




Features

- RoHS compliant* and halogen free**
- Surface mount SMC package
- Standoff voltage: 5 to 170 volts
- Peak Pulse Power: 5000 watts
- AEC-Q101 compliant***
- UL Recognized 

Applications

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

5.0SMDJ-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 170 V and Breakdown Voltage up to 189 V. Typical fast response times are less than 1.0 ps 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} | 5000 | Watts |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3,4) | I _{FSM} | 300 | Amps |
| Steady State Power Dissipation @ T _L = 50 °C | P _{M(AV)} | 6.5 | Watts |
| Maximum Instantaneous Forward Voltage @ I _{PP} = 100 A (For Unidirectional Units Only) | V _F | 5 | Volts |
| 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. Thermal Resistance Junction to Lead.
3. 8.3 ms Single Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).
4. Mounted on 8.0 mm x 8.0 mm copper pad area to each terminal.

BOURNS®

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How to Order

| | | | |
|------------------------------|--|----|--------|
| Package | 5.0SMDJ | 12 | CA - Q |
| Working Peak Reverse Voltage | 12 = 12 V _{RWM} (Volts) | | |
| Suffix | A = 5 % Tolerance Unidirectional Device CA = 5 % Tolerance Bidirectional Device | | |
| AEC-Q101 Compliant Suffix | Q = AEC-Q101 Compliant, 3000 pcs. per 13-inch Reel QH = AEC-Q101 Compliant, 500 pcs. per 7-inch Reel, 3 Reels per Box | | |



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

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

*** Q suffix for automotive and other applications requiring appropriate AEC-Q101 compliance for electronic limiters.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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5.0SMDJ-Q Transient Voltage Suppressor Diode Series

