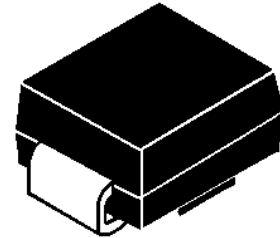




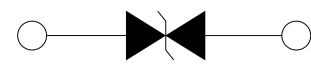
## 600W Surface Mount Transient Voltage Suppressors

### Features

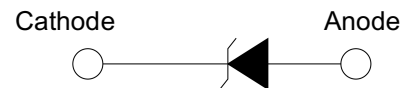
- Peak power dissipation 600W @10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- Fast response time: typically less than 1ps from 0 Volts to BV min
- Typical  $I_R$  less than 1uA when  $V_{BR}$  min above 12V.
- IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Halogen free and RoHS compliant
- Lead-free finish



SMA



Bi-directional



Cathode

Anode

Uni-directional

### Mechanical Characteristics

- CASE: SMA (DO-214AC) Molded Plastic over glass passivated junction.
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.
- Terminal: Solder plated

### Maximum Ratings And Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1)	$P_{PPM}$	Min 600	W
Power Dissipation on Infinite Heat Sink at $T_L=50^\circ\text{C}$	$P_D$	3.3	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	$I_{PPM}$	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)	$I_{FSM}$	60	A
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
2. Mounted on  $5.0 \times 5.0 \text{mm}^2$  (0.03mm thick) Copper Pads to each terminal.
3. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

# SMA6J Series

## Electrical Specification @ Tamb 25°C

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RMW</sub>
(Uni)	(Bi)	(Uni)	(Bi)	V <sub>RMW</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> ( $\mu$ A)
SMA6J5.0A	SMA6J5.0CA	HE	TE	5.0	6.40	7.00	10	9.2	65.3	800
SMA6J6.0A	SMA6J6.0CA	HG	TG	6.0	6.67	7.37	10	10.3	58.3	800
SMA6J6.5A	SMA6J6.5CA	HK	TK	6.5	7.22	7.98	10	11.2	53.6	500
SMA6J7.0A	SMA6J7.0CA	HM	TM	7.0	7.78	8.60	10	12.0	50.0	200
SMA6J7.5A	SMA6J7.5CA	HP	TP	7.5	8.33	9.21	1	12.9	46.6	100
SMA6J8.0A	SMA6J8.0CA	HR	TR	8.0	8.89	9.83	1	13.6	44.2	50
SMA6J8.5A	SMA6J8.5CA	HT	TT	8.5	9.44	10.40	1	14.4	41.7	20
SMA6J9.0A	SMA6J9.0CA	HV	TV	9.0	10.00	11.10	1	15.4	39.0	10
SMA6J10A	SMA6J10CA	HX	TX	10.0	11.10	12.30	1	17.0	35.3	5
SMA6J11A	SMA6J11CA	HZ	TZ	11.0	12.20	13.50	1	18.2	33.0	1
SMA6J12A	SMA6J12CA	IE	UE	12.0	13.30	14.70	1	19.9	30.2	1
SMA6J13A	SMA6J13CA	IG	UG	13.0	14.40	15.90	1	21.5	27.9	1
SMA6J14A	SMA6J14CA	IK	UK	14.0	15.60	17.20	1	23.2	25.9	1
SMA6J15A	SMA6J15CA	IM	UM	15.0	16.70	18.50	1	24.4	24.6	1
SMA6J16A	SMA6J16CA	IP	UP	16.0	17.80	19.70	1	26.0	23.1	1
SMA6J17A	SMA6J17CA	IR	UR	17.0	18.90	20.90	1	27.6	21.8	1
SMA6J18A	SMA6J18CA	IT	UT	18.0	20.00	22.10	1	29.2	20.6	1
SMA6J20A	SMA6J20CA	IV	UV	20.0	22.20	24.50	1	32.4	18.6	1
SMA6J22A	SMA6J22CA	IX	UX	22.0	24.40	26.90	1	35.5	16.9	1
SMA6J24A	SMA6J24CA	IZ	UZ	24.0	26.70	29.50	1	38.9	15.5	1
SMA6J26A	SMA6J26CA	JE	VE	26.0	28.90	31.90	1	42.1	14.3	1
SMA6J28A	SMA6J28CA	JG	VG	28.0	31.10	34.40	1	45.4	13.3	1
SMA6J30A	SMA6J30CA	JK	VK	30.0	33.30	36.80	1	48.4	12.4	1
SMA6J33A	SMA6J33CA	JM	VM	33.0	36.70	40.60	1	53.3	11.3	1
SMA6J36A	SMA6J36CA	JP	VP	36.0	40.00	44.20	1	58.1	10.4	1
SMA6J40A	SMA6J40CA	JR	VR	40.0	44.40	49.10	1	64.5	9.3	1
SMA6J43A	SMA6J43CA	JT	VT	43.0	47.80	52.80	1	69.4	8.7	1
SMA6J45A	SMA6J45CA	JV	VV	45.0	50.00	55.30	1	72.7	8.3	1
SMA6J48A	SMA6J48CA	JX	VX	48.0	53.30	58.90	1	77.4	7.8	1
SMA6J51A	SMA6J51CA	JZ	VZ	51.0	56.70	62.70	1	82.4	7.3	1
SMA6J54A	SMA6J54CA	RE	WE	54.0	60.00	66.30	1	87.1	6.9	1
SMA6J58A	SMA6J58CA	RG	WG	58.0	64.40	71.20	1	93.6	6.5	1
SMA6J60A	SMA6J60CA	RK	WK	60.0	66.70	73.70	1	96.8	6.2	1
SMA6J64A	SMA6J64CA	RM	WM	64.0	71.10	78.60	1	103.0	5.9	1
SMA6J70A	SMA6J70CA	RP	WP	70.0	77.80	86.00	1	113.0	5.3	1
SMA6J75A	SMA6J75CA	RR	WR	75.0	83.30	92.10	1	121.0	5.0	1

