

Features

- Surface Mount SMA package
- Standoff Voltage: 5 to 130 volts
- Power Dissipation: 600 watts
- RoHS compliant*

Applications

- Protection of power buses
- Protection of I/O interfaces
- Overvoltage transient protection
- Telecom, computer, industrial and consumer electronics applications

SMA6J Transient Voltage Suppressor Diode Series

General Information

Bourns offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-214AC (SMA) size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 5 V up to 130 V. Typical fast response times are less than 1.0 picosecond from 0 V to Breakdown Voltage.

Bourns® Chip Diodes are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.

Additional Information

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Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T_P = 1 ms) (Note 1,2)	P_{PK}	600	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	40	Amps
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

1. Non-repetitive current pulse, per Pulse Waveform graph and derated above T_A = 25 °C per Pulse Derating Curve.
2. Mounted on 5.0 mm^2 (0.03 mm thick) copper pads to each terminal.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).

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WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted) - Continued

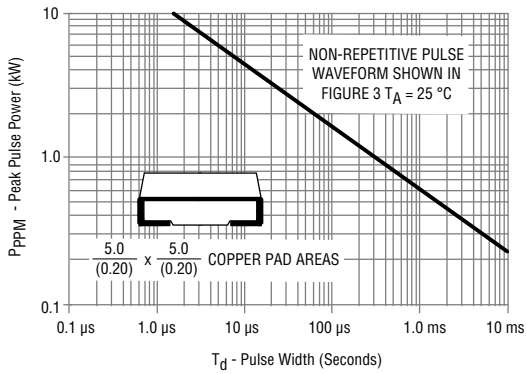
Unidirectional Device		Bidirectional Device		Breakdown Voltage V_{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Voltage @ I_{RSM}	Maximum Reverse Surge Current
Part No.	Marking	Part No.	Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (V)	I_R (μA)	V_{RSM} (V)	I_{RSM} (A)
SMA6J5.0A	6HE	SMA6J5.0CA	6TE	6.40	7.00	10	5.0	800	9.2	65.3
SMA6J6.0A	6HG	SMA6J6.0CA	6TG	6.67	7.37	10	6.0	800	10.3	58.3
SMA6J6.5A	6HK	SMA6J6.5CA	6TK	7.22	7.98	10	6.5	500	11.2	53.6
SMA6J7.0A	6HM	SMA6J7.0CA	6TM	7.78	8.60	10	7.0	200	12.0	50.0
SMA6J7.5A	6HP	SMA6J7.5CA	6TP	8.33	9.21	1.0	7.5	100	12.9	46.6
SMA6J8.0A	6HR	SMA6J8.0CA	6TR	8.89	9.83	1.0	8.0	50	13.6	44.2
SMA6J8.5A	6HT	SMA6J8.5CA	6TT	9.44	10.4	1.0	8.5	20	14.4	41.7