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

| Unidirectional Device | | Bidirectional Device | | Breakdown Voltage V _{BR} (Volts) | | | Reverse Standoff Voltage | Maximum Reverse Leakage @ V _{RWM} | Maximum Clamping Voltage @ I _{PP} | Peak Pulse Current |
|-----------------------|-----------------|----------------------|-----------------|--|--------|--------------------------|--------------------------------|---|---|--------------------------|
| Part Number | Part Marking | Part Number | Part Marking | Min. | Max. | @ I _T (mA) | V _{RWM} (V) | I _R (μA) | V _C (V) | I _{PP} (A) |
| 5.0SMDJ5.0A-Q | 5RDEQ | 5.0SMDJ5.0CA-Q | 5DDEQ | 6.40 | 7.00 | 10 | 5.0 | 1050 | 9.2 | 543.6 |
| 5.0SMDJ6.0A-Q | 5RDGQ | 5.0SMDJ6.0CA-Q | 5DDGQ | 6.67 | 7.37 | 10 | 6.0 | 1050 | 10.3 | 485.5 |
| 5.0SMDJ6.5A-Q | 5RDKQ | 5.0SMDJ6.5CA-Q | 5DDKQ | 7.22 | 7.98 | 10 | 6.5 | 750 | 11.2 | 446.5 |
| 5.0SMDJ7.0A-Q | 5PDMQ | 5.0SMDJ7.0CA-Q | 5DDMQ | 7.78 | 8.60 | 10 | 7.0 | 300 | 12.0 | 416.8 |
| 5.0SMDJ7.5A-Q | 5PDPQ | 5.0SMDJ7.5CA-Q | 5DDPQ | 8.33 | 9.21 | 1 | 7.5 | 150 | 12.9 | 387.7 |
| 5.0SMDJ8.0A-Q | 5PDRQ | 5.0SMDJ8.0CA-Q | 5DDRQ | 8.89 | 9.83 | 1 | 8.0 | 70 | 13.6 | 367.7 |
| 5.0SMDJ8.5A-Q | 5PDTQ | 5.0SMDJ8.5CA-Q | 5DDTQ | 9.44 | 10.40 | 1 | 8.5 | 30 | 14.4 | 347.3 |
| 5.0SMDJ9.0A-Q | 5PDVQ | 5.0SMDJ9.0CA-Q | 5DDVQ | 10.00 | 11.10 | 1 | 9.0 | 12 | 15.4 | 324.8 |
| 5.0SMDJ10A-Q | 5PDXQ | 5.0SMDJ10CA-Q | 5DDXQ | 11.10 | 12.30 | 1 | 10.0 | 6 | 17.0 | 294.2 |
| 5.0SMDJ11A-Q | 5PDZQ | 5.0SMDJ11CA-Q | 5DDZQ | 12.20 | 13.50 | 1 | 11.0 | 2 | 18.2 | 274.8 |
| 5.0SMDJ12A-Q | 5PEPQ | 5.0SMDJ12CA-Q | 5BEPQ | 13.30 | 14.70 | 1 | 12.0 | 2 | 19.9 | 252.0 |
| 5.0SMDJ13A-Q | 5PEQQ | 5.0SMDJ13CA-Q | 5BEQQ | 14.40 | 15.90 | 1 | 13.0 | 2 | 21.5 | 233.0 |
| 5.0SMDJ14A-Q | 5PERQ | 5.0SMDJ14CA-Q | 5BERQ | 15.60 | 17.20 | 1 | 14.0 | 2 | 23.2 | 216.0 |
| 5.0SMDJ15A-Q | 5PESQ | 5.0SMDJ15CA-Q | 5BESQ | 16.70 | 18.50 | 1 | 15.0 | 2 | 24.4 | 205.0 |
| 5.0SMDJ16A-Q | 5PETQ | 5.0SMDJ16CA-Q | 5BETQ | 17.80 | 19.70 | 1 | 16.0 | 2 | 26.0 | 193.0 |
| 5.0SMDJ17A-Q | 5PEUQ | 5.0SMDJ17CA-Q | 5BEUQ | 18.90 | 20.90 | 1 | 17.0 | 2 | 27.6 | 181.0 |
