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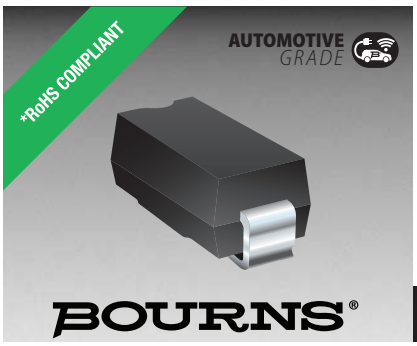

Features

- Surface Mount SMC package
- Standoff Voltage: 5 to 120 volts
- Power Dissipation: 1500 watts
- RoHS compliant*
- AEC-Q101 compliant**

Applications

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

SMCJ-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-214AB (SMC) size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 5 V up to 120 V. Typical fast response times are less than 1.0 picosecond from 0 V to Breakdown Voltage.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and their flat configuration minimizes roll away.

Agency Recognition

Description	
UL	File Number: E153537

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}	1500	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	200	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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www.bourns.com

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.
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SMCJ-Q Transient Voltage Suppressor Diode Series

BOURNS®

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

Unidirectional Device		Bidirectional Device		Breakdown Voltage V_{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Clamping Voltage @ I_{pp} (10/1000 μs)	Maximum Peak Pulse Current (10/1000 μs)	Maximum Clamping Voltage @ I_{pp} (8/20 μs)	Maximum Peak Pulse Current (8/20 μs)
Part No.	Marking	Part No.	Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (V)	I_R (μA)	V_C (V)	I_{pp} (A)	V_C (V)	I_{pp} (A)
SMCJ5.0A-Q	GDEQ	SMCJ5.0CA-Q	BDEQ	6.40	7,00	10	5	800	9.2	163	12.0	815.0
SMCJ6.0A-Q	GDGQ	SMCJ6.0CA-Q	BDGQ	6.67	7.37	10	6	800	10.3	145.7	13.4	728.5
SMCJ6.5A-Q	GDKQ	SMCJ6.5CA-Q	BDKQ	7.22	7.98	10	6.5	500	11.2	134	15.0	670.0
SMCJ7.0A-Q	GDMQ	SMCJ7.0CA-Q	BDMQ	7.78	8.60	10	7	200	12	125	16.0	625.0
NEW! SMCJ7.5A-Q	GDPQ	SMCJ7.5CA-Q	BDPQ	8.33	9.21	1	7.5	100	12.9	116.3	16.8	581.5
SMCJ8.0A-Q	GDRQ	SMCJ8.0CA-Q	BDRQ	8.89	9.83	1	8	50	13.6	110.3	17.7	551.5
SMCJ8.5A-Q	GDTQ	SMCJ8.5CA-Q	BDTQ	9.44	10.4	1	8.5	20	14.4	104.2	18.7	521.0
SMCJ9.0A-Q	GDVQ	SMCJ9.0CA-Q	BDVQ	10.0	11.1	1	9	10	15.4	97.4	20.0	487.0
SMCJ10A-Q	GDXQ	SMCJ10CA-Q	BDXQ	11.1	12.3	1	10	5	17	88.3	22.1	441.5
SMCJ11A-Q	GDZQ	SMCJ11CA-Q	BDZQ	12.2	13.5	1	11	1	18.2	82.5	23.7	412.5
