



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





Features

- Surface Mount SMC package
- Standoff Voltage: 12 to 58 volts
- Power Dissipation: 1500 watts
- RoHS compliant*
- AEC-Q101 compliant**

Applications

- Protection of power buses
- Protection of I/O interfaces
- Overvoltage transient protection
- Automotive
 - 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 12 V up to 58 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.

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 mm² (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).

BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 520 390 • Email: eurocus@bourns.com

The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com

www.bourns.com

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

**"Q" part number suffix indicates AEC-Q101 compliance.

Specifications are subject to change without notice.

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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 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)
SMCJ12A-Q	GEEQ	SMCJ12CA-Q	BEEQ	13.3	14.7	1	12	1	19.9	75.4
SMCJ13A-Q	GEGQ	SMCJ13CA-Q	BEGQ	14.4	15.9	1	13	1	21.5	69.8
SMCJ14A-Q	GEKQ	SMCJ14CA-Q	BEKQ	15.6	17.2	1	14	1	23.2	64.7
SMCJ15A-Q	GEMQ	SMCJ15CA-Q	BEMQ	16.7	18.5	1	15	1	24.4	61.5
SMCJ16A-Q	GEPQ	SMCJ16CA-Q	BEPQ	17.8	19.7	1	16	1	26	57.7
SMCJ17A-Q	GERQ	SMCJ17CA-Q	BERQ	18.9	20.9	1	17	1	27.6	54.4
SMCJ18A-Q	GETQ	SMCJ18CA-Q	BETQ	20.0	22.1	1	18	1	29.2	51.4
SMCJ20A-Q	GEVQ	SMCJ20CA-Q	BEVQ	22.2	24.5	1	20	1	32.4	46.3
SMCJ22A-Q	GEXQ	SMCJ22CA-Q	BEXQ	24.4	26.9	1	22	1	35.5	42.3
SMCJ24A-Q	GEZQ	SMCJ24CA-Q	BEZQ	26.7	29.5	1	24	1	38.9	38.6
SMCJ26A-Q	GFEQ	SMCJ26CA-Q	BFEQ	28.9	31.9	1	26	1	42.1	35.7
SMCJ28A-Q	GFGQ	SMCJ28CA-Q	BFGQ	31.1	34.4	1	28	1	45.4	33.1
SMCJ30A-Q	GFKQ	SMCJ30CA-Q	BFKQ	33.3	36.8	1	30	1	48.4	31
SMCJ33A-Q	GFMQ	SMCJ33CA-Q	BFMQ	36.7	40.6	1	33	1	53.3	28.1
SMCJ36A-Q	GFPQ	SMCJ36CA-Q	BFPQ	40	44.2	1	36	1	58.1	25.9
SMCJ40A-Q	GFRQ	SMCJ40CA-Q	BFRQ	44.4	49.1	1	40	1	64.5	23.3
SMCJ43A-Q	GFTQ	SMCJ43CA-Q	BFTQ	47.8	52.8	1	43	1	69.4	21.7
SMCJ45A-Q	GFVQ	SMCJ45CA-Q	BFVQ	50	55.3	1	45	1	72.7	20.6
SMCJ48A-Q	GFXQ	SMCJ48CA-Q	BFXQ	53.3	58.9	1	48	1	77.4	19.4
SMCJ51A-Q	GFZQ	SMCJ51CA-Q	BFZQ	56.7	62.7	1	51	1	82.4	18.2
SMCJ54A-Q	GGEQ	SMCJ54CA-Q	BGEQ	60	66.3	1	54	1	87.1	17.3
SMCJ58A-Q	GGGQ	SMCJ58CA-Q	BGGQ	64.4	71.2	1	58	1	93.6	16.1

Notes:

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

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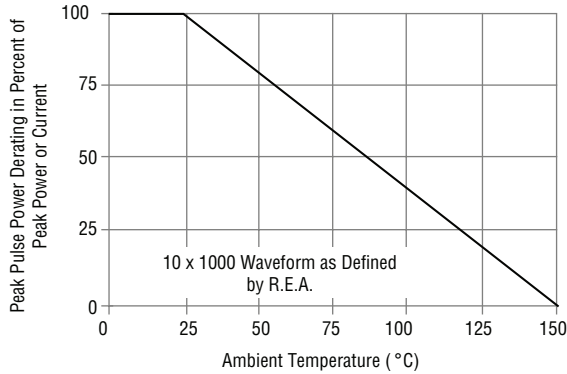
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SMCJ-Q Transient Voltage Suppressor Diode Series

