

## Surface-Mount Glass Passivated Rectifier



SMC (DO-214AB)

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	15 A
$V_{RRM}$	400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	450 A
$I_R$	5 $\mu$ A
$V_F$ at $I_F = 15$ A ( $T_J = 125$ °C)	0.88 V
$T_J$ max.	150 °C
Package	SMC (DO-214AB)
Circuit configurations	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/NHM3
- 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, automotive, and telecommunication.

### MECHANICAL DATA

**Case:** SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

M3 and HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	S15CLG	S15CLJ	S15CLK	S15CLM	UNIT
Device marking code		15LG	15LJ	15LK	15LM	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	400	600	800	1000	V
Maximum RMS voltage	V <sub>RMS</sub>	280	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub>	400	600	800	1000	V
Maximum average forward rectified current	I <sub>F(AV)</sub> <sup>(1)</sup>	15				A
	I <sub>F(AV)</sub> <sup>(2)</sup>	2.1				A
Non-repetitive peak forward surge current 8.3 ms single sine-wave on rated load	I <sub>FSM</sub>	450				A
Non-repetitive peak forward surge current 1.0 ms single sine-wave, T <sub>J</sub> = 25 °C		900				
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-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

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

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 7.5\text{ A}$	$V_F^{(1)}$	0.91	-	V
	$I_F = 15\text{ A}$		0.98	1.03	
	$I_F = 7.5\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$	0.79	-	
	$I_F = 15\text{ A}$		0.88	-	
Reverse current	Rated $V_R$	$T_J = 25\text{ }^{\circ}\text{C}$	-	5	$\mu\text{A}$
		$T_J = 125\text{ }^{\circ}\text{C}$	96	-	
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	5	-	$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	126	-	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	S15CLG	S15CLJ	S15CLK	S15CLM	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	87				°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	3				

**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
S15CLJ-M3/I	0.257	I	3500	13" diameter plastic tape and reel
S15CLJHM3/I (1)	0.257	I	3500	13" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified

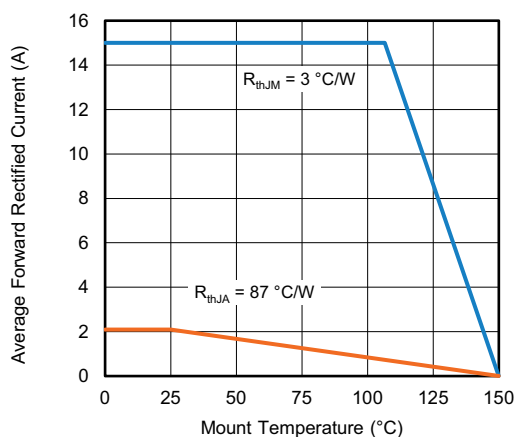
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

