SMA6Jxxx(C)A Series

600W Surface Mount Transient Voltage Suppressors Diodes: 5.0V- 440V

Features

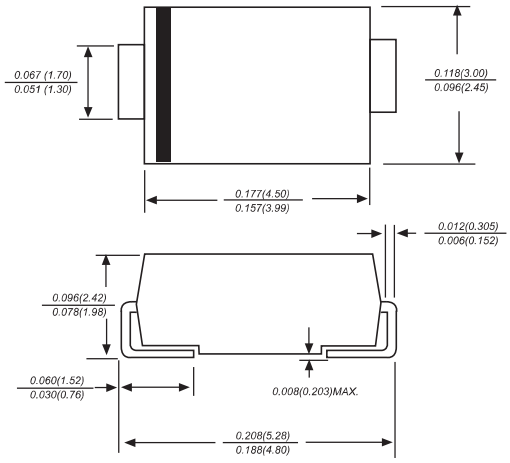
- Uni and Bidirectional unit
- Stand-off voltage range: from 5.0V to 440V
- 600W peak pulse power capability on 10/1000μs waveform
- Low zener impedance
- Excellent clamping capability
- Typical I_R less than 1μA above 13V
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Glass passivated chip junction
- Lead-free parts meet RoHS requirements
- Halogen free

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AC / SMA
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode except bi-directional models
- Mounting Position : Any

Package outline

DO-214AC/SMA



Dimensions in inches and (millimeters)

Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform, Note 1 & Fig. 1	P_{PPM}	600	W
Peak pulse current with a 10/1000μs waveform	I_{PPM}	See Table	A
Steady state power dissipation at T_L=75°C	$P_{M(AV)}$	5.0	W
Peak forward surge current 8.3ms single half sine-wave, Note 2	I_{FSM}	60	A
Instantaneous forward voltage at 50A for Unidirectional only, Note 3	V_F	3.5/5.0	V
Operating junction temperature range	T_J	-55 to+150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Notes 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
3. V_F < 3.5V for V_{BR} ≤ 200V and V_F < 6.5V for V_{BR} ≥ 201V.

