



# SMA6J-A SERIES

## Surface Mount Transient Voltage Suppressor

### Features

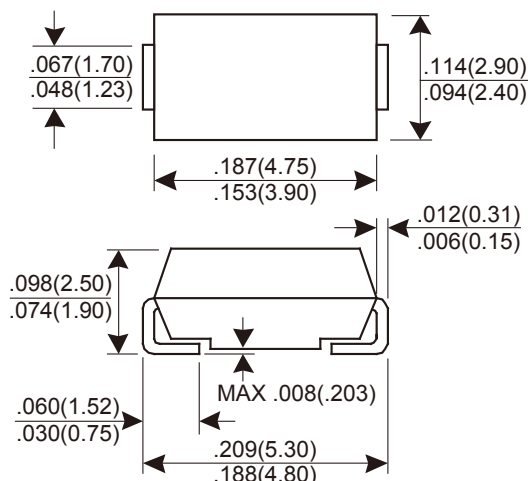
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 600W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ★ ESD protection of data lines in accordance with IEC 61000-4-2
- ★  $V_{BR}@T_J = V_{BR}@25^{\circ}C \times (1 + \alpha T \times (T_J - 25))$   
( $\alpha T$ : Temperature Coefficient, typical value is 0.1%)

### Mechanical Data

- ★ Case: Molded plastic, SMA/DO-214AC
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end
- ★ Part no. with suffix "-A" means AEC-Q101 qualified

**Working Voltage 5.0 to 440 V**  
**Peak Pulse Power 600W**

### SMA/DO-214AC



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

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

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1,2)	$P_{PPM}$	600	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	$I_{FSM}$	60	A
Power dissipation on infinite heatsink at $T_L=75^{\circ}C$	$P_D$	3.0	W
Maximum instantaneous forward voltage at 25A for unidirectional only	$V_F$	3.5 / 5.0	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	$^{\circ}C/W$
Typical thermal resistance junction to lead	$R_{\theta JL}$	30	$^{\circ}C/W$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150	$^{\circ}C$

- Notes : (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^{\circ}C$  per Fig. 2  
 (2) Mounted on copper pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal  
 (3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum  
 (4)  $V_F < 3.5V$  for devices of  $V_{BR} < 200V$  and  $V_F < 5.0V$  for devices of  $V_{BR} > 201V$