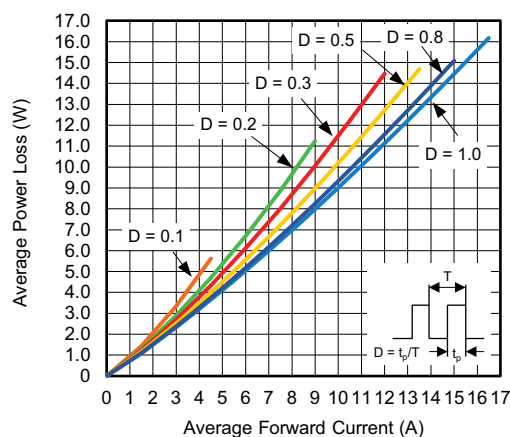


Fig. 2 - Average Power Loss Characteristics

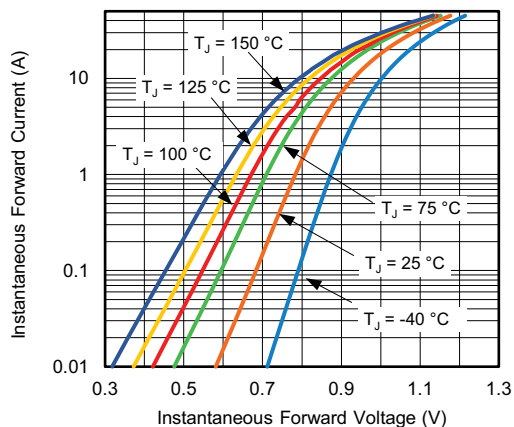


Fig. 3 - Typical Instantaneous Forward Characteristics

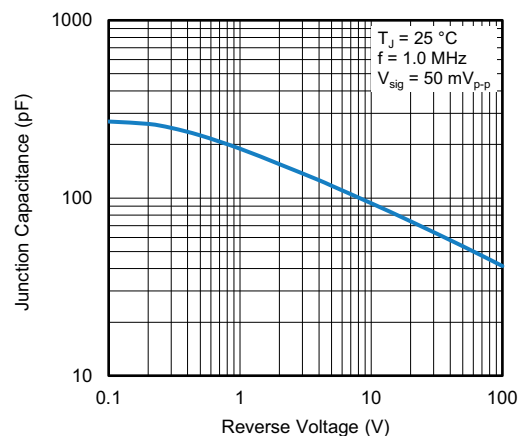


Fig. 5 - Typical Junction Capacitance

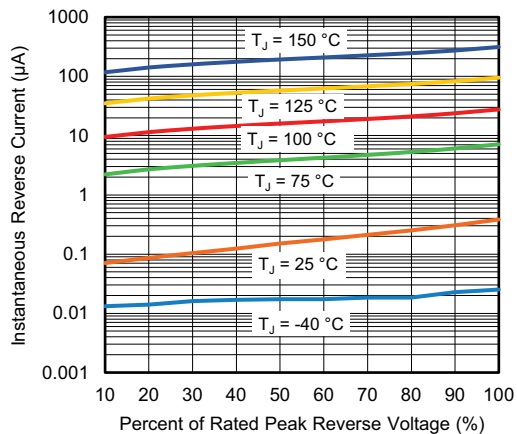


Fig. 4 - Typical Reverse Characteristics

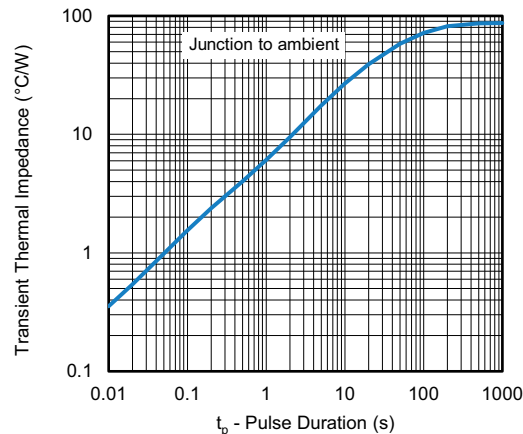
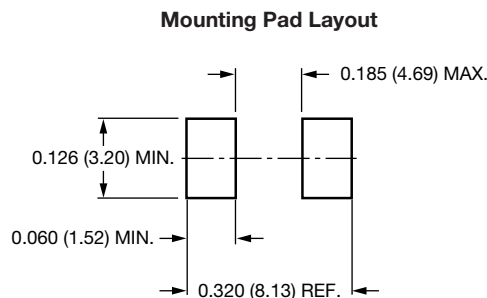
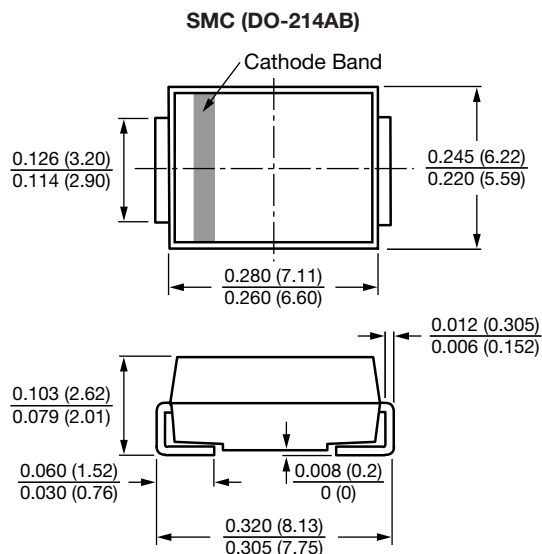


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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