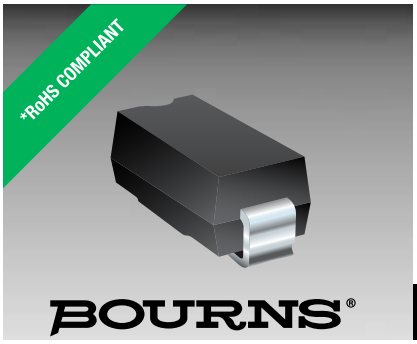

Features

- Surface Mount SMC package
- Standoff Voltage: 12 to 58 volts
- Power Dissipation: 3000 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

SMLJ-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 the 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}	3000	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	300	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 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.

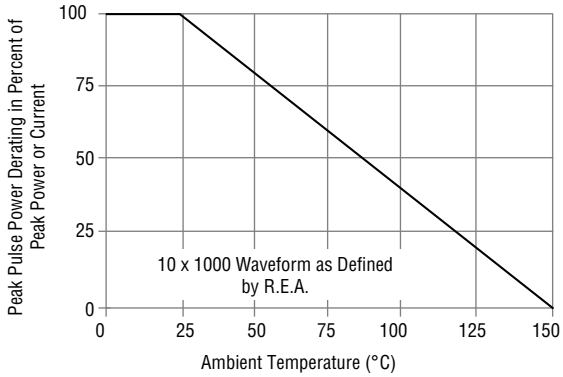
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

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 Number	Part Marking	Part Number	Part Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (Volts)	I_R (μA)	V_{RSM} (Volts)	I_{RSM} (Amps)
SMLJ12A-Q	HEEQ	SMLJ12CA-Q	IEEQ	13.3	14.7	1	12	2	19.9	150.60
SMLJ13A-Q	HEGQ	SMLJ13CA-Q	IEGQ	14.4	15.9	1	13	2	21.5	139.40
SMLJ14A-Q	HEKQ	SMLJ14CA-Q	IEKQ	15.6	17.2	1	14	2	23.2	129.40
SMLJ15A-Q	HEMQ	SMLJ15CA-Q	IEMQ	16.7	18.5	1	15	2	24.4	123.00
SMLJ16A-Q	HEPQ	SMLJ16CA-Q	IEPQ	17.8	19.7	1	16	2	26.0	115.40
SMLJ17A-Q	HERQ	SMLJ17CA-Q	IERQ	18.9	20.9	1	17	2	27.6	106.60
SMLJ18A-Q	HETQ	SMLJ18CA-Q	IETQ	20.0	22.1	1	18	2	29.2	102.80
SMLJ20A-Q	HEVQ	SMLJ20CA-Q	IEVQ	22.2	24.5	1	20	2	32.4	92.60
SMLJ22A-Q	HEXQ	SMLJ22CA-Q	IEXQ	24.4	26.9	1	22	2	35.5	84.40
SMLJ24A-Q	HEZQ	SMLJ24CA-Q	IEZQ	26.7	29.5	1	24	2	38.9	77.20
SMLJ26A-Q	HFEQ	SMLJ26CA-Q	IFEQ	28.9	31.9	1	26	2	42.1	71.20
SMLJ28A-Q	HFGQ	SMLJ28CA-Q	IFGQ	31.1	34.4	1	28	2	45.4	66.00
SMLJ30A-Q	HFKQ	SMLJ30CA-Q	IFKQ	33.3	36.8	1	30	2	48.4	62.00
SMLJ33A-Q	HFMQ	SMLJ33CA-Q	IFMQ	36.7	40.6	1	33	2	53.3	56.20
SMLJ36A-Q	HFPQ	SMLJ36CA-Q	IFPQ	40.0	44.2	1	36	2	58.1	51.60
SMLJ40A-Q	HFRQ	SMLJ40CA-Q	IFRQ	44.4	49.1	1	40	2	64.5	46.40
SMLJ43A-Q	HFTQ	SMLJ43CA-Q	IFTQ	47.8	52.8	1	43	2	69.4	43.20
SMLJ45A-Q	HFVQ	SMLJ45CA-Q	IFVQ	50.0	55.3	1	45	2	72.7	41.20
SMLJ48A-Q	HFXQ	SMLJ48CA-Q	IFXQ	53.3	58.9	1	48	2	77.4	38.80
SMLJ51A-Q	HFZQ	SMLJ51CA-Q	IFZQ	56.7	62.7	1	51	2	82.4	36.40
SMLJ54A-Q	HGEQ	SMLJ54CA-Q	IGEQ	60.0	66.3	1	54	2	87.1	34.40
SMLJ58A-Q	HGGQ	SMLJ58CA-Q	IGGQ	64.4	71.2	1	58	2	93.6	32.00