SMA6J9.0A	6HV	SMA6J9.0CA	6TV	10.0	11.1	1.0	9.0	10	15.4	39.0
SMA6J10A	6HX	SMA6J10CA	6TX	11.1	12.3	1.0	10	5	17.0	35.3
SMA6J11A	6HZ	SMA6J11CA	6TZ	12.2	13.5	1.0	11	1.0	18.2	33.0
SMA6J12A	6IE	SMA6J12CA	6UE	13.3	14.7	1.0	12	1.0	19.9	30.2
SMA6J13A	6IG	SMA6J13CA	6UG	14.4	15.9	1.0	13	1.0	21.5	28.0
SMA6J14A	6IK	SMA6J14CA	6UK	15.6	17.2	1.0	14	1.0	23.2	25.9
SMA6J15A	6IM	SMA6J15CA	6UM	16.7	18.5	1.0	15	1.0	24.4	24.6
SMA6J16A	6IP	SMA6J16CA	6UP	17.8	19.7	1.0	16	1.0	26.0	23.1
SMA6J17A	6IR	SMA6J17CA	6UR	18.9	20.9	1.0	17	1.0	27.6	21.8
SMA6J18A	6IT	SMA6J18CA	6UT	20.0	22.1	1.0	18	1.0	29.2	20.6
SMA6J20A	6IV	SMA6J20CA	6UV	22.2	24.5	1.0	20	1.0	32.4	18.6
SMA6J22A	6IX	SMA6J22CA	6UX	24.4	26.9	1.0	22	1.0	35.5	16.9
SMA6J24A	6IZ	SMA6J24CA	6UZ	26.7	29.5	1.0	24	1.0	38.9	15.5
SMA6J26A	6JE	SMA6J26CA	6VE	28.9	31.9	1.0	26	1.0	42.1	14.3
SMA6J28A	6JG	SMA6J28CA	6VG	31.1	34.4	1.0	28	1.0	45.4	13.3
SMA6J30A	6JK	SMA6J30CA	6VK	33.3	36.8	1.0	30	1.0	48.4	12.4
SMA6J33A	6JM	SMA6J33CA	6VM	36.7	40.6	1.0	33	1.0	53.3	11.3
SMA6J36A	6JP	SMA6J36CA	6VP	40	44.2	1.0	36	1.0	58.1	10.4
SMA6J40A	6JR	SMA6J40CA	6VR	44.4	49.1	1.0	40	1.0	64.5	9.3
SMA6J43A	6JT	SMA6J43CA	6VT	47.8	52.8	1.0	43	1.0	69.4	8.7
SMA6J45A	6JV	SMA6J45CA	6VV	50.0	55.3	1.0	45	1.0	72.7	8.3
SMA6J48A	6JX	SMA6J48CA	6VX	53.3	58.9	1.0	48	1.0	77.4	7.8
SMA6J51A	6JZ	SMA6J51CA	6VZ	56.7	62.7	1.0	51	1.0	82.4	7.3
SMA6J54A	6KE	SMA6J54CA	6WE	60.0	66.3	1.0	54	1.0	87.1	6.9
SMA6J58A	6KG	SMA6J58CA	6WG	64.4	71.2	1.0	58	1.0	93.6	6.5
SMA6J60A	6KK	SMA6J60CA	6WK	66.7	73.7	1.0	60	1.0	96.8	6.2
SMA6J64A	6KM	SMA6J64CA	6WM	71.1	78.6	1.0	64	1.0	103.0	5.9
SMA6J70A	6KP	SMA6J70CA	6WP	77.8	86.0	1.0	70	1.0	113.0	5.3
SMA6J75A	6KR	SMA6J75CA	6WR	83.3	92.1	1.0	75	1.0	121.0	5.0
SMA6J78A	6KT	SMA6J78CA	6WT	86.7	95.8	1.0	78	1.0	126.0	4.8
SMA6J85A	6KV	SMA6J85CA	6WV	94.4	104.0	1.0	85	1.0	137.0	4.4
SMA6J90A	6KX	SMA6J90CA	6WX	100.0	111.0	1.0	90	1.0	146.0	4.1
SMA6J100A	6KZ			111.0	123.0	1.0	100	1.0	162.0	3.7
SMA6J110A	6LE			122.0	135.0	1.0	110	1.0	177.0	3.4
SMA6J120A	6LG			133.0	147.0	1.0	120	1.0	193.0	3.1
SMA6J130A	6LK			144.0	159.0	1.0	130	1.0	209.0	2.9