※ For Bi-directional type having V<sub>RMW</sub> of 10 Volts and less, the I<sub>R</sub> limit is double.

※ For parts without A, the V<sub>BR</sub> is  $\pm 10\%$  and V<sub>C</sub> is 5% higher than with A parts.

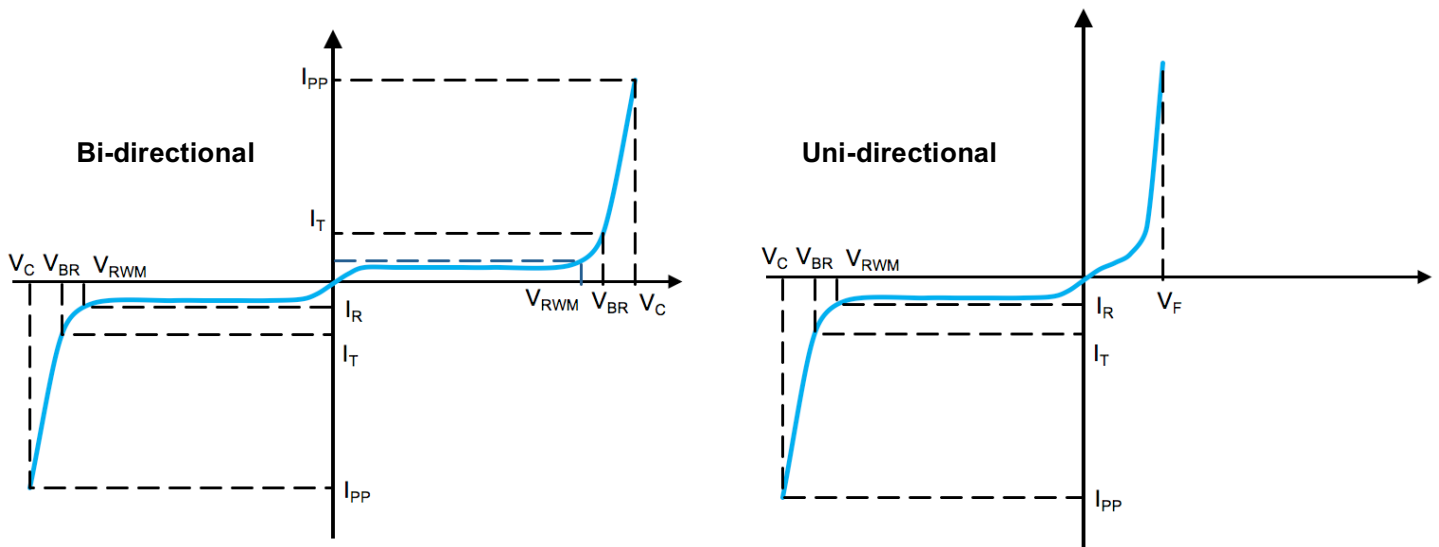
# SMA6J Series

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RWM}$
(Uni)	(Bi)	(Uni)	(Bi)	$V_{RWM}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SMA6J78A	SMA6J78CA	RT	WT	78.0	86.70	95.80	1	126.0	4.8	1
SMA6J85A	SMA6J85CA	RV	WV	85.0	94.40	104.00	1	137.0	4.4	1
SMA6J90A	SMA6J90CA	RX	WX	90.0	100.00	111.00	1	146.0	4.1	1
SMA6J100A	SMA6J100CA	RZ	WZ	100.0	111.00	123.00	1	162.0	3.7	1
SMA6J110A	SMA6J110CA	SE	XE	110.0	122.00	135.00	1	177.0	3.4	1
SMA6J120A	SMA6J120CA	SG	XG	120.0	133.00	147.00	1	193.0	3.1	1
SMA6J130A	SMA6J130CA	SK	XK	130.0	144.00	159.00	1	209.0	2.9	1
SMA6J150A	SMA6J150CA	SM	XM	150.0	167.00	185.00	1	243.0	2.5	1
SMA6J160A	SMA6J160CA	SP	XP	160.0	178.00	197.00	1	259.0	2.3	1
SMA6J170A	SMA6J170CA	SR	XR	170.0	189.00	209.00	1	275.0	2.2	1
SMA6J180A	SMA6J180CA	ST	XT	180.0	201.00	222.00	1	292.0	2.1	1

※ For Bi-directional type having  $V_{RWM}$  of 10 Volts and less, the  $I_R$  limit is double.

※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

## I-V Curve Characteristics



$P_{PPM}$  **Peak Pulse Power Dissipation** - Max power dissipation

$V_{RWM}$  **Reverse Stand-off Voltage** - Maximum voltage that can be applied to TVS without operation

$V_{BR}$  **Breakdown Voltage** – Maximum voltage that flows through the TVS at a specified current ( $I_T$ )

$V_C$  **Clamping Voltage** – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)