# SMA6J-A SERIES

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

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R@V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
SMA6J5.0A-A	SMA6J5.0CA-A	KE	AE	6.40	7.00	10	800	5.0	65.22	9.2
SMA6J6.0A-A	SMA6J6.0CA-A	KG	AG	6.67	7.37	10	800	6.0	58.25	10.3
SMA6J6.5A-A	SMA6J6.5CA-A	KK	AK	7.22	7.98	10	500	6.5	53.57	11.2
SMA6J7.0A-A	SMA6J7.0CA-A	KM	AM	7.78	8.60	10	200	7.0	50.00	12.0
SMA6J7.5A-A	SMA6J7.5CA-A	KP	AP	8.33	9.21	1	100	7.5	46.51	12.9
SMA6J8.0A-A	SMA6J8.0CA-A	KR	AR	8.89	9.83	1	50	8.0	44.12	13.6
SMA6J8.5A-A	SMA6J8.5CA-A	KT	AT	9.44	10.4	1	20	8.5	41.67	14.4
SMA6J9.0A-A	SMA6J9.0CA-A	KV	AV	10.0	11.1	1	10	9.0	38.96	15.4
SMA6J10A-A	SMA6J10CA-A	KX	AX	11.1	12.3	1	5	10	35.29	17.0
SMA6J11A-A	SMA6J11CA-A	KZ	AZ	12.2	13.5	1	1	11	32.97	18.2
SMA6J12A-A	SMA6J12CA-A	LE	BE	13.3	14.7	1	1	12	30.15	19.9
SMA6J13A-A	SMA6J13CA-A	LG	BG	14.4	15.9	1	1	13	27.91	21.5
SMA6J14A-A	SMA6J14CA-A	LK	BK	15.6	17.2	1	1	14	25.86	23.2
SMA6J15A-A	SMA6J15CA-A	LM	BM	16.7	18.5	1	1	15	24.59	24.4
SMA6J16A-A	SMA6J16CA-A	LP	BP	17.8	19.7	1	1	16	23.08	26.0
SMA6J17A-A	SMA6J17CA-A	LR	BR	18.9	20.9	1	1	17	21.74	27.6
SMA6J18A-A	SMA6J18CA-A	LT	BT	20.0	22.1	1	1	18	20.55	29.2
SMA6J20A-A	SMA6J20CA-A	LV	BV	22.2	24.5	1	1	20	18.52	32.4
SMA6J22A-A	SMA6J22CA-A	LX	BX	24.4	26.9	1	1	22	16.90	35.5
SMA6J24A-A	SMA6J24CA-A	LZ	BZ	26.7	29.5	1	1	24	15.42	38.9
SMA6J26A-A	SMA6J26CA-A	ME	CE	28.9	31.9	1	1	26	14.25	42.1
SMA6J28A-A	SMA6J28CA-A	MG	CG	31.1	34.4	1	1	28	13.22	45.4
SMA6J30A-A	SMA6J30CA-A	MK	CK	33.3	36.8	1	1	30	12.40	48.4
SMA6J33A-A	SMA6J33CA-A	MM	CM	36.7	40.6	1	1	33	11.26	53.3
SMA6J36A-A	SMA6J36CA-A	MP	CP	40.0	44.2	1	1	36	10.33	58.1
SMA6J40A-A	SMA6J40CA-A	MR	CR	44.4	49.1	1	1	40	9.30	64.5
SMA6J43A-A	SMA6J43CA-A	MT	CT	47.8	52.8	1	1	43	8.65	69.4
SMA6J45A-A	SMA6J45CA-A	MV	CV	50.0	55.3	1	1	45	8.25	72.7
SMA6J48A-A	SMA6J48CA-A	MX	CX	53.3	58.9	1	1	48	7.75	77.4
SMA6J51A-A	SMA6J51CA-A	MZ	CZ	56.7	62.7	1	1	51	7.28	82.4
SMA6J54A-A	SMA6J54CA-A	NE	DE	60.0	66.3	1	1	54	6.89	87.1
SMA6J58A-A	SMA6J58CA-A	NG	DG	64.4	71.2	1	1	58	6.41	93.6
SMA6J60A-A	SMA6J60CA-A	NK	DK	66.7	73.7	1	1	60	6.20	96.8
SMA6J64A-A	SMA6J64CA-A	NM	DM	71.1	78.6	1	1	64	5.83	103.0
SMA6J70A-A	SMA6J70CA-A	NP	DP	77.8	86.0	1	1	70	5.31	113.0
SMA6J75A-A	SMA6J75CA-A	NR	DR	83.3	92.1	1	1	75	4.96	121.0
SMA6J78A-A	SMA6J78CA-A	NT	DT	86.7	95.8	1	1	78	4.76	126.0
SMA6J85A-A	SMA6J85CA-A	NV	DV	94.4	104	1	1	85	4.38	137.0
SMA6J90A-A	SMA6J90CA-A	NX	DX	100	111	1	1	90	4.11	146.0
SMA6J100A-A	SMA6J100CA-A	NZ	DZ	111	123	1	1	100	3.70	162.0
SMA6J110A-A	SMA6J110CA-A	PE	EE	122	135	1	1	110	3.39	177.0
SMA6J120A-A	SMA6J120CA-A	PG	EG	133	147	1	1	120	3.11	193.0
SMA6J130A-A	SMA6J130CA-A	PK	EK	144	159	1	1	130	2.87	209.0
SMA6J150A-A	SMA6J150CA-A	PM	EM	167	185	1	1	150	2.47	243.0
SMA6J160A-A	SMA6J160CA-A	PP	EP	178	197	1	1	160	2.32	259.0
SMA6J170A-A	SMA6J170CA-A	PR	ER	189	209	1	1	170	2.18	275.0
SMA6J180A-A	SMA6J180CA-A	PT	ET	200	220	1	1	180	2.06	291.6
SMA6J200A-A	SMA6J200CA-A	PV	EV	224	247	1	1	200	1.85	324.0
SMA6J220A-A	SMA6J220CA-A	PX	EX	246	272	1	1	220	1.69	356.0
SMA6J250A-A	SMA6J250CA-A	PZ	EZ	279	309	1	1	250	1.48	405.0
SMA6J300A-A	SMA6J300CA-A	QE	FE	335	371	1	1	300	1.23	486.0
SMA6J350A-A	SMA6J350CA-A	QG	FG	391	432	1	1	350	1.06	567.0
SMA6J400A-A	SMA6J400CA-A	QK	FK	447	494	1	1	400	0.93	648.0
SMA6J440A-A	SMA6J440CA-A	QM	FM	492	543	1	1	440	0.84	713.0

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having  $V_R$  of 10 volts and less, the  $I_R$  limit is double.