Notes: 1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.
3. For bidirectional devices with a V_{RWM} of 10 volts or less, the I_R limit is double.

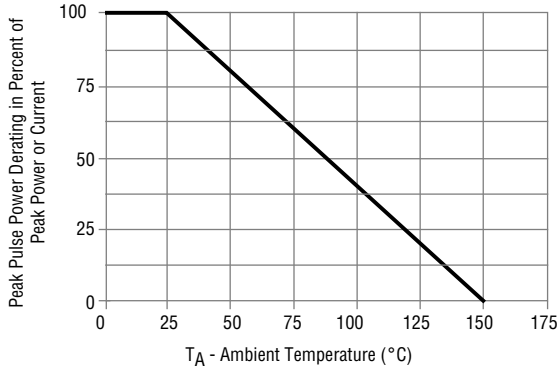
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Performance Graphs

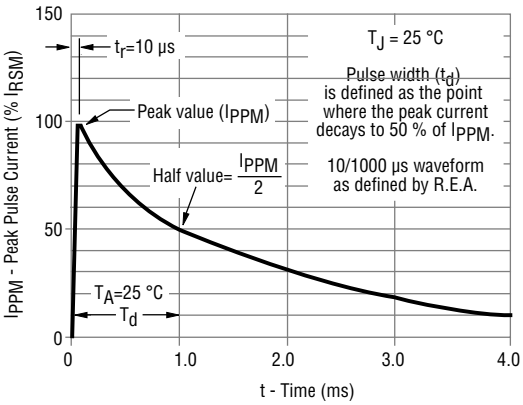
Peak Pulse Power Rating



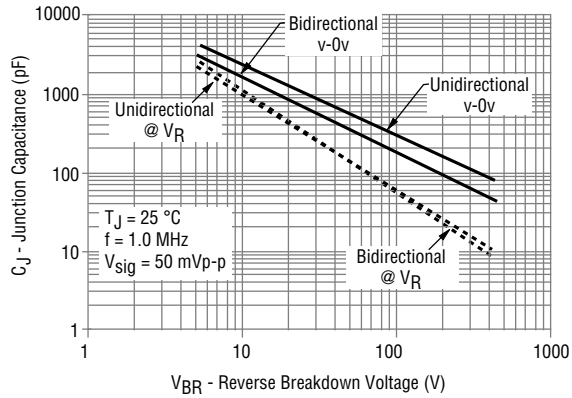
Pulse Derating Curve



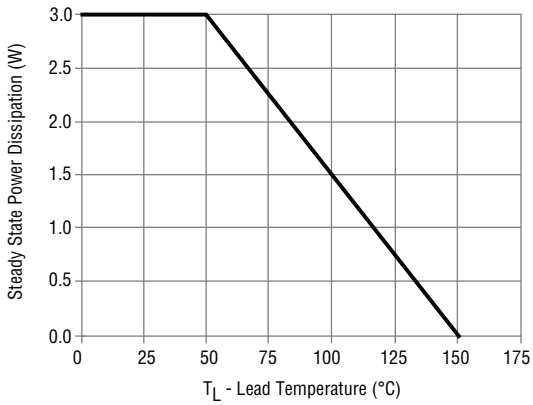
Pulse Waveform



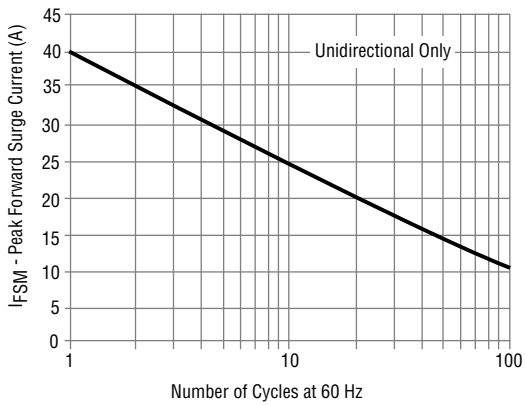
Typical Junction Capacitance



Steady State Power Derating Curve



Maximum Non-repetitive Forward Surge Current

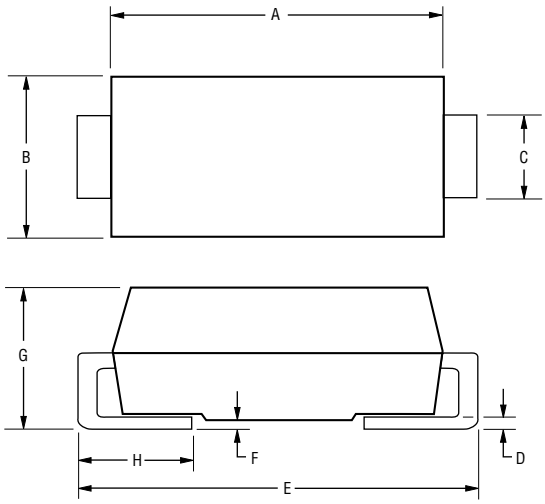


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SMA6J Transient Voltage Suppressor Diode Series

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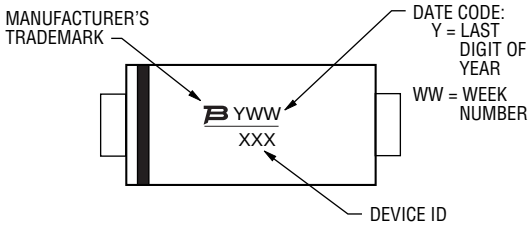
Product Dimensions



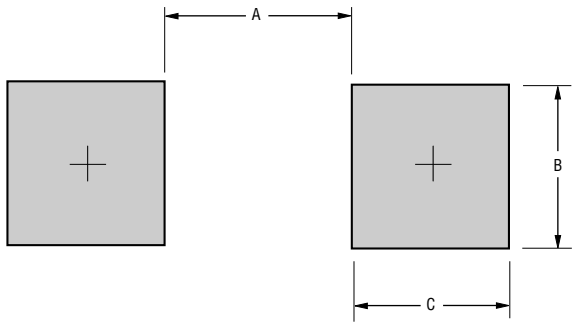
Dimension	SMA (DO-214AC)
A	3.99 - 4.50 (0.157 - 0.177)
B	2.54 - 2.79 (0.100 - 0.110)
C	1.25 - 1.65 (0.049 - 0.065)
D	0.15 - 0.31 (0.006 - 0.012)
E	4.93 - 5.28 (0.194 - 0.208)
F	0.203 (0.008) MAX.
G	1.98 - 2.29 (0.078 - 0.090)
H	0.76 - 1.52 (0.030 - 0.060)