$I_R$  **Reverse Leakage Current** – Current measured at  $V_R$

$V_F$  **Forward Voltage Drop for Uni-directional**

## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

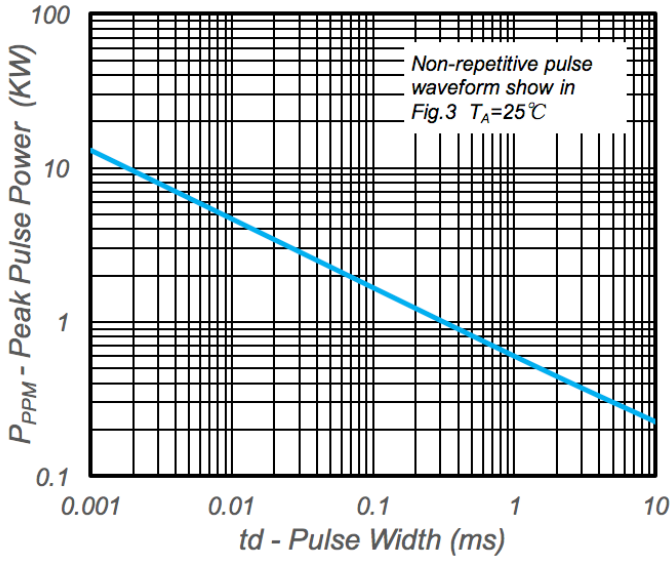


Fig.1 - Peak Pulse Power Rating

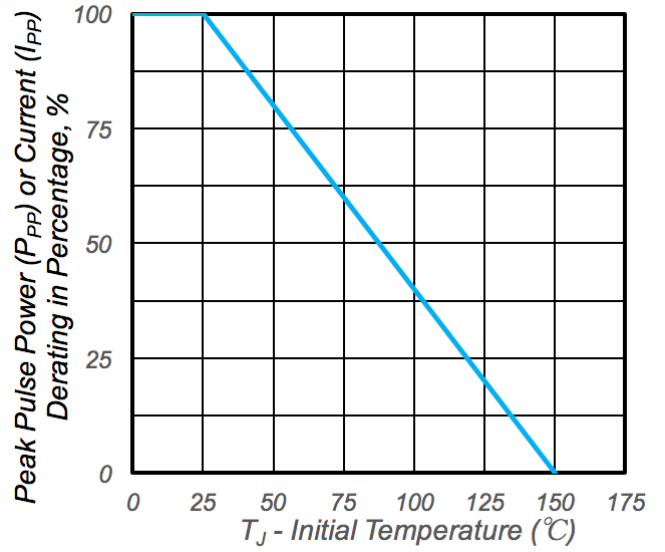


Fig.2 - Pulse Derating Curve

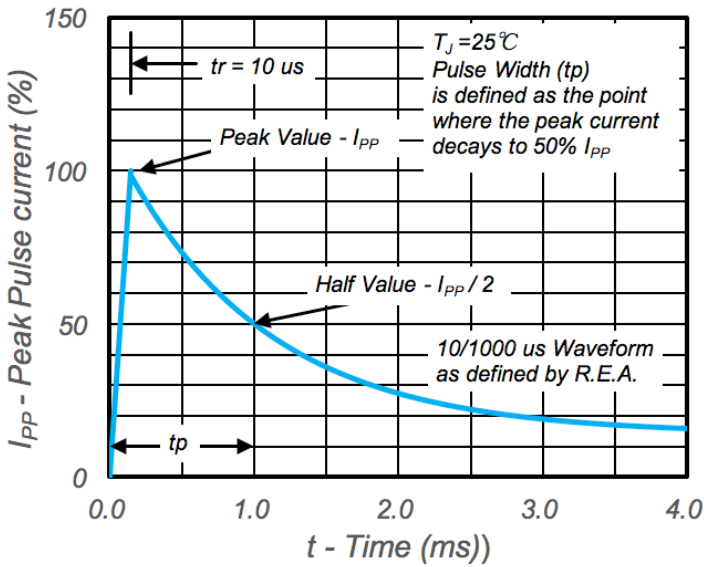


Fig.3 - Pulse Waveform

