Technical Data
Data Sheet N1972, Rev. A

Automotive qualified

SMA6J SERIES
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

SMA

Features

- Glass Passivated Die Construction
- 600W Peak Pulse Power Dissipation
- 10V- 90V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O
- This is a Pb – Free Device
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request
- "-A" suffix is for Automotive qualified

Circuit Diagram

Mechanical Data

- Case: SMA Low Profile Molded Plastic
- Terminals: Solder Plated , Solderable per MIL-STD 750, Method 2026
- Polarity: Color band denotes cathode except Bipolar
- Mounting Position: Any
- Weight:0.064 grams(approx.)

Maximum Ratings and Thermal Characteristics@T_A=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power dissipation(Note1)	P_{PPM}	600	W
Non repetitive surge peak forward current for unidirectional types tp = 10 ms, Tj initial = Tamb	I_{FSM}	60	A
Power dissipation on infinite heatsink	P	4.0	W
Operating junction temperature range	T_J	-55 to +175	°C
Storage temperature range	T_{STG}	-65 to +175	°C
Maximum lead temperature for soldering during 10 s	T_L	260	°C
Junction to leads	Rth (j-l)	30	°C/W
Junction to ambient on printed circuit on recommended pad layout	Rth (j-a)	120	°C/W

Note: **1.** For a surge greater than the maximum values but energy level < 500 A^2s, the diode will fail in short circuit.

Electrical Characteristics@T_A=25°C unless otherwise specified

Part Number	Marking Code		Stand-off Voltage Vwm (V)	Breakdown Voltage V_{BR} @ I_{BR} (mA) (V)			Clamping Voltage Vc (10*1000uS) @ I_{PP} Max		Stand By Current I_R @ Vwm (uA) Max	Stand By Current I_R @ Vwm TJ=85C (uA) Max
	Uni-Directional	Bi-Directional		Min.	Max.	mA	V	A		
SMA6J10A/CA	6UE	6BE	10	11.1	12.3	1	15.7	37	1	5
SMA6J12A/CA	6UF	6BF	12	13.3	14.7	1	18.8	31	1	5
SMA6J13A/CA	6UG	6BG	13	14.4	15.9	1	20.4	29	1	5
SMA6J15A/CA	6UH	6BH	15	16.7	18.5	1	23.6	25.1	1	5
SMA6J18A/CA	6UJ	6BJ	18	20.0	22.1	1	28.3	21.5	0.2	1
SMA6J20A/CA	6UK	6BK	20	22.2	24.5	1	31.4	19.4	0.2	1
SMA6J24A/CA	6UM	6BM	24	26.7	29.5	1	37.8	16	0.2	1
SMA6J26A/CA	6UN	6BN	26	28.9	31.9	1	40.9	14.9	0.2	1
SMA6J28A/CA	6UO	6BO	28	31.1	34.4	1	44.0	13.8	0.2	1
SMA6J33A/CA	6UQ	6BQ	33	36.7	40.6	1	51.9	11.8	0.2	1
SMA6J40A/CA	6UR	6BR	40	44.4	49.1	1	62.8	9.7	0.2	1
SMA6J48A/CA	6US	6BS	48	53.3	58.9	1	75.4	8.1	0.2	1
SMA6J58A/CA	6UT	6BT	58	64.4	71.2	1	91.1	6.7	0.2	1
SMA6J70A/CA	6UU	6BU	70	77.8	86.0	1	110	5.5	0.2	1
SMA6J75A/CA	6UV	6BV	75	83.3	92.1	1	121	5	0.2	1
SMA6J78A/CA	6UW	6BW	78	86.7	95.8	1	126	4.8	0.2	1
SMA6J85A/CA	6UX	6BX	85	94.4	104	1	137	4.6	0.2	1
SMA6J90A/CA	6UY	6BY	90	100	111	1	146	4.2	0.2	1

"C" Suffix Designates Bi-directional Devices
"A" Suffix Designates 5% Tolerance Devices
"-A" suffix is for Automotive qualified

Ratings and Characteristics Curves

Figure 1. Peak power dissipation versus initial junction temperature

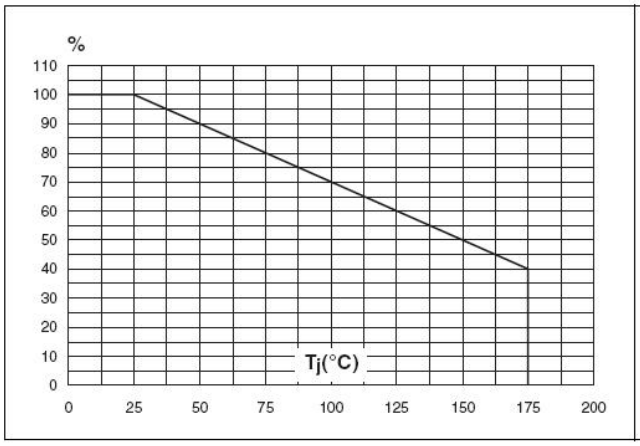


Figure 2. Peak pulse power versus exponential pulse duration (T_j initial = 25 °C)

