

Surface Mount Glass Passivated Rectifier


DO-214AC (SMA)
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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
V_{RRM}	50 V to 1000 V
I_{FSM}	40 A, 30 A
E_{AS}	5 mJ
I_R	1.0 μ A, 5.0 μ A
V_F	1.1 V
T_J max.	150 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	S1A	S1B	S1D	S1G	S1J	S1K	S1M	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 (Fig. 1)	$I_{F(AV)}$	1.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	40					30		A
Non-repetitive peak reverse avalanche energy at 25 °C, $I_{AS} = 1$ A, $L = 10$ mH	E_{AS}	5							mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150							°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S1A	S1B	S1D	S1G	S1J	S1K	S1M	UNIT
Maximum instantaneous forward voltage	1.0 A		V_F	1.1							V
Maximum DC reverse current at Rated DC blocking voltage		$T_A = 25\text{ }^\circ\text{C}$	I_R	1.0				5.0			μA
		$T_A = 125\text{ }^\circ\text{C}$		50							
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	1.8						μs	
Typical junction capacitance	4.0 V, 1 MHz		C_J	12						pF	

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	S1A	S1B	S1D	S1G	S1J	S1K	S1M	UNIT	
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	75						85		$^\circ\text{C/W}$
	$R_{\theta JL}$	27						30		

Note:

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	REFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S1J-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
S1J-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
S1JHE3/61T ⁽¹⁾	0.064	61T	1800	7" diameter plastic tape and reel
S1JHE3/5AT ⁽¹⁾	0.064	5AT	7500	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

