Features

- Surface Mount SMA package
- Standoff Voltage: 5 to 130 volts
- Power Dissipation: 600 watts
- RoHS compliant*
- AEC-Q101 compliant**

Applications

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

SMA6J-Q 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.

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.
**"Q" part number suffix indicates AEC-Q101 compliance.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

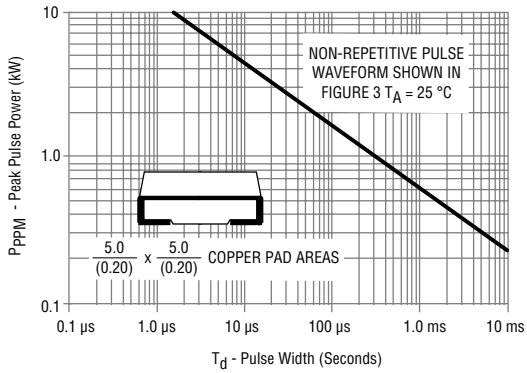
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted) - Continued

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-Q	6HEQ	SMA6J5.0CA-Q	6TEQ	6.40	7.00	10	5.0	800	9.2	65.3
SMA6J6.0A-Q	6HGQ	SMA6J6.0CA-Q	6TGQ	6.67	7.37	10	6.0	800	10.3	58.3
SMA6J6.5A-Q	6HKQ	SMA6J6.5CA-Q	6TKQ	7.22	7.98	10	6.5	500	11.2	53.6
SMA6J7.0A-Q	6HMQ	SMA6J7.0CA-Q	6TMQ	7.78	8.60	10	7.0	200	12.0	50.0
SMA6J7.5A-Q	6HPQ	SMA6J7.5CA-Q	6TPQ	8.33	9.21	1.0	7.5	100	12.9	46.6
SMA6J8.0A-Q	6HRQ	SMA6J8.0CA-Q	6TRQ	8.89	9.83	1.0	8.0	50	13.6	44.2
SMA6J8.5A-Q	6HTQ	SMA6J8.5CA-Q	6TTQ	9.44	10.4	1.0	8.5	20	14.4	41.7
SMA6J9.0A-Q	6HVQ	SMA6J9.0CA-Q	6TVQ	10.0	11.1	1.0	9.0	10	15.4	39.0
SMA6J10A-Q	6HXQ	SMA6J10CA-Q	6TXQ	11.1	12.3	1.0	10	5	17.0	35.3
SMA6J11A-Q	6HZQ	SMA6J11CA-Q	6TZQ	12.2	13.5	1.0	11	1.0	18.2	33.0
SMA6J12A-Q	6IEQ	SMA6J12CA-Q	6UEQ	13.3	14.7	1.0	12	1.0	19.9	30.2
SMA6J13A-Q	6IGQ	SMA6J13CA-Q	6UGQ	14.4	15.9	1.0	13	1.0	21.5	28.0
SMA6J14A-Q	6IKQ	SMA6J14CA-Q	6UKQ	15.6	17.2	1.0	14	1.0	23.2	25.9
SMA6J15A-Q	6IMQ	SMA6J15CA-Q	6UMQ	16.7	18.5	1.0	15	1.0	24.4	24.6
SMA6J16A-Q	6IPQ	SMA6J16CA-Q	6UPQ	17.8	19.7	1.0	16	1.0	26.0	23.1
SMA6J17A-Q	6IRQ	SMA6J17CA-Q	6URQ	18.9	20.9	1.0	17	1.0	27.6	21.8
SMA6J18A-Q	6ITQ	SMA6J18CA-Q	6UTQ	20.0	22.1	1.0	18	1.0	29.2	20.6
SMA6J20A-Q	6IVQ	SMA6J20CA-Q	6UVQ	22.2	24.5	1.0	20	1.0	32.4	18.6