DIMENSIONS: MM (INCHES)

Typical Part Marking



Recommended Footprint



Dimension	SMA (DO-214AC)
A (Max.)	2.70 (0.106)
B (Min.)	2.10 (0.083)
C (Min.)	1.27 (0.050)

DIMENSIONS: MM (INCHES)

Physical Specifications

Case .....Molded plastic per UL Class 94V-0
Polarity..... Cathode band indicates unidirectional device
No cathode band indicates bidirectional device

How to Order

SMA6J 5.0 CA

Package
SMA6J = 600 W, SMA/DO-214AC

Working Peak Reverse Voltage
5.0 - 130 = 5.0 - 130 V_{RWM} (Volts)

Suffix
A = 5 % Tolerance Unidirectional Device
CA = 5 % Tolerance Bidirectional Device

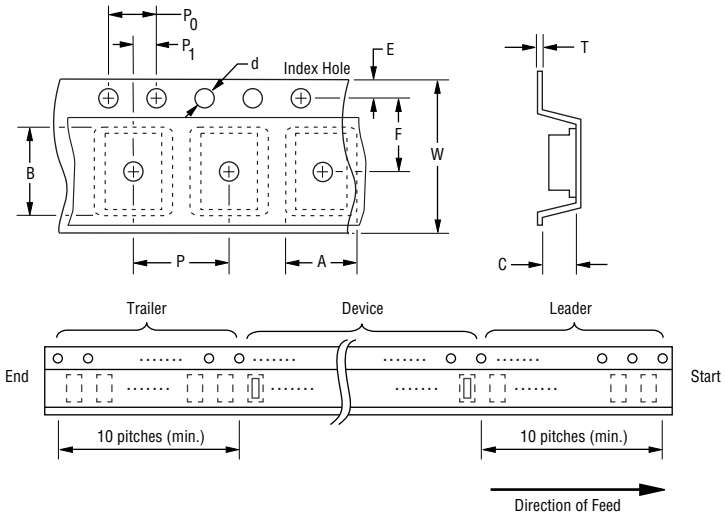
Environmental Specifications

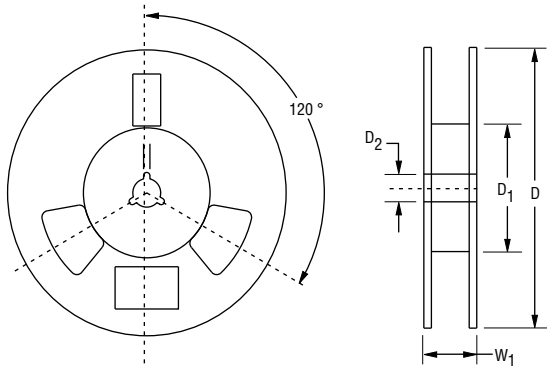
Moisture Sensitivity Level 1
ESD Classification (HBM)..... 3B

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Packaging Information

The product will be dispensed in tape and reel format (see diagram below).





DIMENSIONS: MM / (INCHES)

Devices are packed as shown here in compliance with EIA-481-C standard.

Item	Symbol	SMA (DO-214AC)
		13-Inch Reel
Carrier Width	A	2.90 ± 0.20 / (0.114 ± 0.008)
Carrier Length	B	5.50 ± 0.20 / (0.217 ± 0.008)
Carrier Depth	C	2.26 ± 0.20 / (0.089 ± 0.008)
Sprocket Hole	d	1.50 ± 0.10 / (0.061 ± 0.004)
Reel Outside Diameter	D	330 / (12.992)
Reel Inner Diameter	D_1	50.0 / (1.969) MIN.
Feed Hole Diameter	D_2	13.0 ± 0.20 / (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 / (0.069 ± 0.004)
Punch Hole Position	F	5.50 ± 0.05 / (0.217 ± 0.002)
Punch Hole Pitch	P	4.00 ± 0.10 / (0.157 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 / (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 / (0.079 ± 0.002)
Overall Tape Thickness	T	0.30 ± 0.10 / (0.012 ± 0.004)
Tape Width	W	12.00 ± 0.30 / (0.472 ± 0.012)
Reel Width	W_1	18.4 / (0.724) MAX.
Quantity per Reel	--	5,000

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