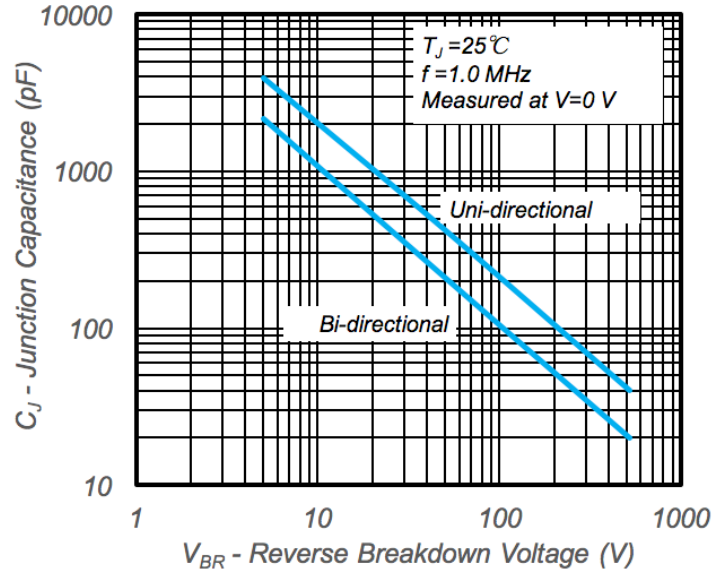
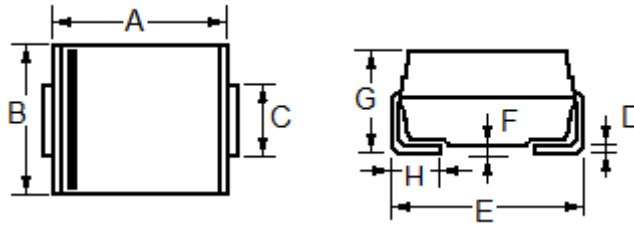


Fig.4 - Typical Junction Capacitance

## Package Outline Dimensions and Pad Layouts

### DO-214AC (SMA)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	3.99	4.50	0.157	0.177
B	2.54	2.79	0.100	0.110
C	1.25	1.65	0.049	0.065
D	0.152	0.305	0.006	0.012
E	4.93	5.28	0.194	0.208
F	----	0.203	----	0.008
G	1.98	2.29	0.078	0.090
H	0.76	1.52	0.030	0.060