SMA6J22A-Q	6IXQ	SMA6J22CA-Q	6UXQ	24.4	26.9	1.0	22	1.0	35.5	16.9
SMA6J24A-Q	6IZQ	SMA6J24CA-Q	6UZQ	26.7	29.5	1.0	24	1.0	38.9	15.5
SMA6J26A-Q	6JEQ	SMA6J26CA-Q	6VEQ	28.9	31.9	1.0	26	1.0	42.1	14.3
SMA6J28A-Q	6JGQ	SMA6J28CA-Q	6VGQ	31.1	34.4	1.0	28	1.0	45.4	13.3
SMA6J30A-Q	6JKQ	SMA6J30CA-Q	6VKQ	33.3	36.8	1.0	30	1.0	48.4	12.4
SMA6J33A-Q	6JMQ	SMA6J33CA-Q	6VMQ	36.7	40.6	1.0	33	1.0	53.3	11.3
SMA6J36A-Q	6JPQ	SMA6J36CA-Q	6VPQ	40.0	44.2	1.0	36	1.0	58.1	10.4
SMA6J40A-Q	6JRQ	SMA6J40CA-Q	6VRQ	44.4	49.1	1.0	40	1.0	64.5	9.3
SMA6J43A-Q	6JTQ	SMA6J43CA-Q	6VTQ	47.8	52.8	1.0	43	1.0	69.4	8.7
SMA6J45A-Q	6JVQ	SMA6J45CA-Q	6VVQ	50.0	55.3	1.0	45	1.0	72.7	8.3
SMA6J48A-Q	6JXQ	SMA6J48CA-Q	6VXQ	53.3	58.9	1.0	48	1.0	77.4	7.8
SMA6J51A-Q	6JZQ	SMA6J51CA-Q	6VZQ	56.7	62.7	1.0	51	1.0	82.4	7.3
SMA6J54A-Q	6KEQ	SMA6J54CA-Q	6WEQ	60.0	66.3	1.0	54	1.0	87.1	6.9
SMA6J58A-Q	6KGQ	SMA6J58CA-Q	6WGQ	64.4	71.2	1.0	58	1.0	93.6	6.5
SMA6J60A-Q	6KKQ	SMA6J60CA-Q	6WKQ	66.7	73.7	1.0	60	1.0	96.8	6.2
SMA6J64A-Q	6KMQ	SMA6J64CA-Q	6WMQ	71.1	78.6	1.0	64	1.0	103.0	5.9
SMA6J70A-Q	6KPQ	SMA6J70CA-Q	6WPQ	77.8	86.0	1.0	70	1.0	113.0	5.3
SMA6J75A-Q	6KRQ	SMA6J75CA-Q	6WRQ	83.3	92.1	1.0	75	1.0	121.0	5.0
SMA6J78A-Q	6KTQ	SMA6J78CA-Q	6WTQ	86.7	95.8	1.0	78	1.0	126.0	4.8
SMA6J85A-Q	6KVQ	SMA6J85CA-Q	6WVQ	94.4	104.0	1.0	85	1.0	137.0	4.4
SMA6J90A-Q	6KXQ	SMA6J90CA-Q	6WXQ	100.0	111.0	1.0	90	1.0	146.0	4.1
SMA6J100A-Q	6KZQ			111.0	123.0	1.0	100	1.0	162.0	3.7
SMA6J110A-Q	6LEQ			122.0	135.0	1.0	110	1.0	177.0	3.4
SMA6J120A-Q	6LGQ			133.0	147.0	1.0	120	1.0	193.0	3.1
SMA6J130A-Q	6LKQ			144.0	159.0	1.0	130	1.0	209.0	2.9

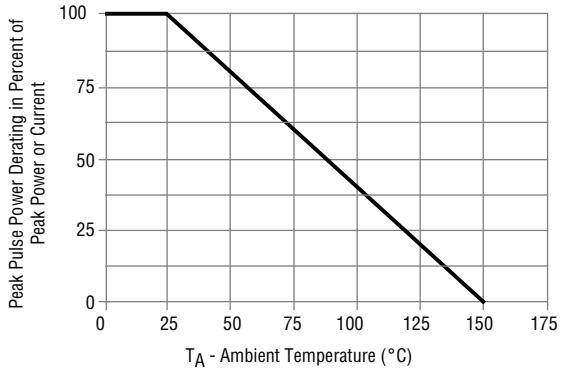
Notes: 1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.
3. For bidirectional devices with a V_{RWM} of 10 volts or less, the I_R limit is double.

