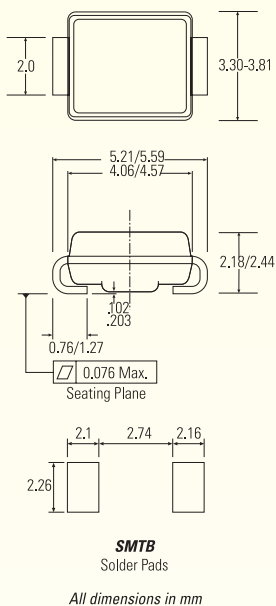




## SMBJ5.0 - SMBJ170CA Series

**CRYDOM**

Control over power



### Invisible Protection

*When no problems exist, Crydom TVS Diodes are totally invisible to the circuits they're protecting. But when potentially damaging transients occur, they provide high-speed protection to prevent damage – and then return to their electronically invisible state.*

### APPLICATIONS FOR SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

Protect sensitive electronics against voltage transients induced by electrostatic discharge (ESD), inductive load switching, and lightning. Ideal for the protection of I/O interfaces, Vcc bus, and other integrated circuits.

### FEATURES

- Glass passivated junction
- Stand-off voltage range: 5 - 170 V
- Uni-directional and bi-directional
- Jedec package designed to meet SM assembly needs
- Low lead inductance
- 100% surge tested

### MECHANICAL DATA

- Case: D0214AA molded plastic over glass passivated junction UL94V(0) (Thermoset) Epoxy
- Terminals: Solder plated solderable per MIL-STD-750 Method 2026
- Solderable leads: 230°C for 10 s
- Marking: Cathode band (positive terminal, uni-directional devices only), device code, logo
- Weight: 0.093 grams (approx.)

### MAXIMUM RATINGS

- Peak pulse power (PPk) 600 watts (10 X 1000  $\mu$ s)
- 1.5 watt steady state
- Response time: 1 X 10<sup>-12</sup>s (theoretical)
- Forward surge rating: 100 A, 8.3 ms single half sine wave (uni-directional only)
- Operating and storage temperature: -55°C to +150°C