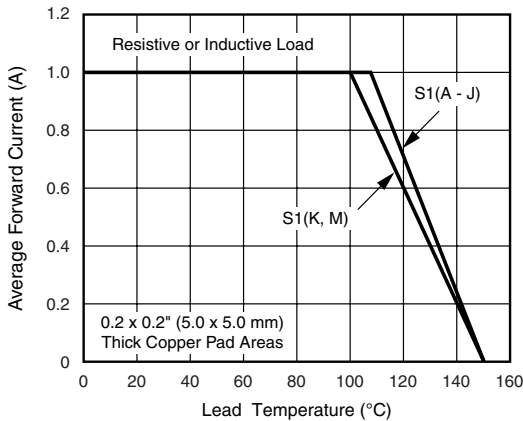


Figure 1. Forward Current Derating Curve

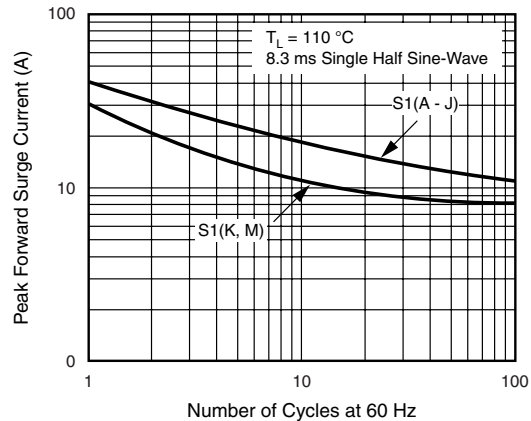


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

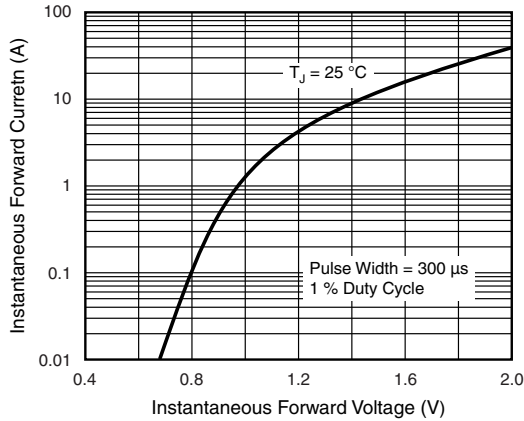


Figure 3. Typical Instantaneous Forward Characteristics

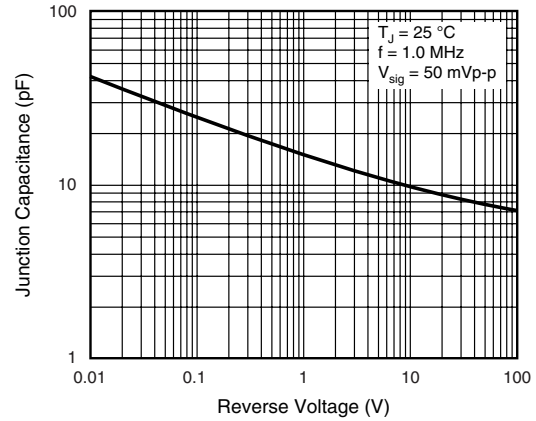


Figure 5. Typical Junction Capacitance

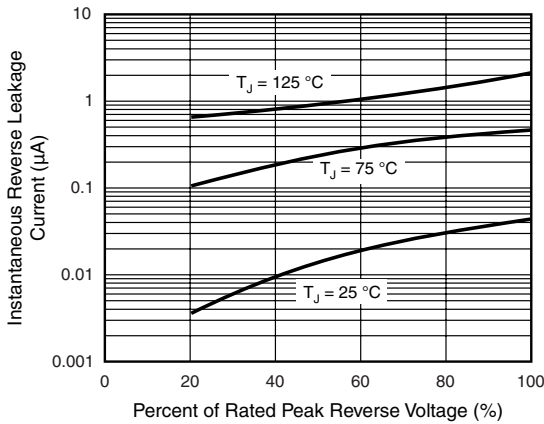


Figure 4. Typical Reverse Leakage Characteristics

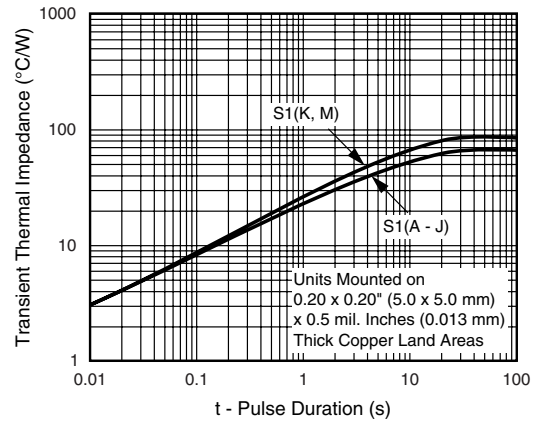
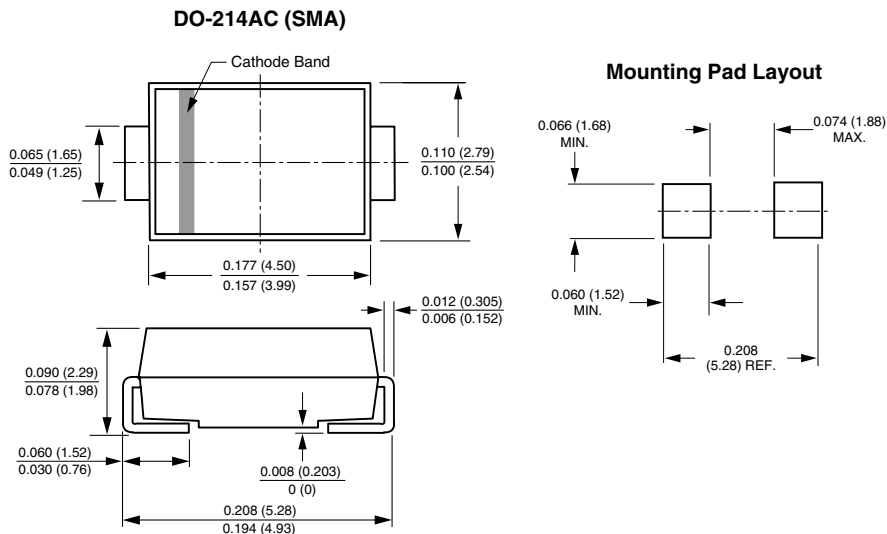


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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