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Electrical characteristics (at T_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand-off Voltage	Breakdown Voltage @I_T		Test Current	Maximum Clamping Voltage @I_{PP}		Maximum Reverse Leakage Current	Marking Code	
		V_{RWM}	$V_{BR\ MIN}$	$V_{BR\ MAX}$	I_T	V_C	I_{PP}	I_R @V_{RWM}		
		Volts	Volts	Volts	mA	Volts	A	μA	UNI	BI
SMA6J5.0A	SMA6J5.0CA	5.0	6.40	7.00	10	9.2	65.3	800	6AE	6WE
SMA6J6.0A	SMA6J6.0CA	6.0	6.67	7.37	10	10.3	58.3	800	6AG	6WG
SMA6J6.5A	SMA6J6.5CA	6.5	7.22	7.98	10	11.2	53.6	500	6AK	6WK
SMA6J7.0A	SMA6J7.0CA	7.0	7.78	8.60	10	12.0	50.0	200	6AM	6WM
SMA6J7.5A	SMA6J7.5CA	7.5	8.33	9.21	1.0	12.9	46.6	100	6AP	6WP
SMA6J8.0A	SMA6J8.0CA	8.0	8.89	9.83	1.0	13.6	44.2	50	6AR	6WR
SMA6J8.5A	SMA6J8.5CA	8.5	9.44	10.4	1.0	14.4	41.7	20	6AT	6WT
SMA6J9.0A	SMA6J9.0CA	9.0	10.0	11.1	1.0	15.4	39.0	10	6AV	6WV
SMA6J10A	SMA6J10CA	10	11.1	12.3	1.0	17.0	35.3	5	6AX	6WX
SMA6J11A	SMA6J11CA	11	12.2	13.5	1.0	18.2	33.0	1	6AZ	6WZ
SMA6J12A	SMA6J12CA	12	13.3	14.7	1.0	19.9	30.2	1	6BE	6XE
SMA6J13A	SMA6J13CA	13	14.4	15.9	1.0	21.5	28.0	1	6BG	6XG
SMA6J14A	SMA6J14CA	14	15.6	17.2	1.0	23.2	25.9	1	6BK	6XK
SMA6J15A	SMA6J15CA	15	16.7	18.5	1.0	24.4	24.6	1	6BM	6XM
SMA6J16A	SMA6J16CA	16	17.8	19.7	1.0	26.0	23.1	1	6BP	6XP
SMA6J17A	SMA6J17CA	17	18.9	20.9	1.0	27.6	21.8	1	6BR	6XR
SMA6J18A	SMA6J18CA	18	20.0	22.1	1.0	29.2	20.6	1	6BT	6XT
SMA6J20A	SMA6J20CA	20	22.2	24.5	1.0	32.4	18.6	1	6BV	6XV
SMA6J22A	SMA6J22CA	22	24.4	26.9	1.0	35.5	16.9	1	6BX	6XX
SMA6J24A	SMA6J24CA	24	26.7	29.5	1.0	38.9	15.5	1	6BZ	6XZ
SMA6J26A	SMA6J26CA	26	28.9	31.9	1.0	42.1	14.3	1	6CE	6YE
SMA6J28A	SMA6J28CA	28	31.1	34.4	1.0	45.4	13.3	1	6CG	6YG
SMA6J30A	SMA6J30CA	30	33.3	36.8	1.0	48.4	12.4	1	6CK	6YK
SMA6J33A	SMA6J33CA	33	36.7	40.6	1.0	53.3	11.3	1	6CM	6YM
SMA6J36A	SMA6J36CA	36	40.0	44.2	1.0	58.1	10.4	1	6CP	6YP
SMA6J40A	SMA6J40CA	40	44.4	49.1	1.0	64.5	9.3	1	6CR	6YR
SMA6J43A	SMA6J43CA	43	47.8	52.8	1.0	69.4	8.7	1	6CT	6YT
SMA6J45A	SMA6J45CA	45	50.0	55.3	1.0	72.7	8.3	1	6CV	6YV
SMA6J48A	SMA6J48CA	48	53.3	58.9	1.0	77.4	7.8	1	6CX	6YX
SMA6J51A	SMA6J51CA	51	56.7	62.7	1.0	82.4	7.3	1	6CZ	6YZ
SMA6J54A	SMA6J54CA	54	60.0	66.3	1.0	87.1	6.9	1	6RE	6ZE
SMA6J58A	SMA6J58CA	58	64.4	71.2	1.0	93.6	6.5	1	6RG	6ZG
SMA6J60A	SMA6J60CA	60	66.7	73.7	1.0	96.8	6.2	1	6RK	6ZK
SMA6J64A	SMA6J64CA	64	71.1	78.6	1.0	103.0	5.9	1	6RM	6ZM
SMA6J70A	SMA6J70CA	70	77.8	86.0	1.0	113.0	5.3	1	6RP	6ZP
SMA6J75A	SMA6J75CA	75	83.3	92.1	1.0	121.0	5.0	1	6RR	6ZR
SMA6J78A	SMA6J78CA	78	86.7	95.8	1.0	126.0	4.8	1	6RT	6ZT
SMA6J85A	SMA6J85CA	85	94.4	104	1.0	137.0	4.4	1	6RV	6ZV
SMA6J90A	SMA6J90CA	90	100	111	1.0	146.0	4.1	1	6RX	6ZX
SMA6J100A	SMA6J100CA	100	111	123	1.0	162.0	3.7	1	6RZ	6ZZ
SMA6J110A	SMA6J110CA	110	122	135	1.0	177.0	3.4	1	6SE	6VE
SMA6J120A	SMA6J120CA	120	133	147	1.0	193.0	3.1	1	6SG	6VG
SMA6J130A	SMA6J130CA	130	144	159	1.0	209.0	2.9	1	6SK	6VK
SMA6J150A	SMA6J150CA	150	167	185	1.0	243.0	2.5	1	6SM	6VM
SMA6J160A	SMA6J160CA	160	178	197	1.0	259.0	2.3	1	6SP	6VP
SMA6J170A	SMA6J170CA	170	189	209	1.0	275.0	2.2	1	6SR	6VR
SMA6J180A	SMA6J180CA	180	201	222	1.0	292.0	2.0	1	6ST	6VT
SMA6J200A	SMA6J200CA	200	224	247	1.0	324.0	1.9	1	6SV	6VV
SMA6J220A	SMA6J220CA	220	246	272	1.0	356.0	1.7	1	6SX	6VX
SMA6J250A	SMA6J250CA	250	279	309	1.0	405.0	1.5	1	6SZ	6VZ
SMA6J300A	SMA6J300CA	300	335	371	1.0	486.0	1.3	1	6TE	6UE
SMA6J350A	SMA6J350CA	350	391	432	1.0	567.0	1.1	1	6TG	6UG
SMA6J400A	SMA6J400CA	400	447	494	1.0	678.0	0.9	1	6TK	6UK
SMA6J440A	SMA6J440CA	440	492	543	1.0	713.0	0.9	1	6TM	6UM

Note 1: For Bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is double.