# SMBJ5.0 – SMBJ170CA Series

| PART NUMBER<br>UNI-POLAR | DEVICE CODE<br>UNI-POLAR | PART NUMBER<br>BI-POLAR | DEVICE CODE<br>BI-POLAR<br>"C" OR "CA"<br>VERSION | REVERSE<br>STAND-OFF<br>VOLTAGE<br>Vr<br>(V) | BREAKDOWN VOLTAGE<br>VBR (V) @ IT |       |      | MAXIMUM<br>REVERSE<br>LEAKAGE<br>Ir @ Vr<br>( $\mu$ A) | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>Vc @ IPP<br>(V) | MAXIMUM<br>PEAK PULSE<br>CURRENT<br>IPP<br>(A) |
|--------------------------|--------------------------|-------------------------|---|--|-----------------------------------|-------|------|--|---|--|
|                          |                          |                         |   |  | MIN.                              | MAX.  | (mA) |  |   |  |
| SMBJ5.0                  | KD                       | SMBJ5.0C                | AD  | 5.0  | 6.40                              | 7.55  | 10   | 800.0  | 9.6   | 62.5   |
| SMBJ5.0A                 | KE                       | SMBJ5.0CA               | AE  | 5.0  | 6.40                              | 7.25  | 10   | 800.0  | 9.2   | 65.2   |
| SMBJ6.0                  | KF                       | SMBJ6.0C                | AF  | 6.0  | 6.67                              | 8.45  | 10   | 800.0  | 11.4  | 52.6   |
| SMBJ6.0A                 | KG                       | SMBJ6.0CA               | AG  | 6.0  | 6.67                              | 7.67  | 10   | 800.0  | 10.3  | 58.3   |
| SMBJ6.5                  | KH                       | SMBJ6.5C                | AH  | 6.5  | 7.22                              | 9.14  | 10   | 500.0  | 12.3  | 48.7   |
| SMBJ6.5A                 | KK                       | SMBJ6.5CA               | AK  | 6.5  | 7.22                              | 8.30  | 10   | 500.0  | 11.2  | 53.6   |
| SMBJ7.0                  | KL                       | SMBJ7.0C                | AL  | 7.0  | 7.78                              | 9.86  | 10   | 200.0  | 13.3  | 45.1   |
| SMBJ7.0A                 | KM                       | SMBJ7.0CA               | AM  | 7.0  | 7.78                              | 8.95  | 10   | 200.0  | 12.0  | 50.0   |
| SMBJ7.5                  | KN                       | SMBJ7.5C                | AN  | 7.5  | 8.33                              | 10.67 | 1    | 100.0  | 14.3  | 42.0   |
| SMBJ7.5A                 | KP                       | SMBJ7.5CA               | AP  | 7.5  | 8.33                              | 9.58  | 1    | 100.0  | 12.9  | 46.5   |
| SMBJ8.0                  | KQ                       | SMBJ8.0C                | AQ  | 8.0  | 8.89                              | 1.30  | 1    | 50.0   | 15.0  | 40.0   |
| SMBJ8.0A                 | KR                       | SMBJ8.0CA               | AR  | 8.0  | 8.89                              | 10.23 | 1    | 50.0   | 13.6  | 44.1   |
| SMBJ8.5                  | KS                       | SMBJ8.5C                | AS  | 8.5  | 9.44                              | 11.92 | 1    | 20.0   | 15.9  | 37.7   |
| SMBJ8.5A                 | KT                       | SMBJ8.5CA               | AT  | 8.5  | 9.44                              | 10.82 | 1    | 20.0   | 14.4  | 41.7   |
| SMBJ9.0                  | KU                       | SMBJ9.0C                | AU  | 9.0  | 10.00                             | 12.60 | 1    | 10.0   | 16.9  | 35.5   |
| SMBJ9.0A                 | KV                       | SMBJ9.0CA               | AV  | 9.0  | 10.00                             | 11.50 | 1    | 10.0   | 15.4  | 39.0   |
| SMBJ10                   | KW                       | SMBJ10C                 | AW  | 10.0   | 11.10                             | 14.10 | 1    | 5.0  | 18.8  | 31.9   |
| SMBJ10A                  | KX                       | SMBJ10CA                | AX  | 10.0   | 11.10                             | 12.80 | 1    | 5.0  | 17.0  | 35.3   |
| SMBJ11                   | KY                       | SMBJ11C                 | AY  | 11.0   | 12.20                             | 15.40 | 1    | 5.0  | 20.1  | 29.9   |
| SMBJ11A                  | KZ                       | SMBJ11CA                | AZ  | 11.0   | 12.20                             | 14.00 | 1    | 5.0  | 18.2  | 33.0   |
| SMBJ12                   | LD                       | SMBJ12C                 | BD  | 12.0   | 13.30                             | 16.90 | 1    | 5.0  | 22.0  | 27.3   |
