1A, 50V - 1000V Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Lighting application
- Snubber
- General purpose

MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.060g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	1	A
V_{RRM}	50 - 1000	V
I_{FSM}	30, 40	A
$T_{J\ MAX}$	175	°C
Package	DO-214AC (SMA)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-214AC (SMA)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)									
PARAMETER	**SYMBOL**	**S1A**	**S1B**	**S1D**	**S1G**	**S1J**	**S1K**	**S1M**	**UNIT**
Marking code on the device		S1A	S1B	S1D	S1G	S1J	S1K	S1M	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Forward current	I_F	1							A
Peak forward surge current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	40						30	A
Non-repetitive peak reverse avalanche energy, I_{AS} = 1A, L = 10mH	E_{RSM}	5							mJ
Junction temperature	T_J	- 55 to +175							°C
Storage temperature	T_{STG}	- 55 to +175							°C

THERMAL PERFORMANCE

PARAMETER		SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	S1A S1B S1D S1G S1J	$R_{\Theta JL}$	27	°C/W
	S1K S1M		30	°C/W
Junction-to-ambient thermal resistance	S1A S1B S1D S1G S1J	$R_{\Theta JA}$	75	°C/W
	S1K S1M		85	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	I_F = 1A, T_J = 25°C	V_F	-	1.1	V
Reverse current @ rated V_R[2]	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		-	50	μA
Junction capacitance	1MHz, V_R = 4.0V	C_J	12	-	pF
Reverse recovery time	I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	1500	-	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
S1x	DO-214AC (SMA)	7,500 / Tape & Reel

Notes:

1. “x” defines voltage from 50V(S1A) to 1000V(S1M)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