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Rating and characteristic curves

Fig.1 - Pealk Pulse Power Rating Curve

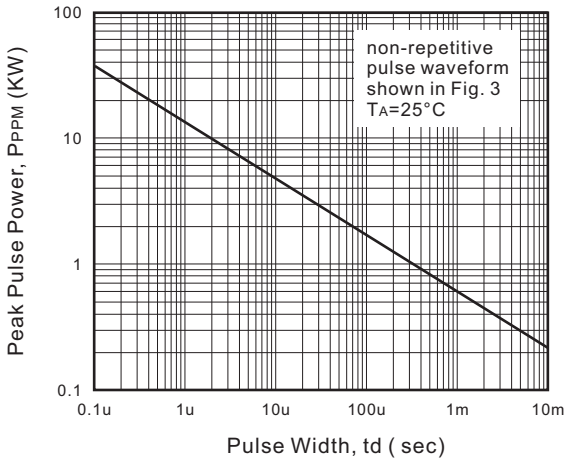


Fig.2 - Pulse Derating Curve

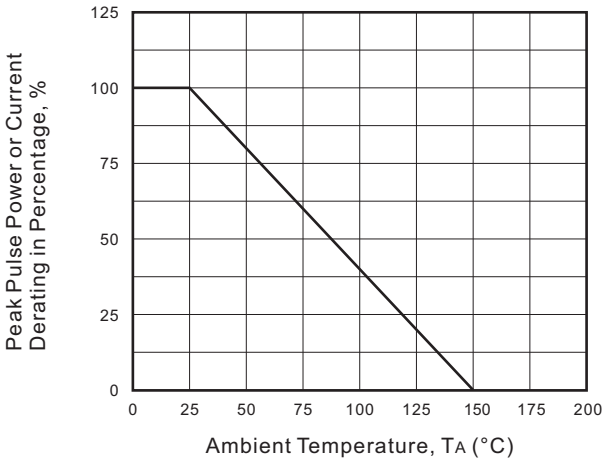


Fig.3 - Pulse Waveform

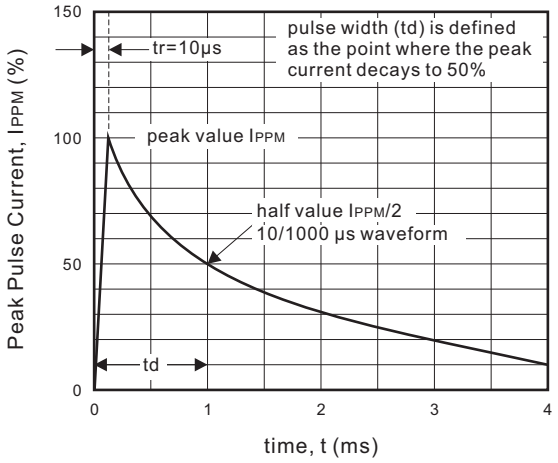


Fig.4 - Typical Junction Capacitance

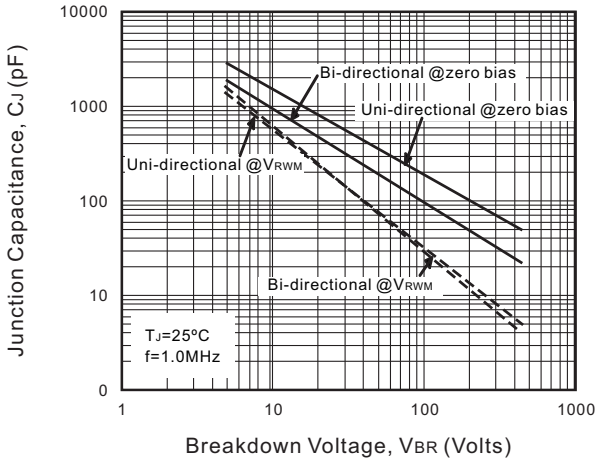


Fig.5 - Steady State Power Derating Curve

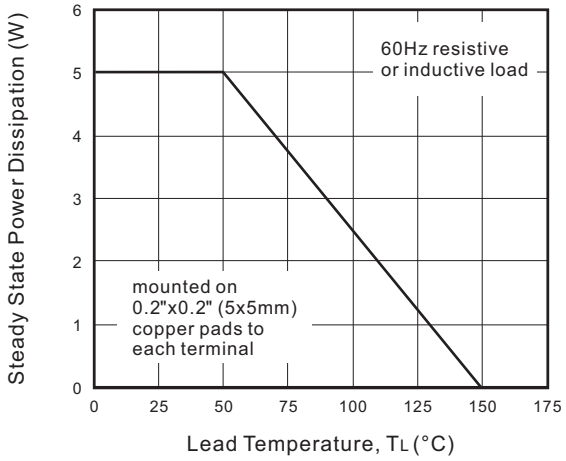
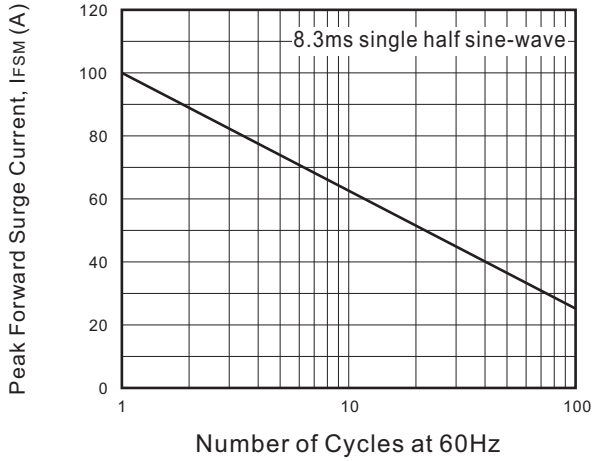