# RATINGS AND CHARACTERISTICS CURVES SMA6J-A SERIES

Fig.1 - Peak Pulse Power Rating Curve

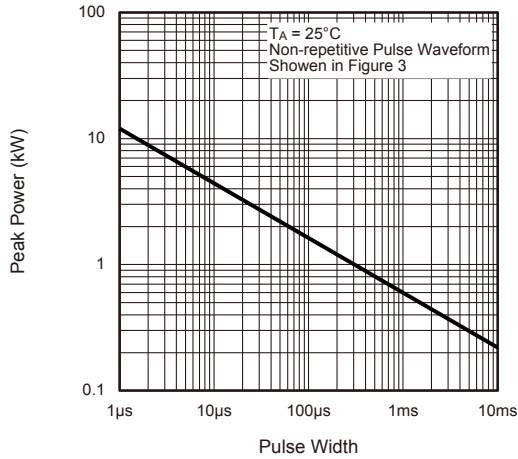


Fig.2 - Pulse Derating Curve

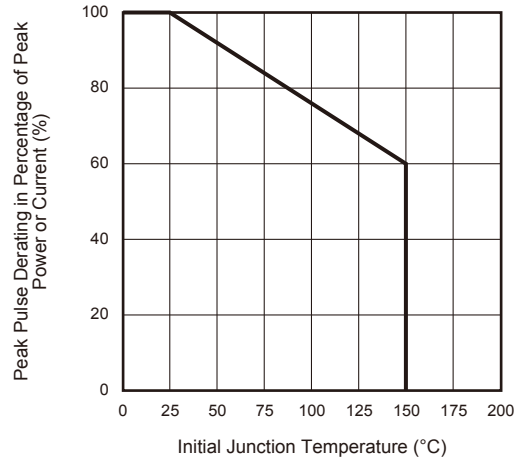


Fig.3 - Pulse Waveform

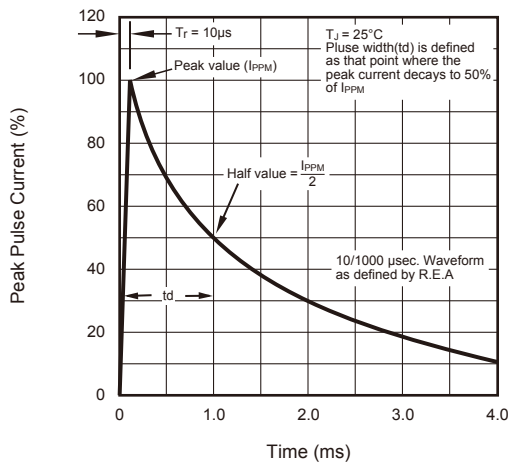


Fig.4 - Typical Junction Capacitance

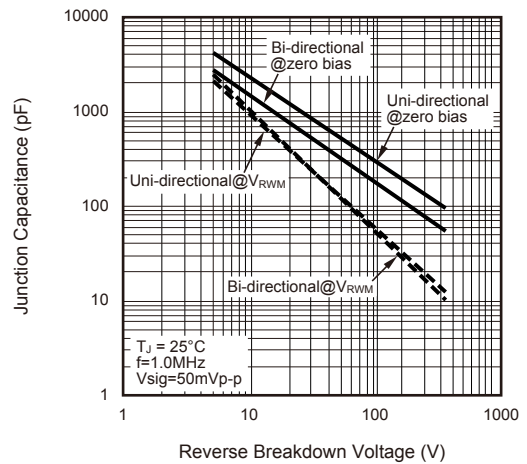


Fig.5 - Steady State Power Derating Curve

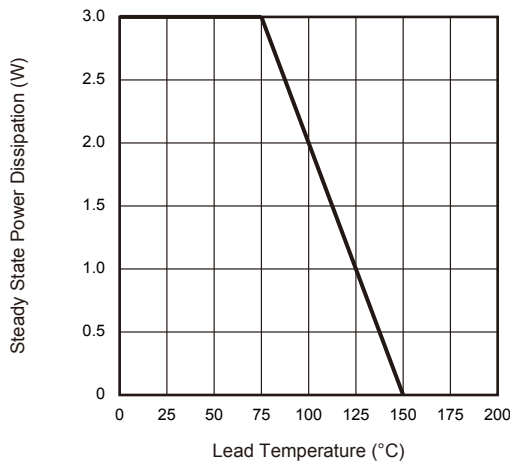


Fig.6 - Maximum Non-Repetitive Surge Current