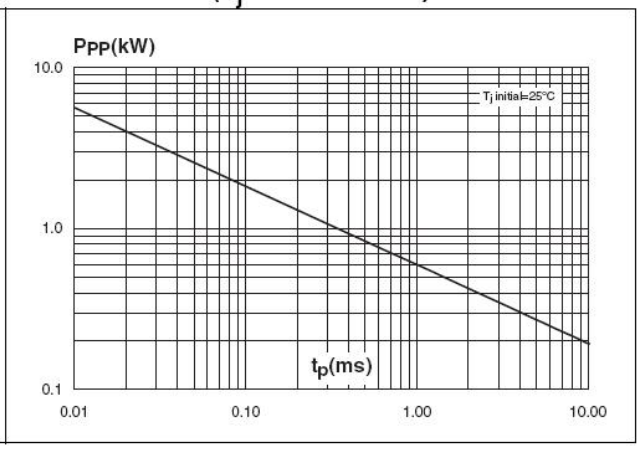


Figure 3. Clamping voltage versus peak pulse current (exponential waveform, maximum values)

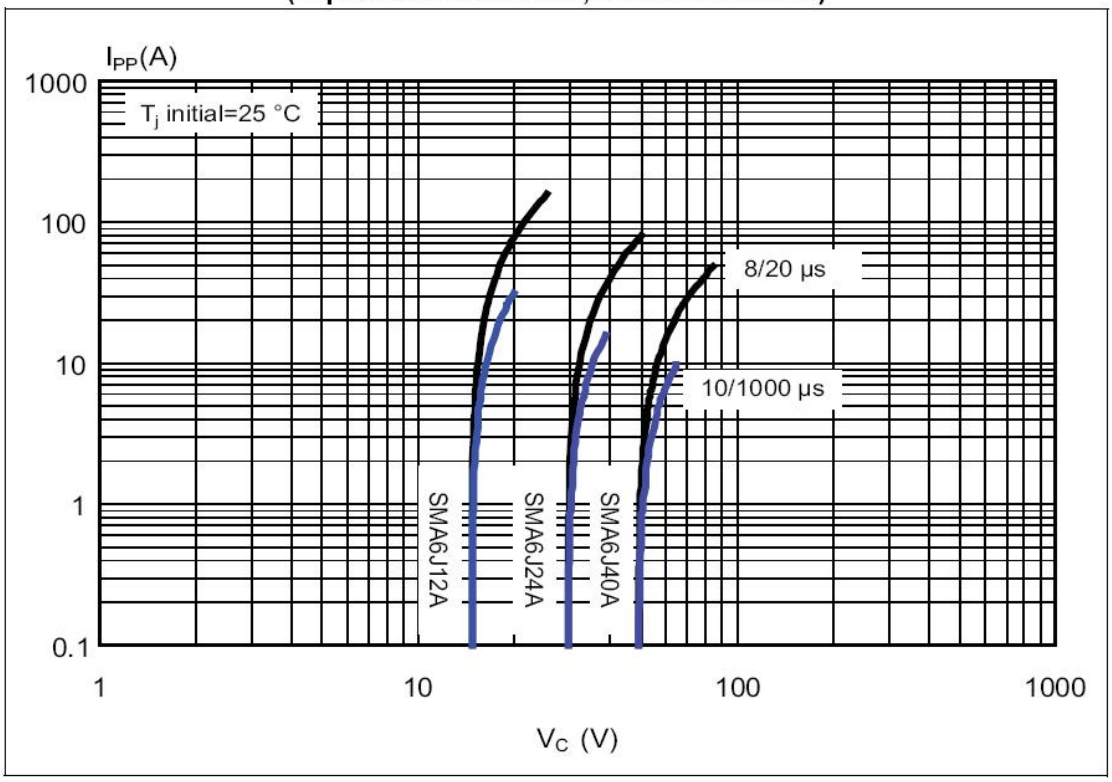


Figure 4. Junction capacitance versus reverse applied voltage (typical values) (SMA6JxxA)