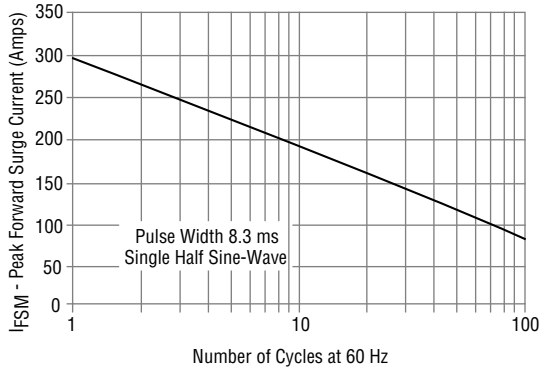
Notes:
1. Suffix ‘A’ denotes a 5 % tolerance unidirectional device.
2. Suffix ‘CA’ denotes a 5 % tolerance bidirectional device.

Performance Graphs

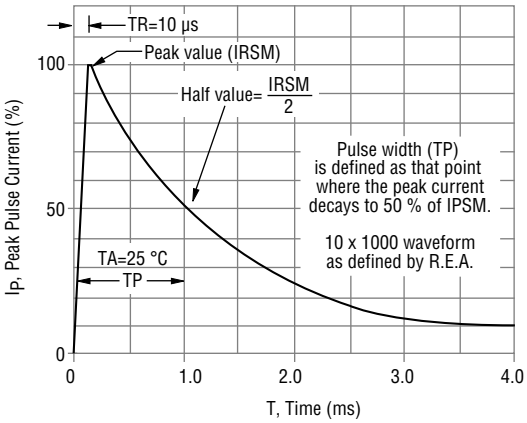
Peak Pulse Power Derating Curve



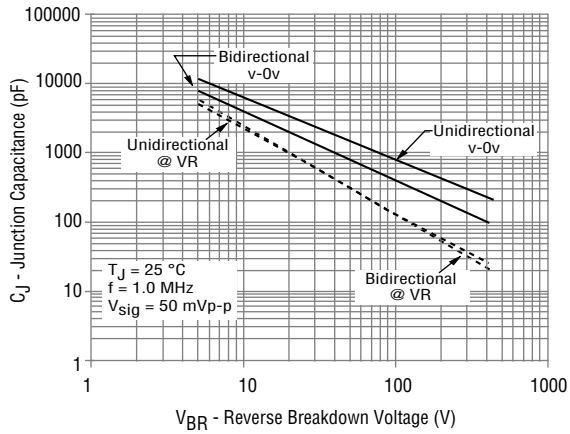
Maximum Non-Repetitive Surge Current



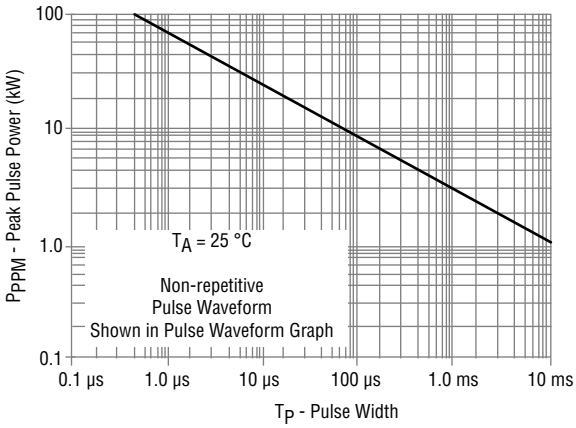
Pulse Waveform



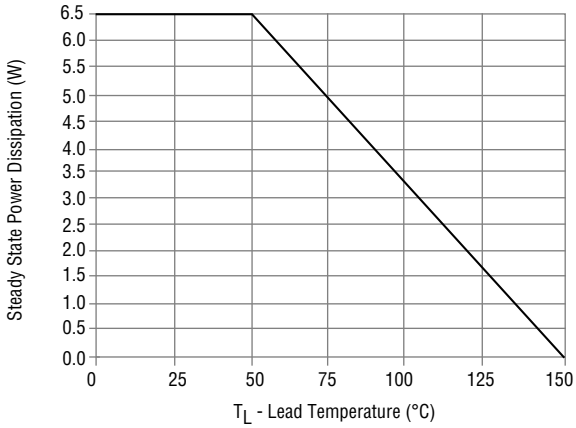
Typical Junction Capacitance



Pulse Rating Curve



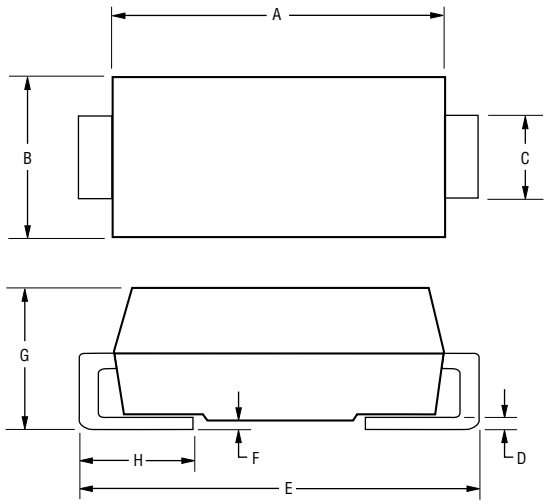
Steady State Power Derating Curve



SMLJ-Q Transient Voltage Suppressor Diode Series

BOURNS®

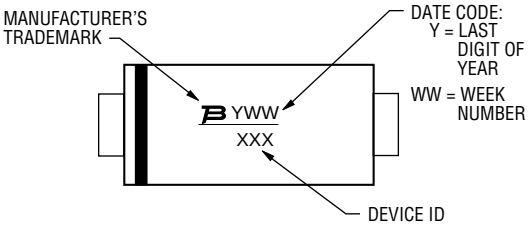
Product Dimensions



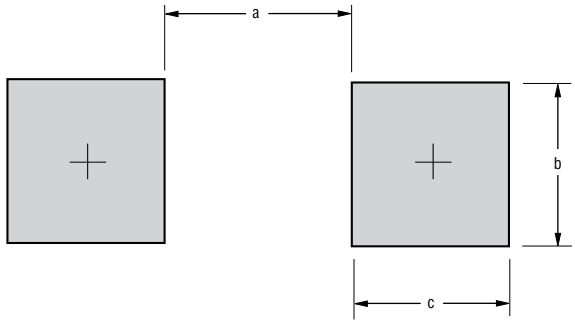
Dimension	SMC (DO-214AB)
A	6.60 - 7.11 (0.260 - 0.280)