Performance Graphs

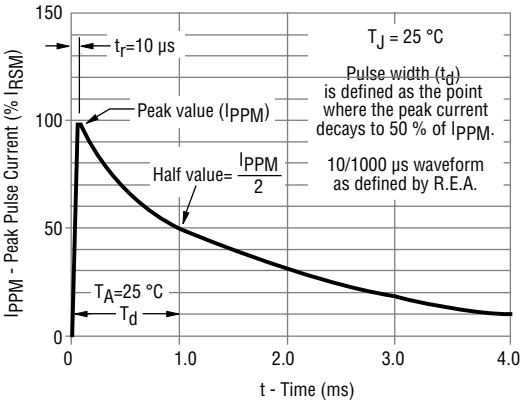
Peak Pulse Power Rating



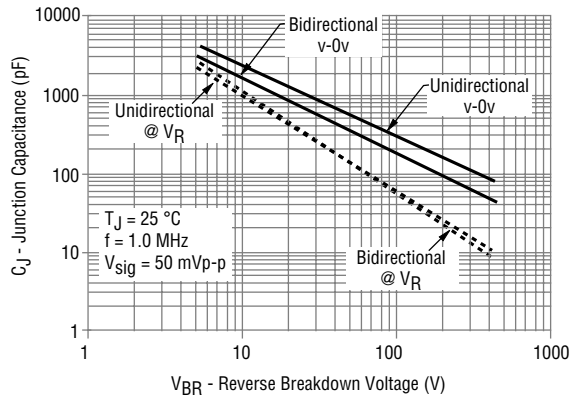
Pulse Derating Curve



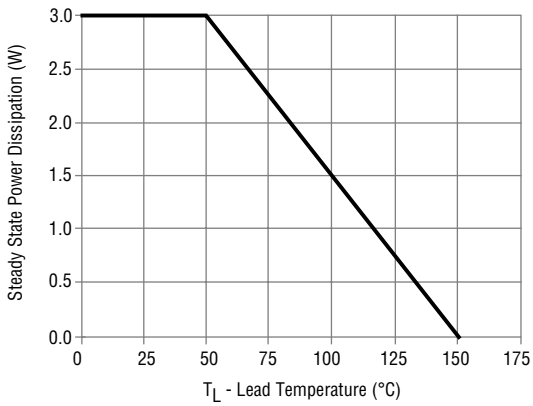
Pulse Waveform



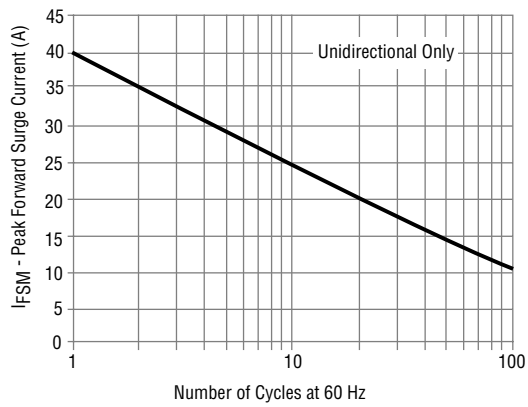
Typical Junction Capacitance



Steady State Power Derating Curve



Maximum Non-repetitive Forward Surge Current



SMA6J-Q Transient Voltage Suppressor Diode Series

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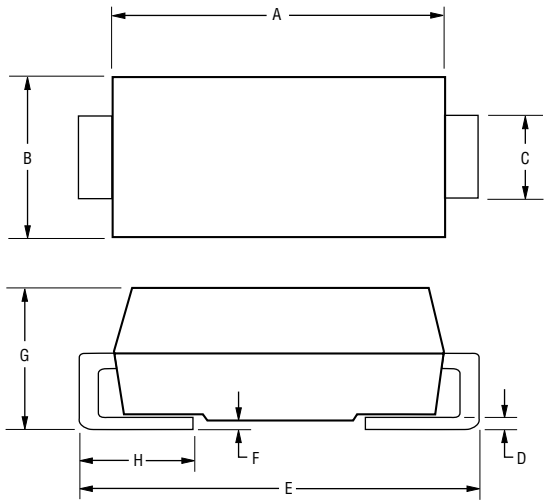
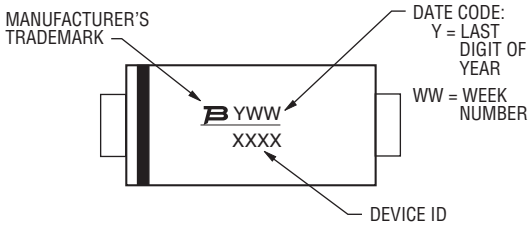
Product Dimensions



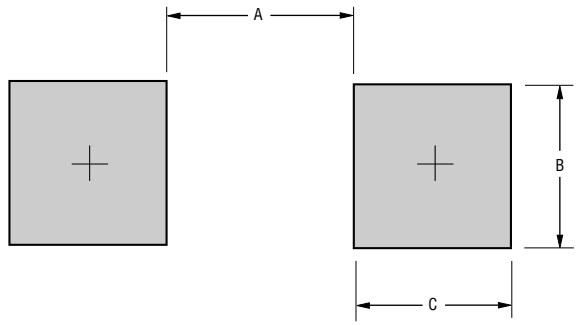
Dimension	SMA (DO-214AC)
A	3.99 - 4.50 (0.157 - 0.177)