| SMBJ12A                  | LE                       | SMBJ12CA                | BE  | 12.0   | 13.30                             | 15.30 | 1    | 5.0  | 19.9  | 30.2   |
| SMBJ13                   | LF                       | SMBJ13C                 | BF  | 13.0   | 14.40                             | 8.20  | 1    | 5.0  | 23.8  | 25.2   |
| SMBJ13A                  | LG                       | SMBJ13CA                | BG  | 13.0   | 14.40                             | 16.50 | 1    | 5.0  | 21.5  | 27.9   |
| SMBJ14                   | LH                       | SMBJ14C                 | BH  | 14.0   | 15.60                             | 19.80 | 1    | 5.0  | 25.8  | 23.3   |
| SMBJ14A                  | LK                       | SMBJ14CA                | BK  | 14.0   | 15.60                             | 17.90 | 1    | 5.0  | 23.2  | 25.8   |
| SMBJ15                   | LL                       | SMBJ15C                 | BL  | 15.0   | 16.70                             | 21.10 | 1    | 5.0  | 26.9  | 22.3   |
| SMBJ15A                  | LM                       | SMBJ15CA                | BM  | 15.0   | 16.70                             | 19.20 | 1    | 5.0  | 24.4  | 24.0   |
| SMBJ16                   | LN                       | SMBJ16C                 | BN  | 16.0   | 17.80                             | 22.60 | 1    | 5.0  | 28.8  | 20.8   |
| SMBJ16A                  | LP                       | SMBJ16CA                | BP  | 16.0   | 17.80                             | 20.50 | 1    | 5.0  | 26.0  | 23.1   |
| SMBJ17                   | LQ                       | SMBJ17C                 | BQ  | 17.0   | 18.90                             | 23.90 | 1    | 5.0  | 30.5  | 19.7   |
| SMBJ17A                  | LR                       | SMBJ17CA                | BR  | 17.0   | 18.90                             | 21.70 | 1    | 5.0  | 27.6  | 21.0   |
| SMBJ18                   | LS                       | SMBJ18C                 | BS  | 18.0   | 20.00                             | 25.30 | 1    | 5.0  | 32.2  | 18.6   |
| SMBJ18A                  | LT                       | SMBJ18CA                | BT  | 18.0   | 20.00                             | 23.30 | 1    | 5.0  | 29.2  | 20.5   |
| SMBJ20                   | LU                       | SMBJ20C                 | BU  | 20.0   | 22.20                             | 28.10 | 1    | 5.0  | 35.8  | 16.7   |
| SMBJ20A                  | LV                       | SMBJ20CA                | BV  | 20.0   | 22.20                             | 25.50 | 1    | 5.0  | 32.4  | 18.5   |
| SMBJ22                   | LW                       | SMBJ22C                 | BW  | 22.0   | 24.40                             | 30.90 | 1    | 5.0  | 39.4  | 15.2   |
| SMBJ22A                  | LX                       | SMBJ22CA                | BX  | 22.0   | 24.40                             | 28.00 | 1    | 5.0  | 35.5  | 16.9   |
| SMBJ24                   | LY                       | SMBJ24C                 | BY  | 24.0   | 26.70                             | 33.80 | 1    | 5.0  | 43.0  | 14.0   |
| SMBJ24A                  | LZ                       | SMBJ24CA                | BZ  | 24.0   | 26.70                             | 30.70 | 1    | 5.0  | 38.9  | 15.4   |
| SMBJ26                   | MD                       | SMBJ26C                 | CD  | 26.0   | 28.90                             | 36.60 | 1    | 5.0  | 46.6  | 12.4   |
| SMBJ26A                  | ME                       | SMBJ26CA                | CE  | 26.0   | 28.90                             | 33.20 | 1    | 5.0  | 42.1  | 14.2   |
| SMBJ28                   | MF                       | SMBJ28C                 | CF  | 28.0   | 31.10                             | 39.40 | 1    | 5.0  | 50.0  | 12.0   |
| SMBJ28A                  | MG                       | SMBJ28CA                | CG  | 28.0   | 31.10                             | 35.80 | 1    | 5.0  | 45.4  | 13.2   |
| SMBJ30                   | MH                       | SMBJ30C                 | CH  | 30.0   | 33.30                             | 42.20 | 1    | 5.0  | 53.5  | 11.2   |
| SMBJ30A                  | MK                       | SMBJ30CA                | CK  | 30.0   | 33.30                             | 38.30 | 1    | 5.0  | 46.6  | 12.4   |
| SMBJ33                   | ML                       | SMBJ33C                 | CL  | 33.0   | 36.70                             | 46.50 | 1    | 5.0  | 59.0  | 10.2   |