| 5.0SMDJ18A-Q | 5PEVQ | 5.0SMDJ18CA-Q | 5BEVQ | 20.00 | 22.10 | 1 | 18.0 | 2 | 29.2 | 172.0 |
| 5.0SMDJ20A-Q | 5PEWQ | 5.0SMDJ20CA-Q | 5BEWQ | 22.20 | 24.50 | 1 | 20.0 | 2 | 32.4 | 155.0 |
| 5.0SMDJ22A-Q | 5PEXQ | 5.0SMDJ22CA-Q | 5BEXQ | 24.40 | 26.90 | 1 | 22.0 | 2 | 35.5 | 141.0 |
| 5.0SMDJ24A-Q | 5PEZQ | 5.0SMDJ24CA-Q | 5BEZQ | 26.70 | 29.50 | 1 | 24.0 | 2 | 38.9 | 129.0 |
| 5.0SMDJ26A-Q | 5PFEQ | 5.0SMDJ26CA-Q | 5BFEQ | 28.90 | 31.90 | 1 | 26.0 | 2 | 42.1 | 119.0 |
| 5.0SMDJ28A-Q | 5PFGQ | 5.0SMDJ28CA-Q | 5BFGQ | 31.10 | 34.40 | 1 | 28.0 | 2 | 45.4 | 110.0 |
| 5.0SMDJ30A-Q | 5PFKQ | 5.0SMDJ30CA-Q | 5BFKQ | 33.30 | 36.80 | 1 | 30.0 | 2 | 48.4 | 103.0 |
| 5.0SMDJ33A-Q | 5PFMQ | 5.0SMDJ33CA-Q | 5BFMQ | 36.70 | 40.60 | 1 | 33.0 | 2 | 53.3 | 93.9 |
| 5.0SMDJ36A-Q | 5PFPQ | 5.0SMDJ36CA-Q | 5BFPQ | 40.00 | 44.20 | 1 | 36.0 | 2 | 58.1 | 86.1 |
| 5.0SMDJ40A-Q | 5PFRQ | 5.0SMDJ40CA-Q | 5BFRQ | 44.40 | 49.10 | 1 | 40.0 | 2 | 64.5 | 77.6 |
| 5.0SMDJ43A-Q | 5PFTQ | 5.0SMDJ43CA-Q | 5BFTQ | 47.80 | 52.80 | 1 | 43.0 | 2 | 69.4 | 72.1 |
| 5.0SMDJ45A-Q | 5PFVQ | 5.0SMDJ45CA-Q | 5BFVQ | 50.00 | 55.30 | 1 | 45.0 | 2 | 72.7 | 68.8 |
| 5.0SMDJ48A-Q | 5PFXQ | 5.0SMDJ48CA-Q | 5BFXQ | 53.30 | 58.90 | 1 | 48.0 | 2 | 77.4 | 64.7 |
| 5.0SMDJ51A-Q | 5PFZQ | 5.0SMDJ51CA-Q | 5BFZQ | 56.70 | 62.70 | 1 | 51.0 | 2 | 82.4 | 60.7 |
| 5.0SMDJ54A-Q | 5RGEQ | 5.0SMDJ54CA-Q | 5BGEQ | 60.00 | 66.30 | 1 | 54.0 | 2 | 87.1 | 57.5 |
| 5.0SMDJ58A-Q | 5PGGQ | 5.0SMDJ58CA-Q | 5BGGQ | 64.40 | 71.20 | 1 | 58.0 | 2 | 93.6 | 53.5 |
| 5.0SMDJ60A-Q | 5PGKQ | 5.0SMDJ60CA-Q | 5BGKQ | 66.70 | 73.70 | 1 | 60.0 | 2 | 96.8 | 51.7 |
| 5.0SMDJ64A-Q | 5PGMQ | 5.0SMDJ64CA-Q | 5BGMQ | 71.10 | 78.60 | 1 | 64.0 | 2 | 103.0 | 48.6 |
| 5.0SMDJ70A-Q | 5PGPQ | 5.0SMDJ70CA-Q | 5BGPQ | 77.80 | 86.00 | 1 | 70.0 | 2 | 113.0 | 44.3 |
| 5.0SMDJ75A-Q | 5PGRQ | 5.0SMDJ75CA-Q | 5BGRQ | 83.30 | 92.10 | 1 | 75.0 | 2 | 121.0 | 41.4 |
| 5.0SMDJ78A-Q | 5PGTQ | 5.0SMDJ78CA-Q | 5BGTQ | 86.70 | 95.80 | 1 | 78.0 | 2 | 126.0 | 39.7 |
| 5.0SMDJ85A-Q | 5PGVQ | 5.0SMDJ85CA-Q | 5BGVQ | 94.40 | 104.00 | 1 | 85.0 | 2 | 137.0 | 36.5 |

