

600W, 10V - 30V Surface Mount Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified
- Low profile package
- Ideal for automated placement
- Glass passivated junction
- Excellent clamping capability
- Fast response time: typically less than 1.0ps
- 600W peak pulse power capability with a 10/1000μs waveform
- Meets ISO 7637-2 (Pulse 1/2a/2b/3a/3b)
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

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
V_{WM}	10 - 30	V
V_{BR}	11.1 - 36.8	V
P_{PPM} $t_p = 10/1000\mu s$ waveform	600	W
$T_{J\ MAX}$	175	°C
Package	DO-214AC (SMA)	
Configuration	Single die	



DO-214AC (SMA)



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

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation at $T_A = 25^\circ\text{C}$, $t_p = 1\text{ms}$ (Note 1)	P_{PK}	600	W
Steady state power dissipation	P_D	4	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	50	A
Operating junction temperature range	T_J	-55 to +175	°C
Storage temperature range	T_{STG}	-55 to +175	°C

Notes:

1. Non-repetitive current pulse per Fig.5

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

Part number	Marking code	Breakdown voltage $V_{BR}@I_T$ (V)		Test current I_T (mA)	Working stand-off voltage V_{WM} (V)	Maximum reverse leakage current $I_R@V_{WM}$ (μA)	Maximum peak impulse current I_{PPM} (A)	Maximum clamping voltage $V_C@I_{PPM}$ (V)
		Min	Max					
SMA6J10AH	6AX	11.1	12.3	1	10	5.0	38.2	15.7
SMA6J11AH	6AZ	12.2	13.5	1	11	5.0	34.8	17.2
SMA6J12AH	6BE	13.3	14.7	1	12	1.0	31.9	18.8
SMA6J13AH	6BG	14.4	15.9	1	13	1.0	29.4	20.4
SMA6J15AH	6BM	16.7	18.5	1	15	1.0	25.4	23.6
SMA6J16AH	6BP	17.8	19.7	1	16	1.0	23.8	25.2
SMA6J17AH	6BR	18.9	20.9	1	17	1.0	22.5	26.7
SMA6J18AH	6BT	20	22.1	1	18	1.0	21.2	28.3
SMA6J20AH	6BV	22.2	24.5	1	20	1.0	19.1	31.4
SMA6J22AH	6BX	24.4	26.9	1	22	1.0	17.4	34.5
SMA6J24AH	6BZ	26.7	29.5	1	24	1.0	15.9	37.8
SMA6J26AH	6CE	28.9	31.9	1	26	1.0	14.7	40.9
SMA6J28AH	6CG	31.1	34.4	1	28	1.0	13.6	44.0
SMA6J30AH	6CK	33.3	36.8	1	30	1.0	12.3	48.4

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
SMA6JxAH	DO-214AC (SMA)	7,500 / Tape & Reel

Notes:

- “x” defines voltage from 10V(SMA6J10AH) to 30V(SMA6J30AH)