SMCJ12A-Q	GEEQ	SMCJ12CA-Q	BEEQ	13.3	14.7	1	12	1	19.9	75.4	25.9	377.0
SMCJ13A-Q	GEGQ	SMCJ13CA-Q	BEGQ	14.4	15.9	1	13	1	21.5	69.8	28.0	349.0
SMCJ14A-Q	GEKQ	SMCJ14CA-Q	BEKQ	15.6	17.2	1	14	1	23.2	64.7	30.2	323.5
SMCJ15A-Q	GEMQ	SMCJ15CA-Q	BEMQ	16.7	18.5	1	15	1	24.4	61.5	31.7	307.5
SMCJ16A-Q	GEPQ	SMCJ16CA-Q	BEPQ	17.8	19.7	1	16	1	26	57.7	33.8	288.5
SMCJ17A-Q	GERQ	SMCJ17CA-Q	BERQ	18.9	20.9	1	17	1	27.6	54.4	35.9	272.0
SMCJ18A-Q	GETQ	SMCJ18CA-Q	BETQ	20.0	22.1	1	18	1	29.2	51.4	38.0	257.0
SMCJ20A-Q	GEVQ	SMCJ20CA-Q	BEVQ	22.2	24.5	1	20	1	32.4	46.3	42.1	231.5
SMCJ22A-Q	GEXQ	SMCJ22CA-Q	BEXQ	24.4	26.9	1	22	1	35.5	42.3	46.2	211.5
SMCJ24A-Q	GEZQ	SMCJ24CA-Q	BEZQ	26.7	29.5	1	24	1	38.9	38.6	50.6	193.0
SMCJ26A-Q	GFEQ	SMCJ26CA-Q	BFEQ	28.9	31.9	1	26	1	42.1	35.7	54.7	178.5
SMCJ28A-Q	GFGQ	SMCJ28CA-Q	BFGQ	31.1	34.4	1	28	1	45.4	33.1	59.0	165.5
SMCJ30A-Q	GFKQ	SMCJ30CA-Q	BFKQ	33.3	36.8	1	30	1	48.4	31	63	155
SMCJ33A-Q	GFMQ	SMCJ33CA-Q	BFMQ	36.7	40.6	1	33	1	53.3	28.1	69.3	141.0
SMCJ36A-Q	GFPQ	SMCJ36CA-Q	BFPQ	40	44.2	1	36	1	58.1	25.9	75.5	129.5
SMCJ40A-Q	GFRQ	SMCJ40CA-Q	BFRQ	44.4	49.1	1	40	1	64.5	23.3	83.9	116.5
SMCJ43A-Q	GFTQ	SMCJ43CA-Q	BFTQ	47.8	52.8	1	43	1	69.4	21.7	90.2	108.5
SMCJ45A-Q	GFVQ	SMCJ45CA-Q	BFVQ	50	55.3	1	45	1	72.7	20.6	94.5	103.0
SMCJ48A-Q	GFXQ	SMCJ48CA-Q	BFXQ	53.3	58.9	1	48	1	77.4	19.4	100.6	97.0
SMCJ51A-Q	GFZQ	SMCJ51CA-Q	BFZQ	56.7	62.7	1	51	1	82.4	18.2	107.1	91.0
SMCJ54A-Q	GGEQ	SMCJ54CA-Q	BGEQ	60	66.3	1	54	1	87.1	17.3	113.2	86.5
SMCJ58A-Q	GGGQ	SMCJ58CA-Q	BGGQ	64.4	71.2	1	58	1	93.6	16.1	121.7	80.5
SMCJ60A-Q	GGKQ	sSMCJ60CA-Q	BGKQ	66.7	73.7	1	60	1	96.8	15.5	125.8	77.5
SMCJ64A-Q	GGMQ	SMCJ64CA-Q	BGMQ	71.1	78.6	1	64	1	103	14.6	133.9	73.0
SMCJ70A-Q	GGPQ	SMCJ70CA-Q	BGPQ	77.8	86.0	1	70	1	113	13.3	146.9	66.5
SMCJ75A-Q	GGRQ	SMCJ75CA-Q	BGRQ	83.3	92.1	1	75	1	121	12.4	157.3	62.0
NEW! SMCJ78A-Q	GGTQ	SMCJ78CA-Q	BGTQ	86.7	95.8	1	78	1	126	11.9	163.8	59.5
SMCJ85A-Q	GGVQ	SMCJ85CA-Q	BGVQ	94.4	104	1	85	1	137	11	178	55
SMCJ90A-Q	GGXQ	SMCJ90CA-Q	BGXQ	100	111	1	90	1	146	10.3	189.8	51.5
SMCJ100A-Q	GGZQ	SMCJ100CA-Q	BGZQ	111	123	1	100	1	162	9.3	210.6	46.5
SMCJ110A-Q	GHEQ	SMCJ110CA-Q	BHEQ	122	135	1	110	1	177	8.4	230.1	42.5
SMCJ120A-Q	GHGQ	SMCJ120CA-Q	BHGQ	133	147	1	120	1	193	7.9	250.9	39.0

Notes:
1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.