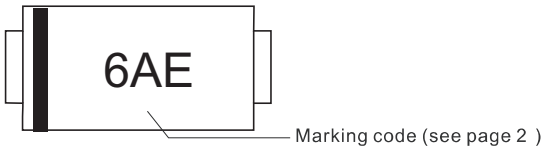
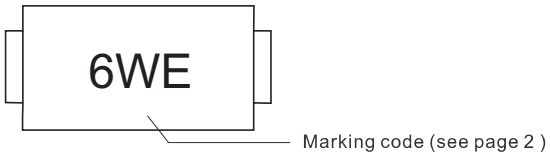
Fig.6 - Maximum Non-Repetitive Forward Surge Current



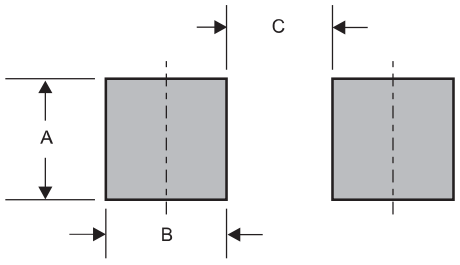
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

Marking

Type number	Example
Uni-Directional	
Bi-Directional	

Suggested solder pad layout

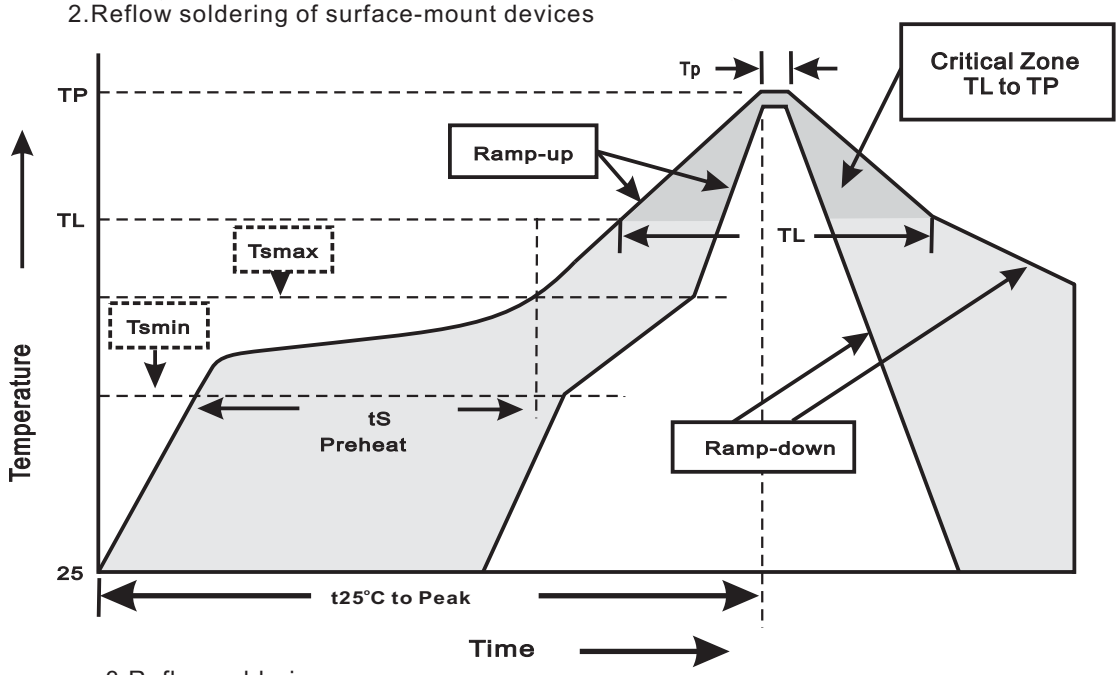


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMA	0.063 (1.60)	0.059 (1.50)	0.110 (2.80)

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes