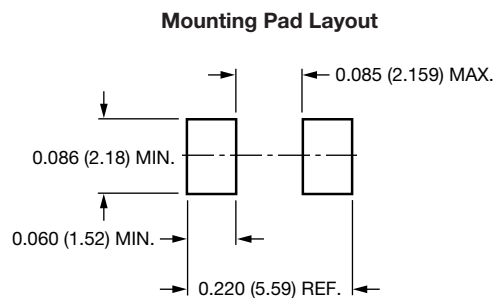
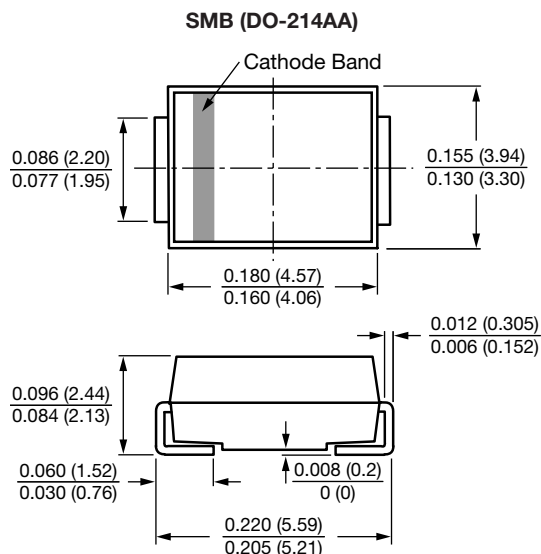


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)




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