B	5.59 - 6.22 (0.220 - 0.245)
C	2.90 - 3.20 (0.114 - 0.126)
D	0.15 - 0.31 (0.006 - 0.012)
E	7.75 - 8.13 (0.305 - 0.320)
F	0.203 (0.008) MAX.
G	2.00 - 2.62 (0.079 - 0.103)
H	0.76 - 1.52 (0.030 - 0.060)

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

SMLJ 12 CA - Q

Package
SMLJ = SMC/DO-214AB

Working Peak Reverse Voltage
12 = 12 V_{RWM} (Volts)

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

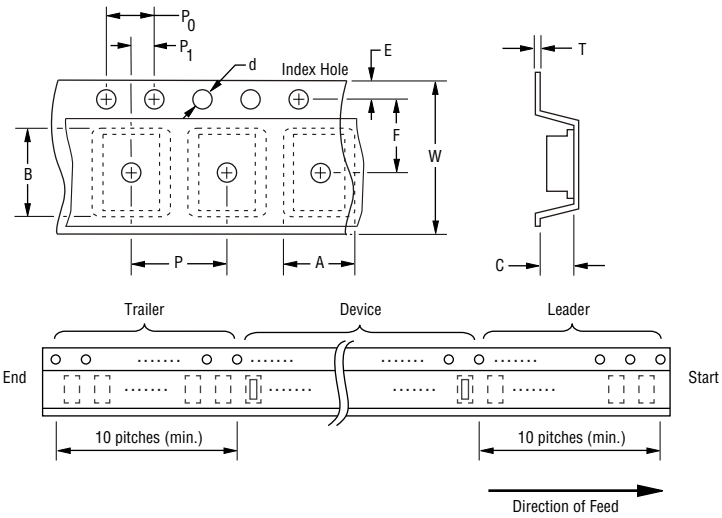
AEC-Q101 Suffix
Q = AEC-Q101 Compliant, 13-inch Reel
QH = AEC-Q101 Compliant, 7-inch Reel

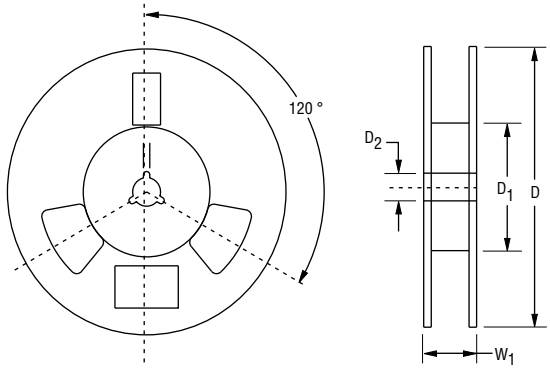
Environmental Specifications

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

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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