TAYCHIPST Surface Mount Transient Voltage Suppressors

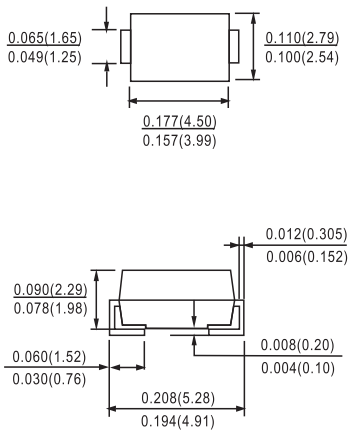
SMA6J5.0A THRU SMA6J28A

5.0V-28V 600W

FEATURES

- Low profile package
- Ideal for automated placement
- Available in uni-directional polarity only
- Excellent clamping 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

DO-214AC(SMA)



Dimensions in inches and (millimeters)

Mechanical Data

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

PARAMETER		SYMBOL	VALUE	UNIT
Peak pulse power dissipation	with 10/1000 µs waveform (1)(2) with 8/20 µs waveform	P_{PPM}	600 4000	W
Peak pulse current	with 10/1000 µs waveform (1)(2) with 8/20 µs waveform	I_{PPM}	See next table	A
Power dissipation on infinite heatsink, T_A = 50 °C		P_D	4.0	W
Peak forward surge current 8.3 ms single half sine-wave		I_{FSM}	50	A
Operating junction and storage temperature range		T_J, T_{STG}	- 55 to + 150	°C

Notes:

(1) Non-repetitive current pulse, per Fig. 1 and derated above T_A = 25 °C per Fig. 2.

(2) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to ambient (1)	$R_{\theta JA}$	120	°C/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	25	°C/W

Note:

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMA6J5.0A-E3/61	0.064	61	1800	7" diameter plastic tape and reel
SMA6J5.0A-E3/5A	0.064	5A	7500	13" diameter plastic tape and reel

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

DEVICE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V_{BR} AT I_T (1)			MAXIMUM REVERSE LEAKAGE I_D AT V_{WM}			V_C AT I_{PP} 10/1000 µs		R_D (2)	V_C AT I_{PP} 8/20 µs		R_D (2)	αT (3)
		MIN.	MAX.		25 °C	85 °C		MAX.			MAX.			MAX.
		V		mA	µA		V	V	A	Ω	V	A	Ω	10^{-4}/°C
SMA6J5.0A	6AE	6.40	7.07	10	150	375	5.0	9.1	65.9	0.031	13.4	298	0.021	5.7
SMA6J6.0A	6AG	6.70	7.41	10	600	1500	6.0	9.5	63.2	0.033	13.7	290	0.022	5.9
SMA6J6.5A	6AK	7.20	7.96	10	100	250	6.5	10.2	58.8	0.038	14.5	276	0.024	6.1
SMA6J7.5A	6AP	8.33	9.21	1	50	125	7.5	11.8	50.8	0.051	17.0	235	0.033	6.5
SMA6J8.0A	6AR	8.89	9.83	1	20	50	8.0	12.5	48.0	0.056	18.2	220	0.038	7.0
SMA6J8.5A	6AT	9.4	10.4	1	20	50	8.5	13.3	45.1	0.064	18.7	205	0.040	7.3
SMA6J10A	6AX	11.1	12.3	1	0.2	1	10	15.7	38.2	0.089	19.6	184	0.040	7.8
SMA6J11A	6AZ	12.2	13.5	1	0.2	1	11	17.2	34.8	0.107	21.5	172	0.047	8.1
SMA6J12A	6BE	13.3	14.7	1	0.2	1	12	18.8	31.9	0.128	23.5	157	0.056	8.3
SMA6J13A	6BG	14.4	15.9	1	0.2	1	13	20.4	29.4	0.153	23.9	147	0.054	8.4
SMA6J15A	6BM	16.7	18.5	1	0.2	1	15	23.6	25.4	0.201	27.7	123	0.075	8.8
SMA6J16A	6BP	17.8	19.7	1	0.2	1	16	25.2	23.8	0.229	29.5	119	0.083	8.8
SMA6J17A	6BR	18.9	20.9	1	0.2	1	17	26.7	22.5	0.259	31.4	111	0.094	9.0
SMA6J18A	6BT	20.0	22.1	1	0.2	1	18	28.3	21.2	0.292	33.2	102	0.109	9.2
SMA6J20A	6BV	22.2	24.5	1	0.2	1	20	31.4	19.1	0.361	36.8	93	0.132	9.4
SMA6J22A	6BX	24.4	26.9	1	0.2	1	22	34.5	17.4	0.437	40.4	89	0.152	9.5
SMA6J24A	6BZ	26.7	29.5	1	0.2	1	24	37.8	15.9	0.523	44.3	80	0.185	9.6
SMA6J26A	6CE	28.9	31.9	1	0.2	1	26	40.9	14.7	0.614	47.9	75	0.213	9.7
SMA6J28A	6CG	31.1	34.4	1	0.2	1	28	44.0	13.6	0.704	51.6	68	0.253	9.8

Notes:

(1) Pulse test: $t_p \leq 50$ ms

(2) To calculate maximum clamping voltage at other surge currents, use the following formula
$V_{CLmax.} = R_D \times I_{PP} + V_{BRmax.}$