Continued on next page

Note:

1. 'Q' suffix denotes AEC-Q101 compliance.

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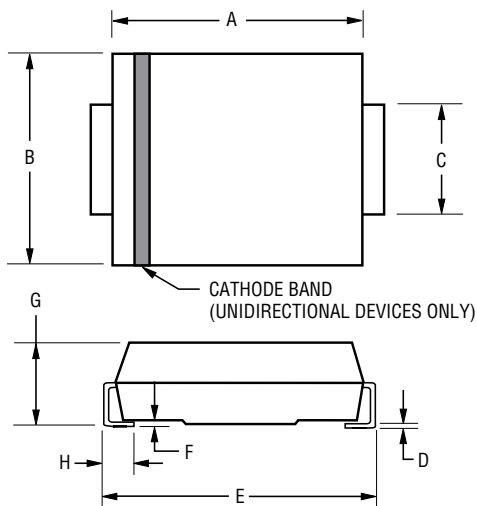
5.0SMDJ-Q Transient Voltage Suppressor Diode Series

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Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted) - Continued

| Unidirectional Device | | Bidirectional Device | | Breakdown Voltage V_{BR} (Volts) | | | Reverse Standoff Voltage | Maximum Reverse Leakage @ V_{RWM} | Maximum Clamping Voltage @ I_{PP} | Peak Pulse Current |
|-----------------------|-----------------|----------------------|-----------------|---------------------------------------|--------|-----------------|--------------------------------|--|--|--------------------------|
| Part Number | Part Marking | Part Number | Part Marking | Min. | Max. | @ I_T (mA) | V_{RWM} (V) | I_R (μA) | V_C (V) | I_{PP} (A) |
| 5.0SMDJ90A-Q | 5PGXQ | | | 100.00 | 111.00 | 1 | 90.0 | 2 | 146.0 | 34.3 |
| 5.0SMDJ100A-Q | 5PGZQ | | | 111.00 | 123.00 | 1 | 100.0 | 2 | 162.0 | 30.9 |
| 5.0SMDJ110A-Q | 5PHEQ | | | 122.00 | 135.00 | 1 | 110.0 | 2 | 177.0 | 28.3 |
| 5.0SMDJ120A-Q | 5PHGQ | | | 133.00 | 147.00 | 1 | 120.0 | 2 | 193.0 | 26.0 |
| 5.0SMDJ130A-Q | 5PHKQ | | | 144.00 | 159.00 | 1 | 130.0 | 2 | 209.0 | 24.0 |
| 5.0SMDJ150A-Q | 5PHMQ | | | 167.00 | 185.00 | 1 | 150.0 | 2 | 243.0 | 20.6 |
| 5.0SMDJ160A-Q | 5PHPQ | | | 178.00 | 197.00 | 1 | 160.0 | 2 | 259.0 | 19.3 |
| 5.0SMDJ170A-Q | 5PHRQ | | | 189.00 | 209.00 | 1 | 170.0 | 2 | 275.0 | 18.2 |

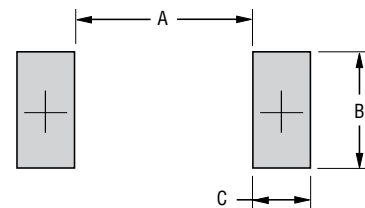
Product Dimensions



| 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 | 0.20 (0.008) MAX. |
| G | 2.01 - 2.62 (0.080 - 0.103) |
| H | 0.76 - 1.52 (0.030 - 0.060) |

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

Recommended Footprint



| Dimension | SMC (DO-214AB) |
|-----------|-----------------|
| A (Max.) | 4.69 (0.185) |
| B (Min.) | 3.07 (0.121) |
| C (Min.) | 1.53 (0.060) |

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

Physical Specifications

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

Environmental Specifications

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

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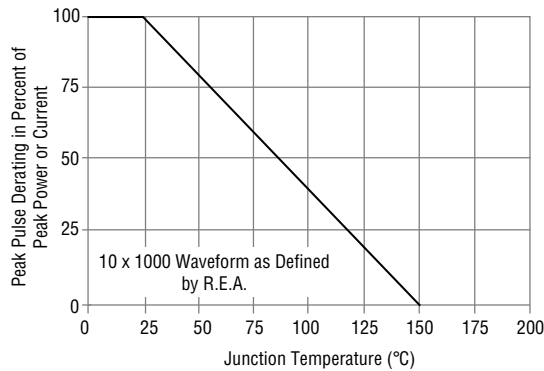
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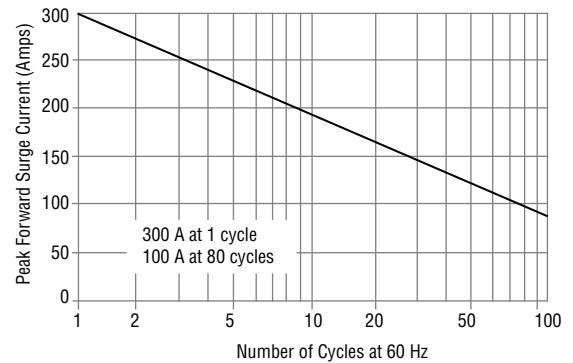
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Rating & Characteristic Curves