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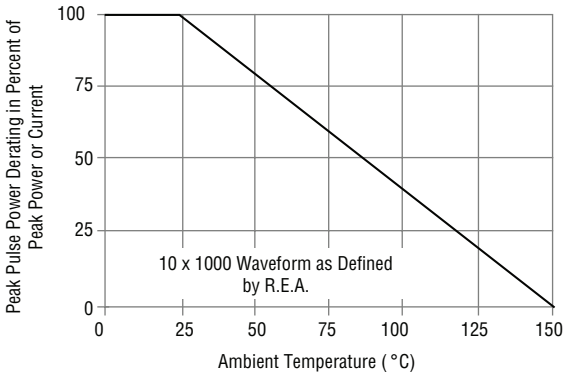
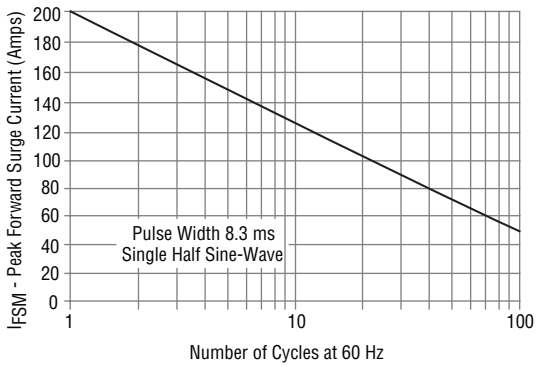
Performance Graphs