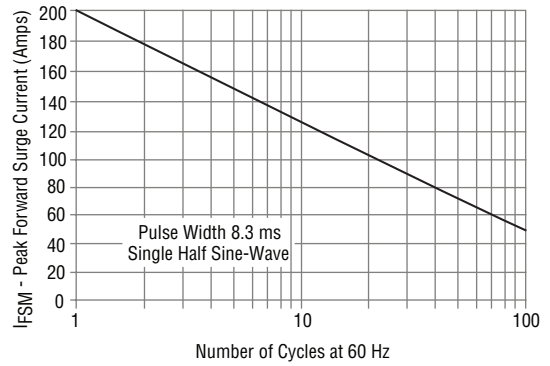


Performance Graphs

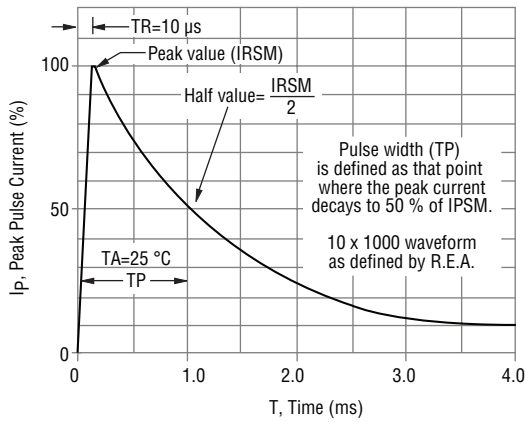
Peak Pulse Power Derating Curve



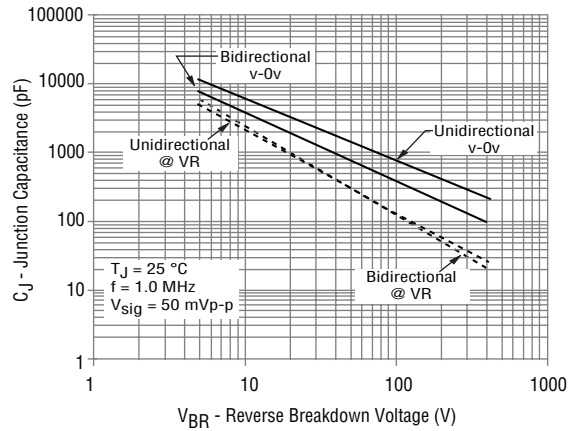
Maximum Non-Repetitive Surge Current



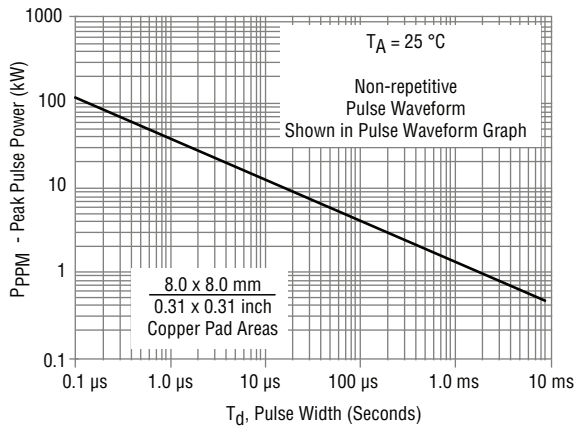
Pulse Waveform



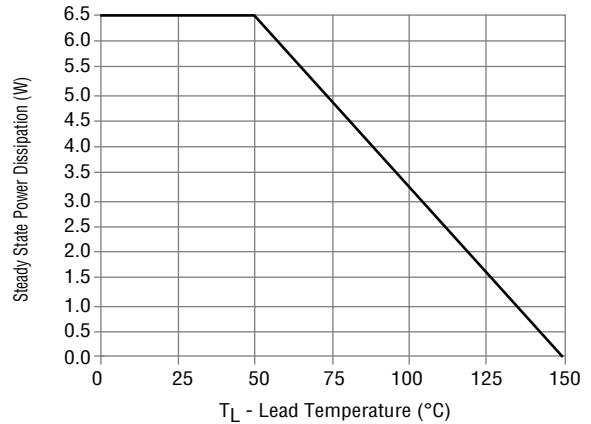
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve

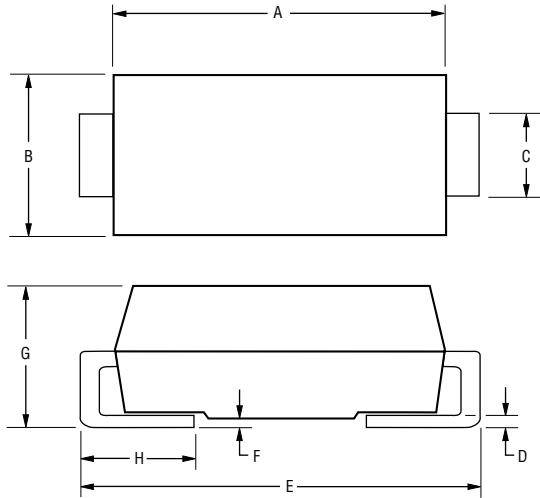


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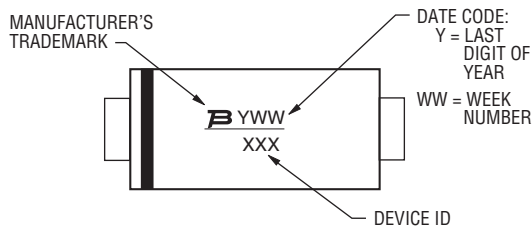
Product Dimensions