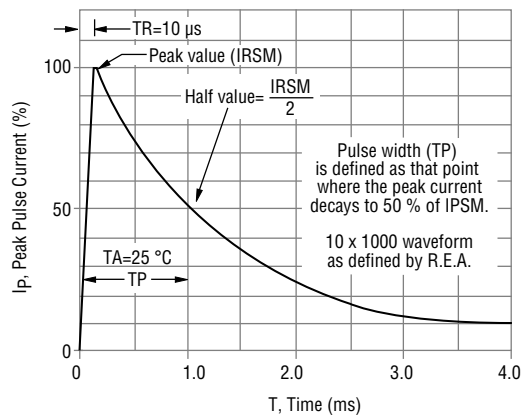
Pulse Derating Curve



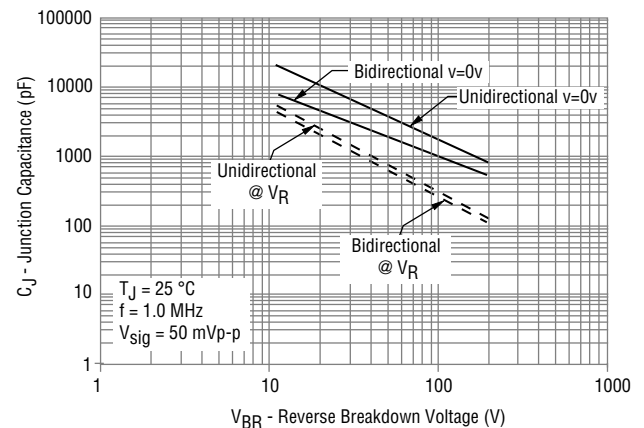
Maximum Non-Repetitive Surge Current



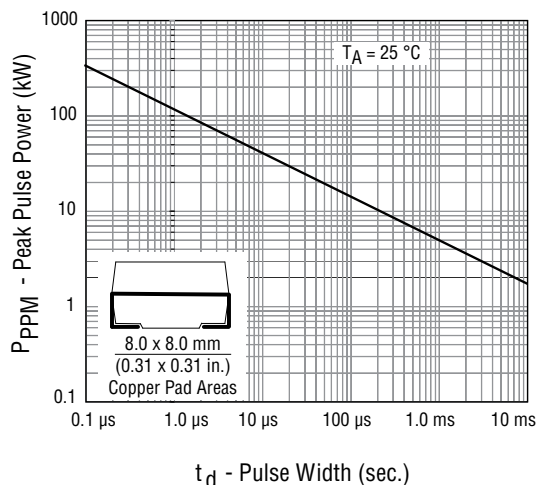
Pulse Waveform



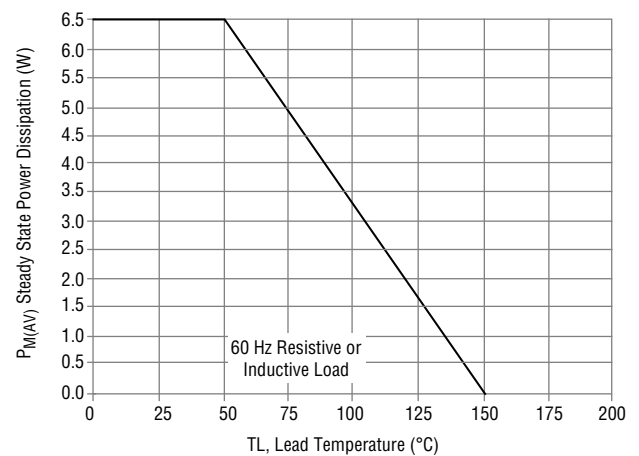
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



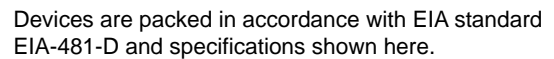
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The product will be dispensed in tape and reel format (see diagram below).



REV. 09/19
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Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>

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Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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