B	2.54 - 2.79 (0.100 - 0.110)
C	1.25 - 1.65 (0.049 - 0.065)
D	0.15 - 0.31 (0.006 - 0.012)
E	4.93 - 5.28 (0.194 - 0.208)
F	0.203 (0.008) MAX.
G	1.98 - 2.29 (0.078 - 0.090)
H	0.76 - 1.52 (0.030 - 0.060)

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 - Q

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

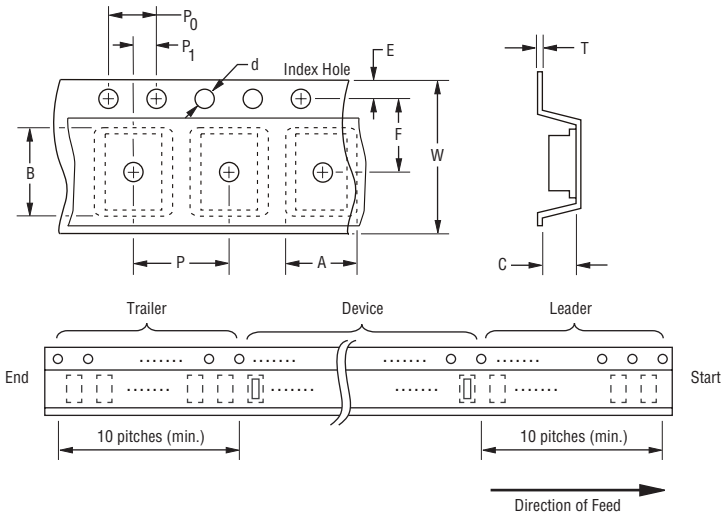
AEC-Q101 Suffix
Q = AEC-Q101 Compliant, 13-inch Reel

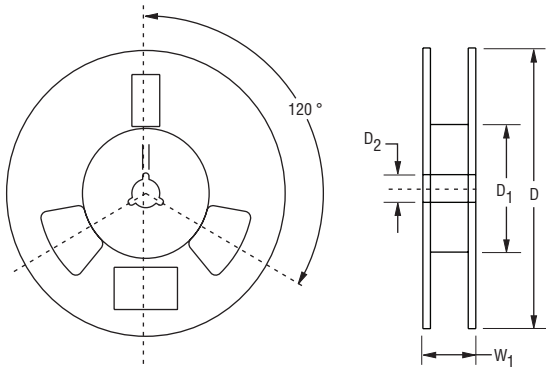
Environmental Specifications

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

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

REV. 10/20

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