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-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

MAJOR RATINGS AND 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 µA, 5.0 µA
V_F	1.1 V
T_j max.	150 °C

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and free-wheeling 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-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes cathode end

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	**SYMBOL**	**S1A**	**S1B**	**S1D**	**S1G**	**S1J**	**S1K**	**S1M**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$	75					85		°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				
PREFERRED P/N	**UNIT WEIGHT (g)**	**REFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
S1J-E3/61T	0.064	61T	1800	7" Diameter Plastic Tape & Reel
S1J-E3/5AT	0.064	5AT	7500	13" Diameter Plastic Tape & Reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

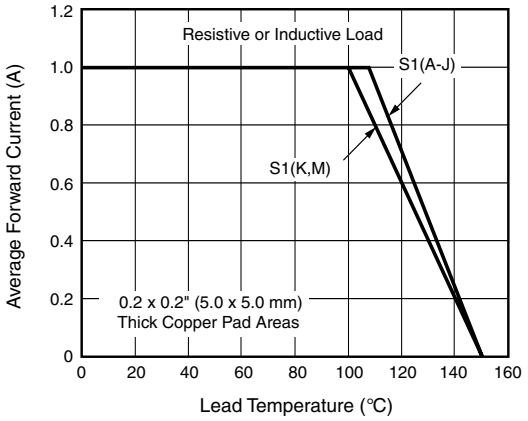


Figure 1. Forward Current Derating Curve

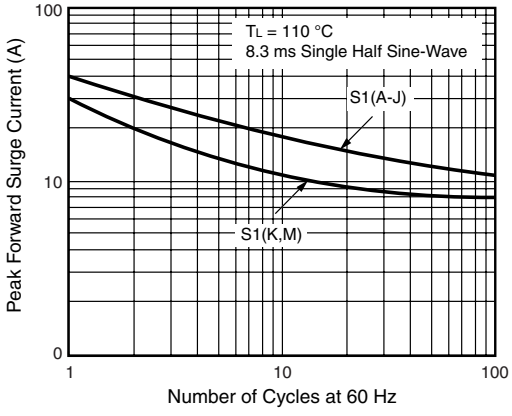


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

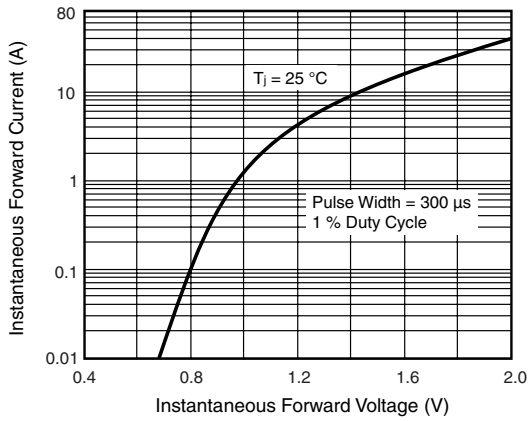


Figure 3. Typical Instantaneous Forward Characteristics

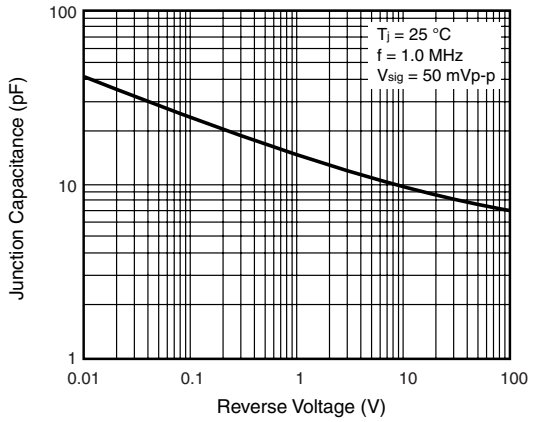


Figure 5. Typical Junction Capacitance

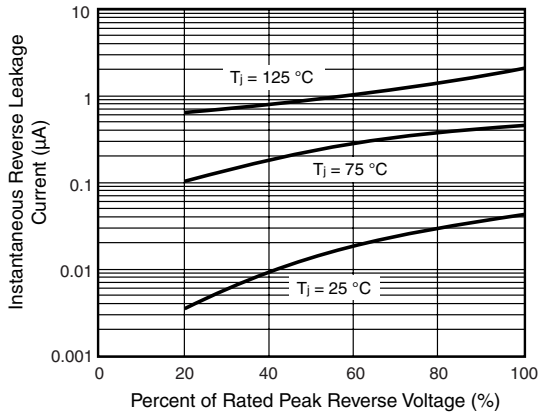


Figure 4. Typical Reverse Leakage Characteristics

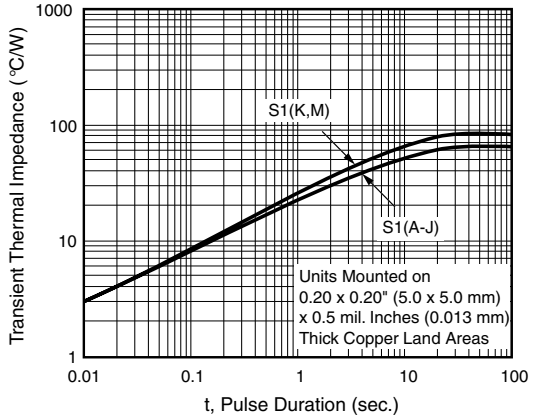
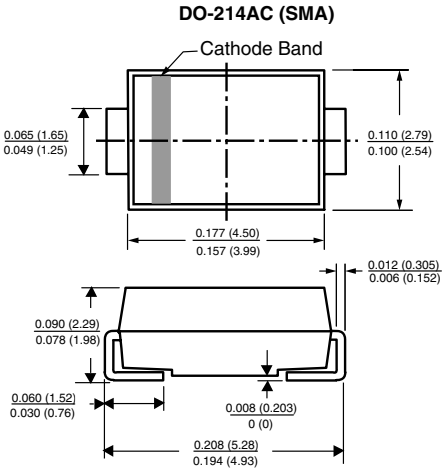
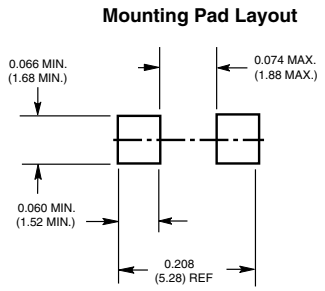


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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