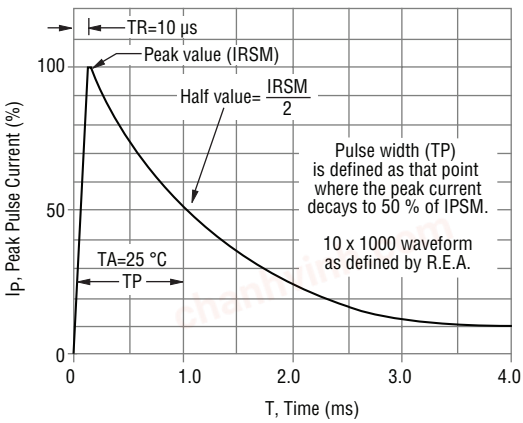
Peak Pulse Power Derating Curve



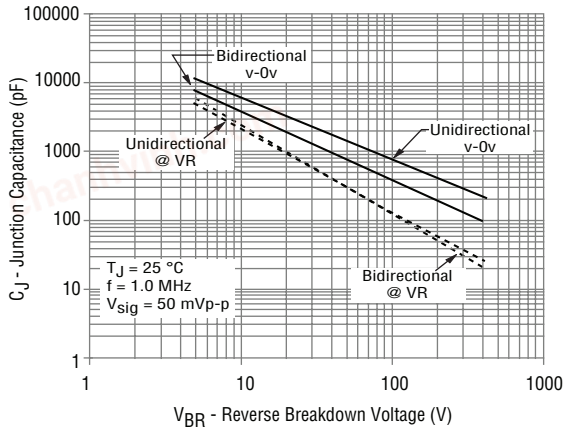
Maximum Non-Repetitive Surge Current



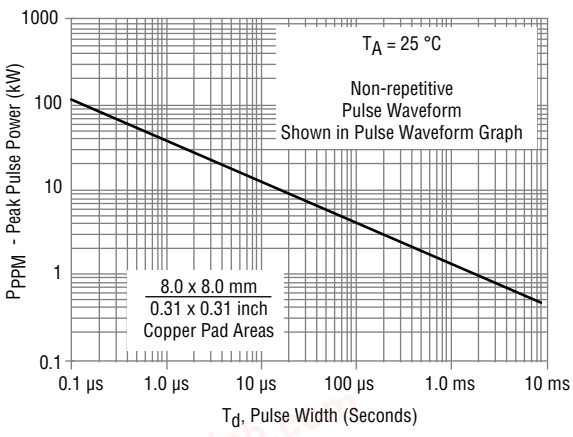
Pulse Waveform



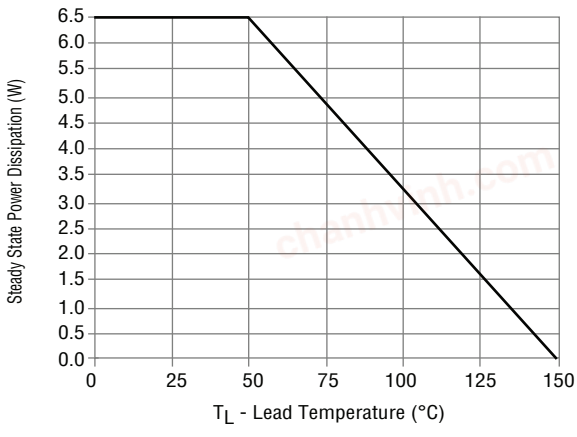
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



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SMCJ-Q Transient Voltage Suppressor Diode Series

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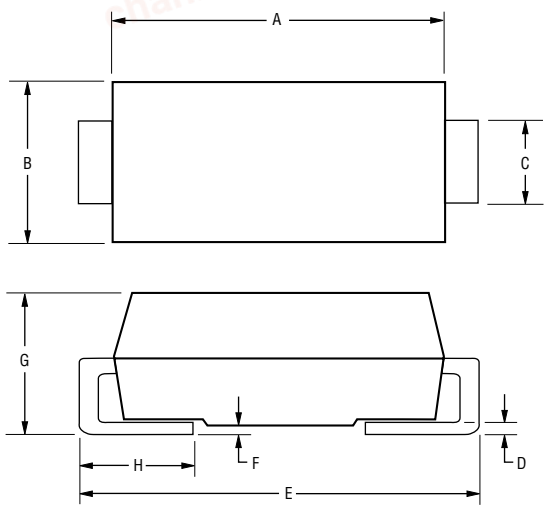
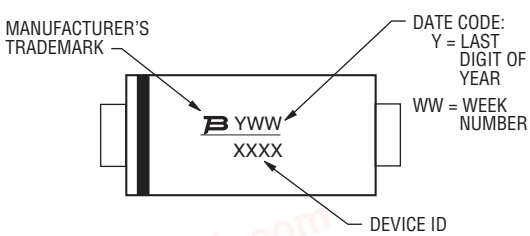
Product Dimensions



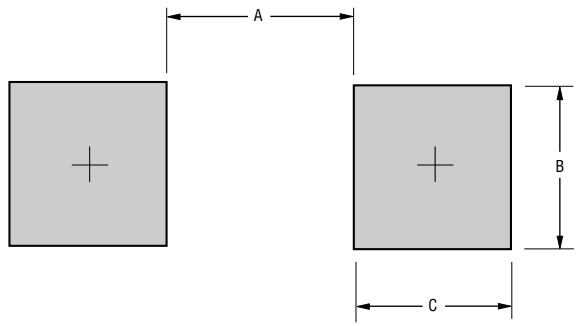
Dimension	SMC (DO-214AB)
A	6.60 - 7.11 (0.260 - 0.280)
B	5.59 - 6.22 (0.220 - 0.245)
C	2.90 - 3.20 (0.115 - 0.125)
D	0.15 - 0.31 (0.006 - 0.012)
E	7.75 - 8.13 (0.305 - 0.320)
F	0.203 (0.008) MAX.
G	2.00 - 2.62 (0.079 - 0.103)
H	0.76 - 1.52 (0.030 - 0.060)

DIMENSIONS: MM (INCHES)