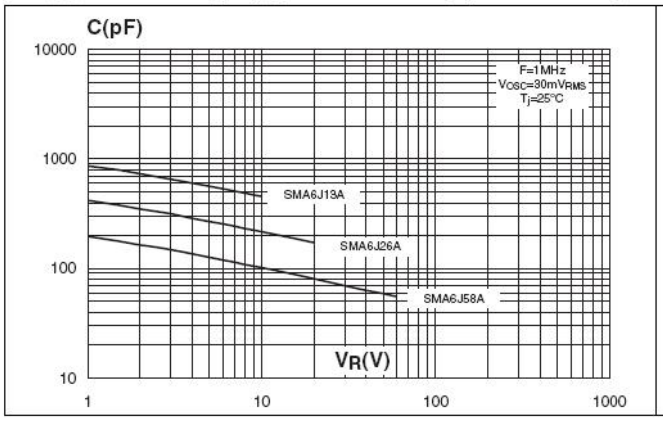


Figure 5. Junction capacitance versus reverse applied voltage (typical values) (SMA6JxxCA)

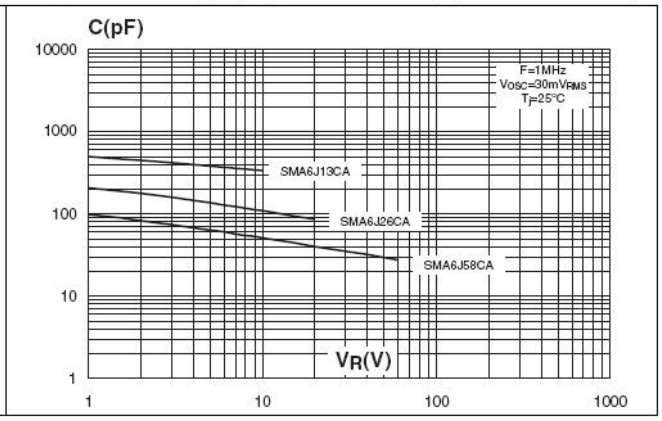


Figure 6. Peak forward voltage drop versus peak forward current (typical values)

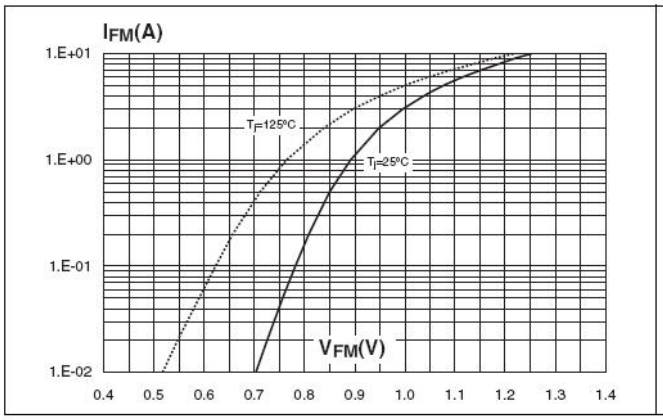


Figure 7. Relative variation of thermal impedance junction to ambient versus pulse duration (printed ciruit board FR4, S_{Cu} = 1 cm^2)

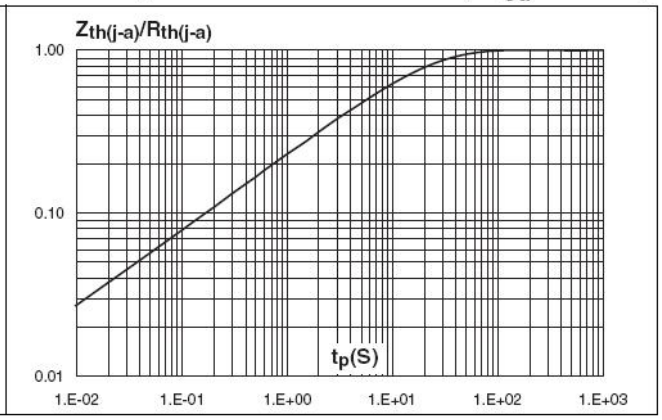


Figure 8. Thermal resistance junction to ambient versus copper surface under each lead (printed circuit board FR4, e_{Cu} = 35 µm)