CHARACTERISTICS CURVES

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

Fig.1 Peak Pulse Power Rating Curve

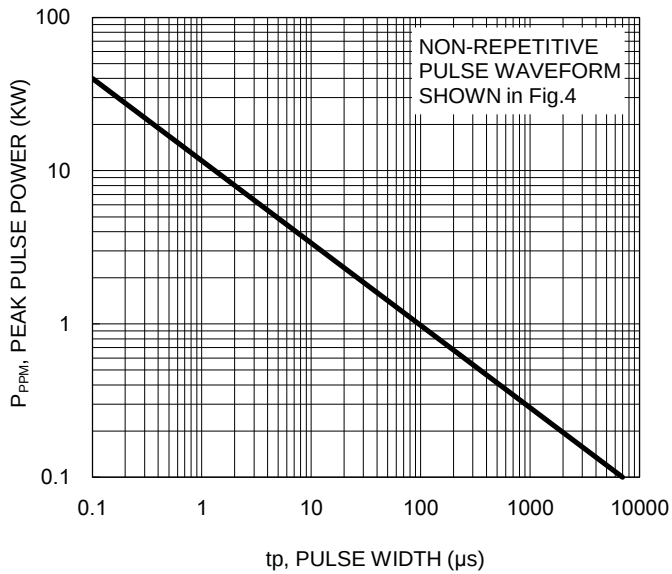


Fig.2 Pulse Derating Curve

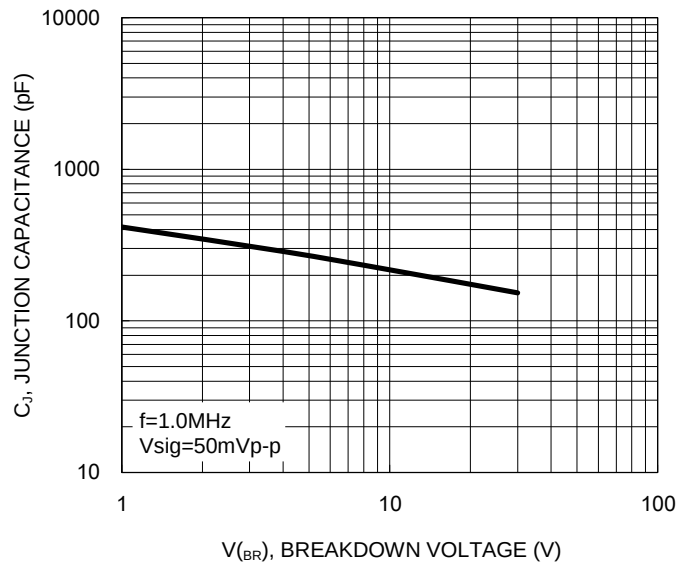
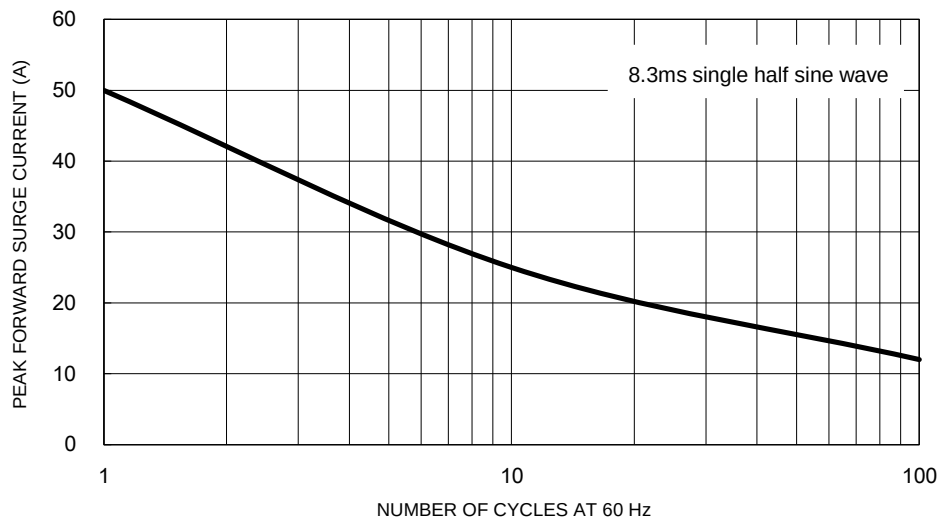


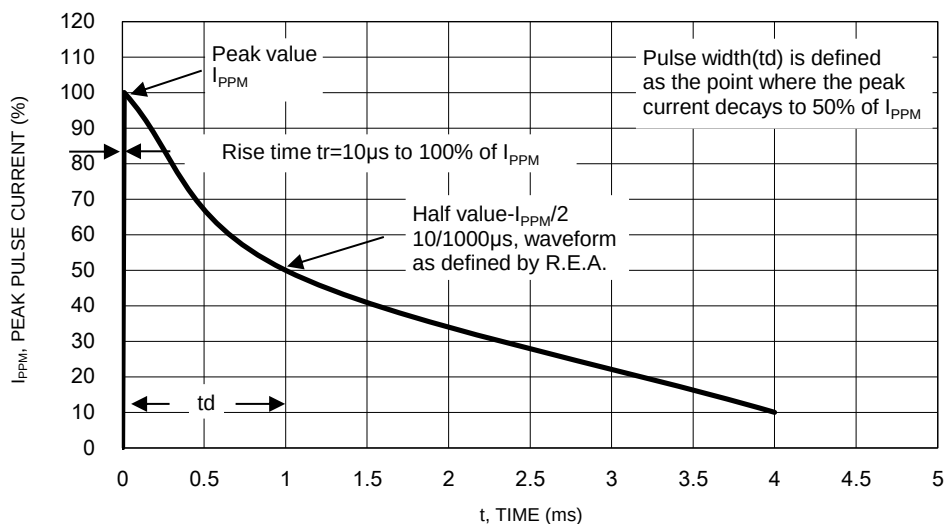
Fig.3 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

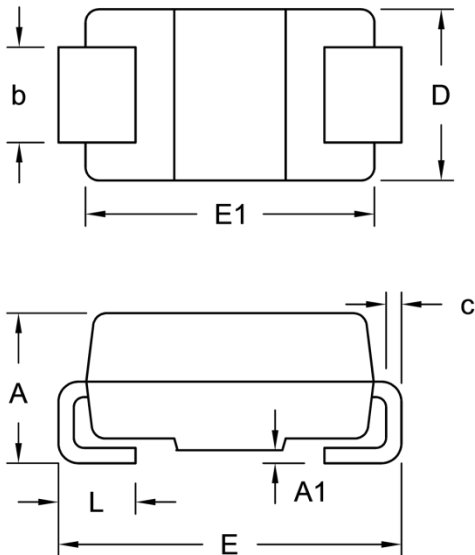
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.4 Clamping Power Pulse Waveform



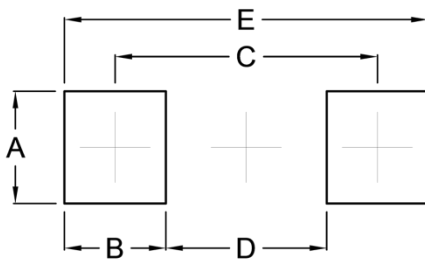
PACKAGE OUTLINE DIMENSIONS

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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