Typical Part Marking



Recommended Footprint



Dimension	SMC (DO-214AB)
A (Max.)	4.69 (0.185)
B (Min.)	3.07 (0.121)
C (Min.)	1.52 (0.060)

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

SMCJ 5 CA - Q

Package
SMCJ-Q = SMC/DO-214AB

Working Peak Reverse Voltage
5 ~ 120 = 5 ~ 120 V_{RWM} (Volts)

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

AEC-Q101 Suffix
Q = AEC-Q101 Compliant, 13-inch Reel
QH = AEC-Q101 Compliant, 7-inch Reel

Environmental Specifications

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

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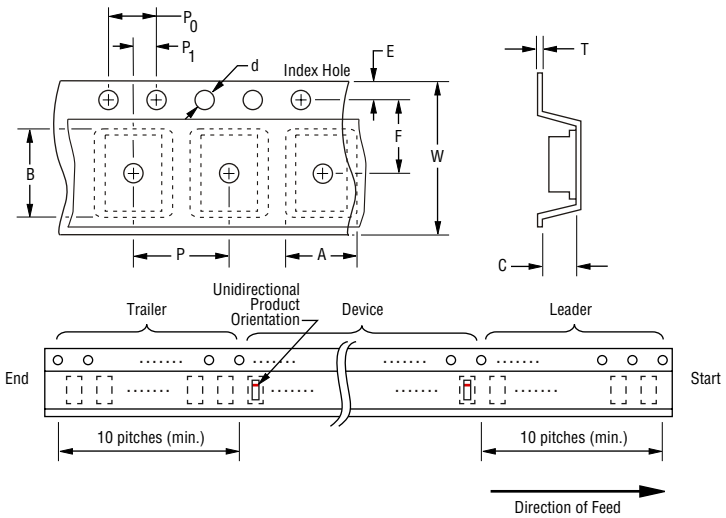
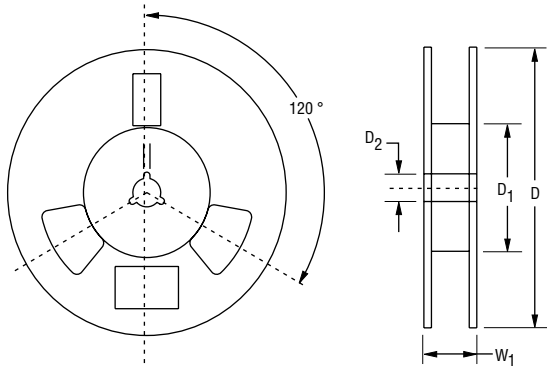
Packaging Information

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





DIMENSIONS: MM / (INCHES)

Devices are packed in accordance with EIA standard RS-481-A and specifications shown here.

Item	Symbol	SMC (DO-214AB)	
		7-Inch Reel	13-Inch Reel
Carrier Width	A	6.0 ± 2.0 (0.236 - 0.079)	
Carrier Length	B	8.3 ± 0.20 (0.327 ± 0.008)	
Carrier Depth	C	2.5 ± 0.20 (0.098 ± 0.008)	
Sprocket Hole	d	1.50 ± 0.10 (0.059 ± 0.004)	
Reel Outside Diameter	D	178 (7.008)	330 (12.992)
Reel Inner Diameter	D_1	50.0 (1.969) MIN.	
Feed Hole Diameter	D_2	13.0 +0.50/-0.20 (0.512 +0.020/-0.008)	
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)	
Punch Hole Position	F	7.50 ± 0.10 (0.295 ± 0.004)	
Punch Hole Pitch	P	8.00 ± 0.10 (0.315 ± 0.004)	
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)	
Embossment Center	P_1	2.00 ± 0.10 (0.079 ± 0.004)	
Overall Tape Thickness	T	0.30 ± 0.10 (0.012 ± 0.004)	
Tape Width	W	16.00 ± 0.30 (0.630 ± 0.012)	
Reel Width	W_1	22.4 (0.882) MAX.	
Quantity per Reel	--	500	3000

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