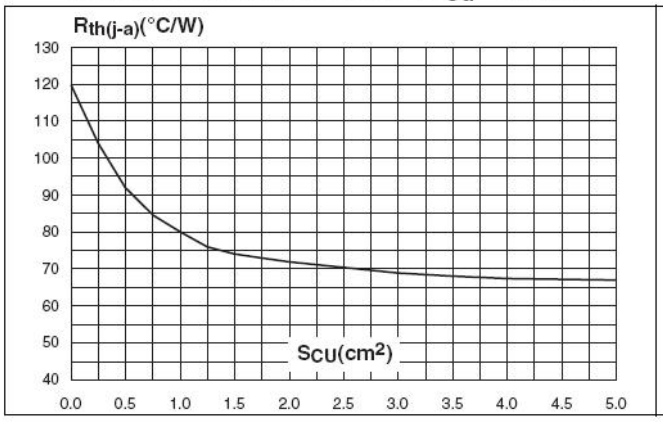
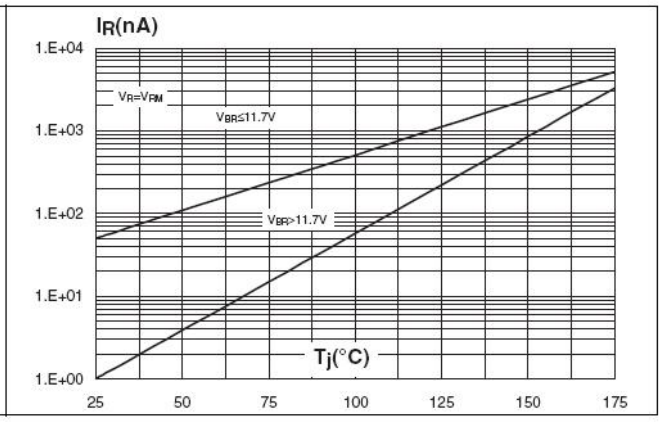


Figure 9. Leakage current versus junction temperature (typical values)



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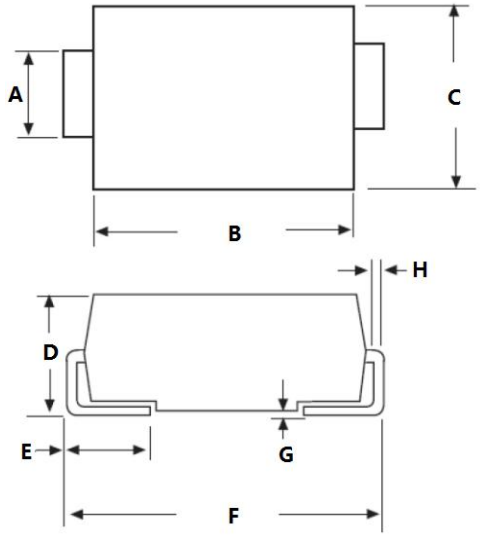
Mechanical Dimensions SMA



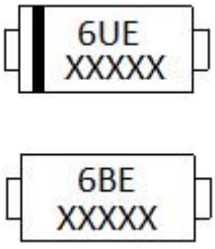
SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.25	1.65	0.049	0.065
B	3.95	4.60	0.156	0.181
C	2.25	2.90	0.089	0.114
D	1.95	2.65	0.077	0.104
E	0.75	1.50	0.030	0.059
F	4.80	5.35	0.189	0.211
G	0.05	0.20	0.002	0.008
H	0.15	0.40	0.006	0.016

Ordering Information

Device	Package	Shipping
SMA6J10A THRU SMA6J90CA	SMA (Pb-Free)	5000pcs / reel
SMA6J10ATR THRU SMA6J90CATR	SMA (Pb-Free)	5000pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

Marking Diagram

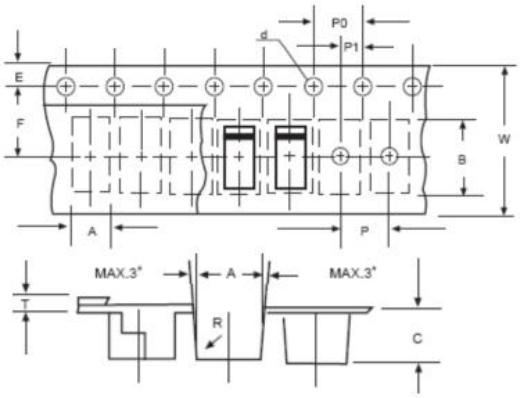


Where XXXXX is YYWWL

6UE/6BE = Marking code
YY = Year
WW = Week
L = Lot Number

Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification SMA



SYMBOL	Millimeters	
	Min.	Max.
A	2.97	3.17
B	5.70	5.90
C	2.32	2.52
d	1.40	1.60
E	1.40	1.60
F	5.60	5.70
P	3.90	4.10
P0	3.90	4.10
P1	1.90	2.10
T	0.25	0.35
W	11.80	12.20

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