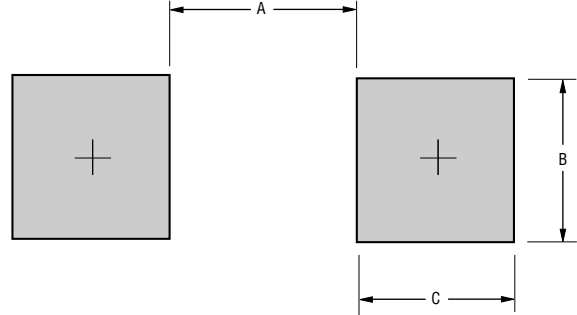
Dimension	SMC (DO-214AB)
A	$\frac{6.60 - 7.11}{(0.260 - 0.280)}$
B	$\frac{5.59 - 6.22}{(0.220 - 0.245)}$
C	$\frac{2.90 - 3.20}{(0.115 - 0.125)}$
D	$\frac{0.15 - 0.31}{(0.006 - 0.112)}$
E	$\frac{7.75 - 8.13}{(0.305 - 0.320)}$
F	$\frac{0.203}{(0.008)}$ MAX.
G	$\frac{2.00 - 2.62}{(0.079 - 0.103)}$
H	$\frac{0.76 - 1.52}{(0.030 - 0.060)}$

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Typical Part Marking



Recommended Footprint



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

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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

Package **SMCJ 12 CA - Q**
 SMCJ-Q = SMC/DO-214AB
 Working Peak Reverse Voltage
 2 = 12 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

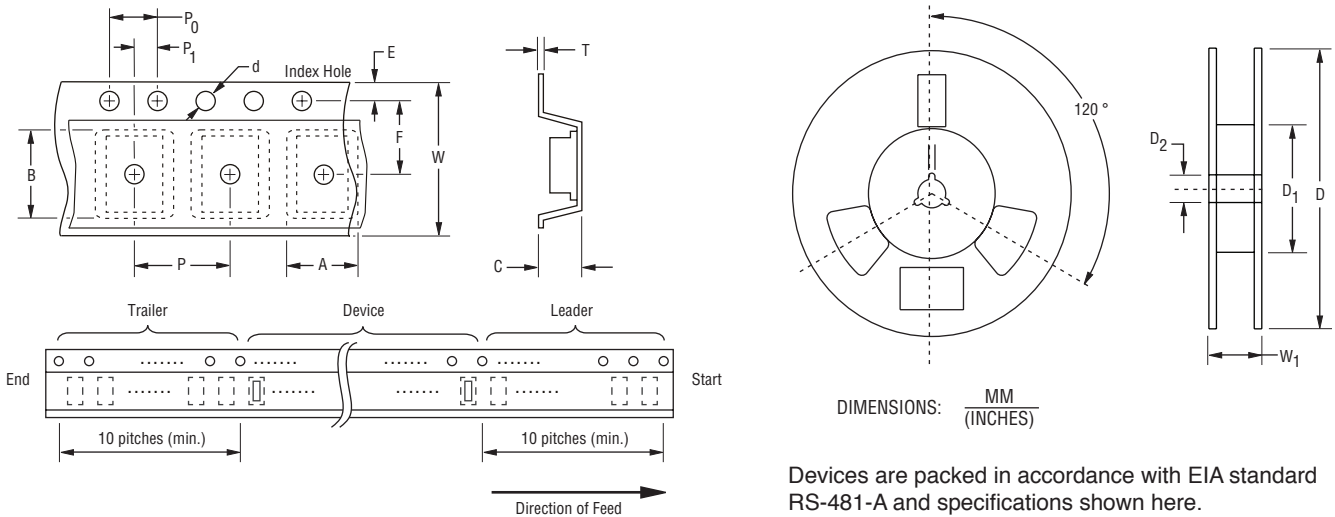
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Packaging Information

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



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	$\frac{6.0 \pm 2.0}{(0.236 - 0.079)}$	
Carrier Length	B	$\frac{8.3 \pm 0.20}{(0.327 \pm 0.008)}$	
Carrier Depth	C	$\frac{2.5 \pm 0.20}{(0.098 \pm 0.008)}$	
Sprocket Hole	d	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$	
Reel Outside Diameter	D	$\frac{178}{(7.008)}$	$\frac{330}{(12.992)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.	
Feed Hole Diameter	D ₂	$\frac{13.0 + 0.50/-0.20}{(0.512 + 0.020/-0.008)}$	
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$	
Punch Hole Position	F	$\frac{7.50 \pm 0.10}{(0.295 \pm 0.004)}$	
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$	
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	
Embossment Center	P ₁	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$	
Overall Tape Thickness	T	$\frac{0.30 \pm 0.10}{(0.012 \pm 0.004)}$	
Tape Width	W	$\frac{16.00 \pm 0.30}{(0.630 \pm 0.012)}$	
Reel Width	W ₁	$\frac{22.4}{(0.882)}$ MAX.	
Quantity per Reel	--	500	3000

REV. 02/18

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