(3) To calculate V_{BR} vs. junction temperature, use the following formula
V_{BR} at $T_J = V_{BR}$ at 25 °C x $(1 + \alpha T \times (T_J - 25))$

(4) V_F = 3.5 V at I_F = 25 A, pulse test: 300 µs pulse width

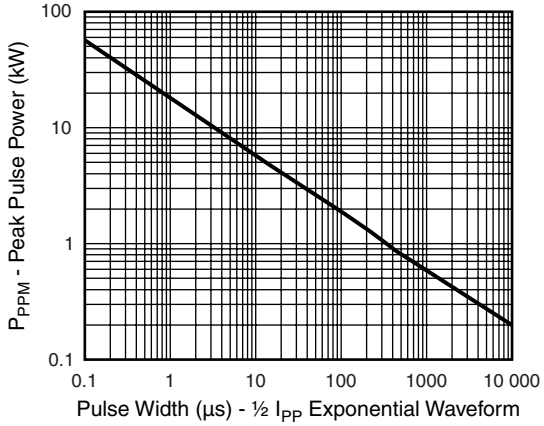


Figure 1. Peak Pulse Power Rating Curve

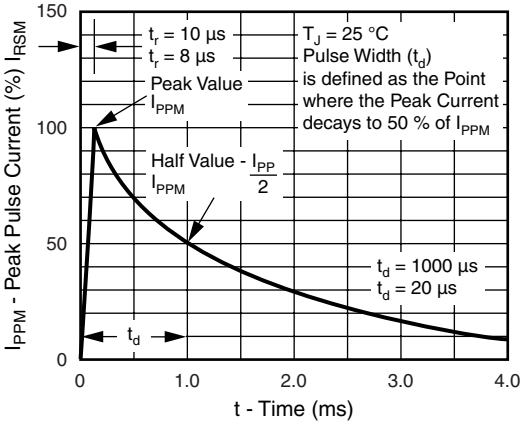


Figure 3. Pulse Waveform

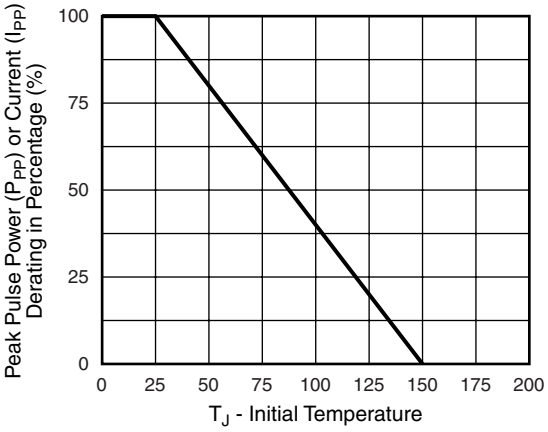


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

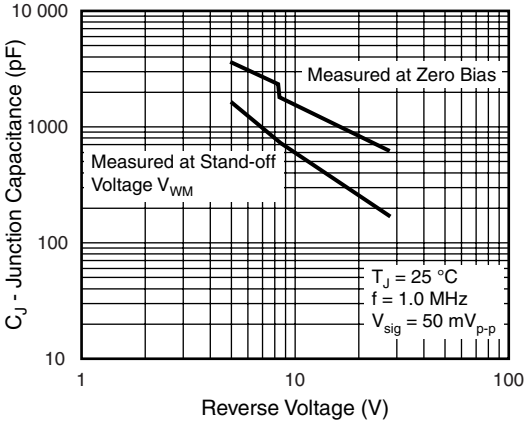


Figure 4. Typical Junction Capacitance

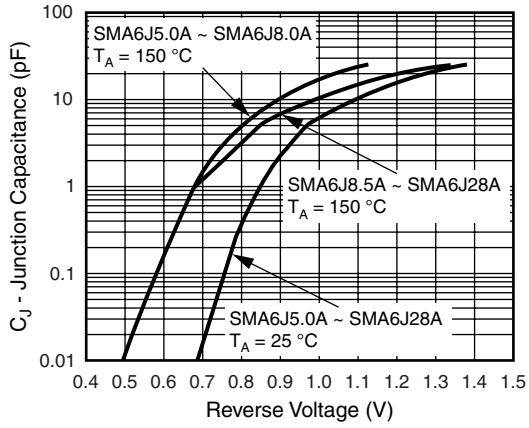


Figure 5. Typical Forward Characteristics

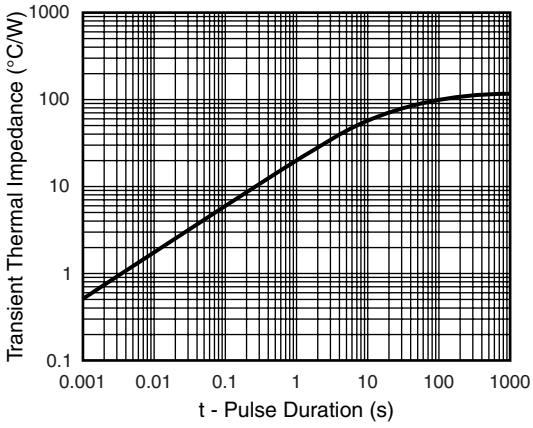


Figure 6. Typical Transient Thermal Impedance