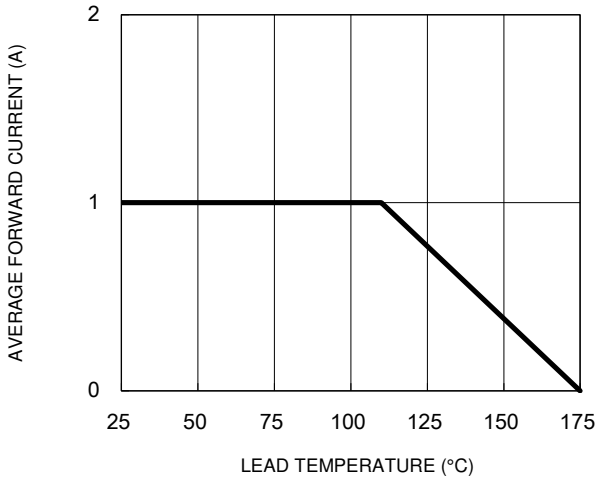


Fig.2 Typical Junction Capacitance

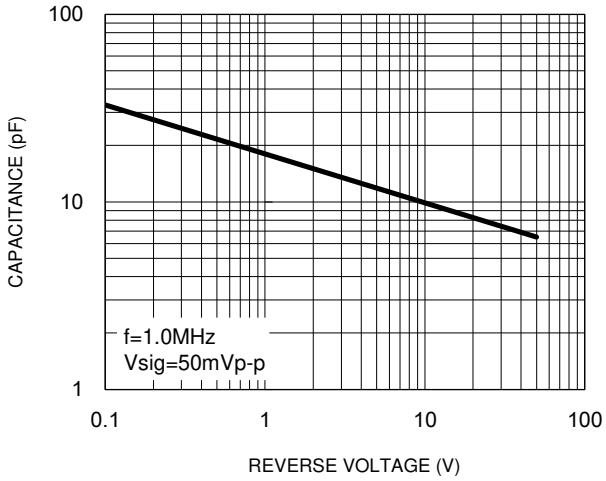


Fig.3 Typical Reverse Characteristics

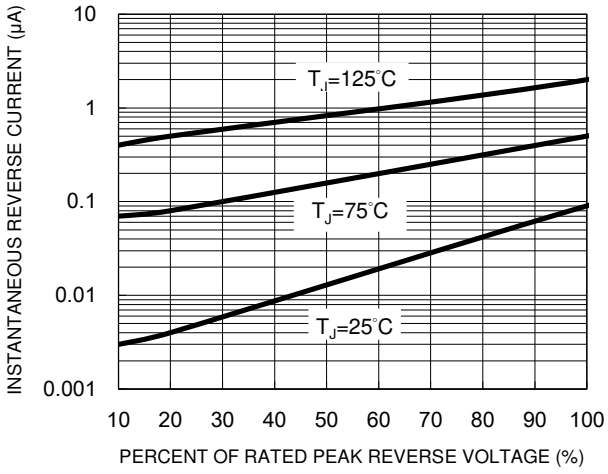


Fig.4 Typical Forward Characteristics

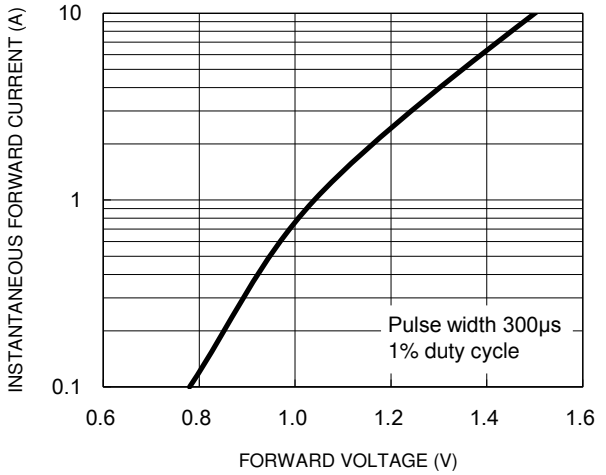
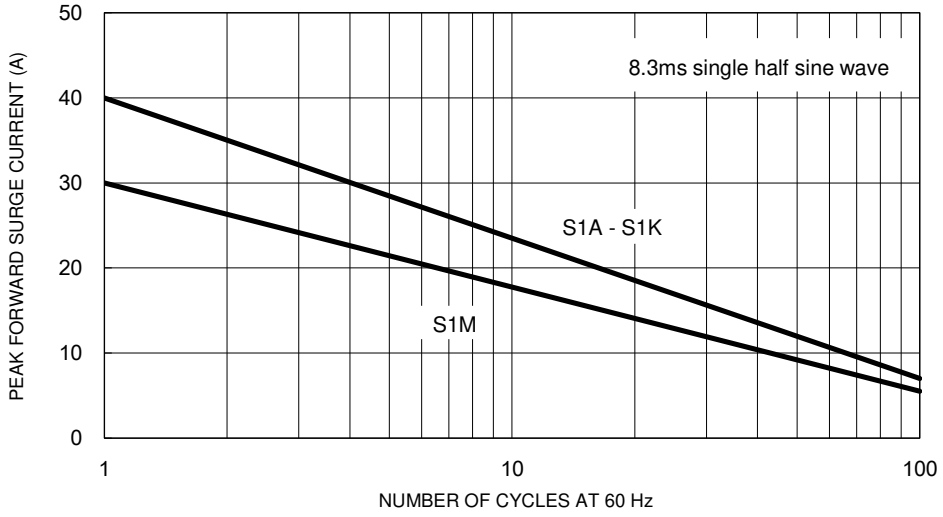


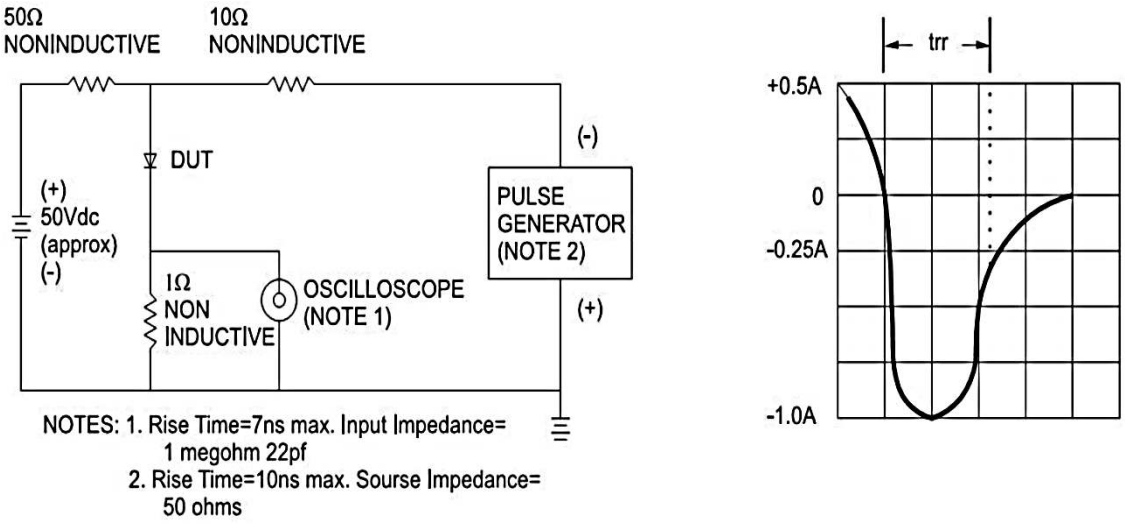
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

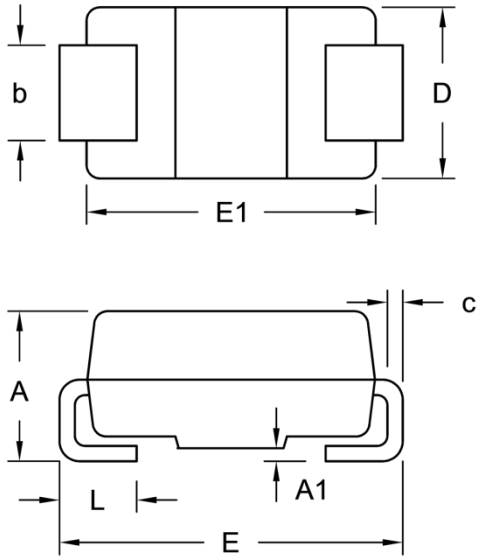
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram



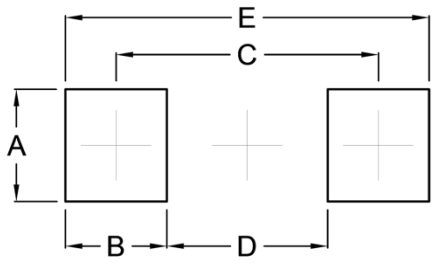
PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.10	0.20	0.004	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM

P/N = Marking Code
G = Green Compound
YW = Date Code
F = Factory Code

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