Note: Non "A" devices have higher clamping voltage. Add suffix "C" to denote bi-polar devices. For bi-directional devices having Vr of 10 V and under the Ir limit is doubled. For uni-direction devices Vr – 3.5 V max. at If 50 A, 300  $\mu$ s square wave pulse. Electrical specifications @ 25°C.

# SMBJ5.0 – SMBJ170CA Series

| PART NUMBER<br>UNI-POLAR | DEVICE CODE<br>UNI-POLAR | PART NUMBER<br>BI-POLAR | DEVICE CODE<br>BI-POLAR<br>"C" OR "CA"<br>VERSION | REVERSE<br>STAND-OFF<br>VOLTAGE<br>Vr<br>(V) | BREAKDOWN VOLTAGE<br>Vbr (V) @ Ir |        |      | MAXIMUM<br>REVERSE<br>LEAKAGE<br>Ir @ Vr<br>(µA) | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>Vc @ IPP<br>(V) | MAXIMUM<br>PEAK PULSE<br>CURRENT<br>IPP<br>(A) |
|--------------------------|--------------------------|-------------------------|---|--|-----------------------------------|--------|------|--|---|--|
|                          |                          |                         |   |  | MIN.                              | MAX.   | (mA) |  |   |  |
| SMBJ33A                  | MM                       | SMBJ33CA                | CM  | 33.0   | 36.70                             | 42.20  | 1.0  | 5.0  | 53.3  | 11.3   |
| SMBJ36                   | MN                       | SMBJ36C                 | CN  | 36.0   | 40.00                             | 50.70  | 1.0  | 5.0  | 64.3  | 9.3  |
| SMBJ36A                  | MP                       | SMBJ36CA                | CP  | 36.0   | 40.00                             | 46.00  | 1.0  | 5.0  | 58.1  | 10.3   |
| SMBJ40                   | MQ                       | SMBJ40C                 | CQ  | 40.0   | 44.40                             | 56.30  | 1.0  | 5.0  | 71.4  | 8.4  |
| SMBJ40A                  | MR                       | SMBJ40CA                | CR  | 40.0   | 44.40                             | 51.10  | 1.0  | 5.0  | 64.5  | 9.3  |
| SMBJ43                   | MS                       | SMBJ43C                 | CS  | 43.0   | 47.80                             | 60.50  | 1.0  | 5.0  | 76.7  | 7.8  |
| SMBJ43A                  | MT                       | SMBJ43CA                | CT  | 43.0   | 47.80                             | 54.90  | 1.0  | 5.0  | 69.4  | 8.6  |
| SMBJ45                   | MU                       | SMBJ45C                 | CU  | 45.0   | 50.00                             | 63.30  | 1.0  | 5.0  | 80.3  | 7.5  |
| SMBJ45A                  | MV                       | SMBJ45CA                | CV  | 45.0   | 50.00                             | 57.50  | 1.0  | 5.0  | 72.7  | 8.3  |
| SMBJ48                   | MW                       | SMBJ48C                 | CW  | 48.0   | 53.30                             | 67.50  | 1.0  | 5.0  | 85.5  | 7.0  |
| SMBJ48A                  | MX                       | SMBJ48CA                | CX  | 48.0   | 53.30                             | 61.30  | 1.0  | 5.0  | 77.4  | 7.7  |
| SMBJ51                   | MY                       | SMBJ51C                 | CY  | 51.0   | 56.70                             | 71.80  | 1.0  | 5.0  | 91.1  | 6.6  |
| SMBJ51A                  | MZ                       | SMBJ51CA                | CZ  | 51.0   | 56.70                             | 65.20  | 1.0  | 5.0  | 82.4  | 7.3  |
| SMBJ54                   | ND                       | SMBJ54C                 | DD  | 54.0   | 60.00                             | 76.00  | 1.0  | 5.0  | 96.3  | 6.2  |
| SMBJ54A                  | NE                       | SMBJ54CA                | DE  | 54.0   | 60.00                             | 69.00  | 1.0  | 5.0  | 87.1  | 6.9  |
| SMBJ58                   | NF                       | SMBJ58C                 | DF  | 58.0   | 64.40                             | 81.60  | 1.0  | 5.0  | 103.0   | 5.8  |
| SMBJ58A                  | NG                       | SMBJ58CA                | DG  | 58.0   | 64.40                             | 74.10  | 1.0  | 5.0  | 93.6  | 6.4  |
| SMBJ60                   | NH                       | SMBJ60C                 | DH  | 60.0   | 66.70                             | 84.50  | 1.0  | 5.0  | 107.0   | 5.6  |
| SMBJ60A                  | NK                       | SMBJ60CA                | DK  | 60.0   | 66.70                             | 76.70  | 1.0  | 5.0  | 96.8  | 6.2  |
| SMBJ64                   | NL                       | SMBJ64C                 | DL  | 64.0   | 71.10                             | 90.10  | 1.0  | 5.0  | 114.0   | 5.3  |
| SMBJ64A                  | NM                       | SMBJ64CA                | DM  | 64.0   | 71.10                             | 81.80  | 1.0  | 5.0  | 103.0   | 5.8  |
| SMBJ70                   | NN                       | SMBJ70C                 | DN  | 70.0   | 77.80                             | 98.60  | 1.0  | 5.0  | 125.0   | 4.8  |
| SMBJ70A                  | NP                       | SMBJ70CA                | DP  | 70.0   | 77.80                             | 89.50  | 1.0  | 5.0  | 113.0   | 5.3  |
| SMBJ75                   | NQ                       | SMBJ75C                 | DQ  | 75.0   | 83.30                             | 105.70 | 1.0  | 5.0  | 134.0   | 4.5  |
| SMBJ75A                  | NR                       | SMBJ75CA                | DR  | 75.0   | 83.30                             | 95.80  | 1.0  | 5.0  | 121.0   | 4.9  |
| SMBJ78                   | NS                       | SMBJ78C                 | DS  | 78.0   | 86.70                             | 109.80 | 1.0  | 5.0  | 139.0   | 4.3  |
| SMBJ78A                  | NT                       | SMBJ78CA                | DT  | 78.0   | 86.70                             | 99.70  | 1.0  | 5.0  | 126.0   | 4.7  |
| SMBJ85                   | NU                       | SMBJ85C                 | DU  | 85.0   | 94.40                             | 119.20 | 1.0  | 5.0  | 151.0   | 3.9  |
| SMBJ85A                  | NV                       | SMBJ85CA                | DV  | 85.0   | 94.40                             | 108.20 | 1.0  | 5.0  | 137.0   | 4.4  |
| SMBJ90                   | NW                       | SMBJ90C                 | DW  | 90.0   | 100.00                            | 126.50 | 1.0  | 5.0  | 160.0   | 3.8  |
| SMBJ90A                  | NX                       | SMBJ90CA                | DX  | 90.0   | 100.00                            | 115.50 | 1.0  | 5.0  | 146.0   | 4.1  |
| SMBJ100                  | NY                       | SMBJ100C                | DY  | 100.0  | 111.00                            | 141.00 | 1.0  | 5.0  | 179.0   | 3.4  |
| SMBJ100A                 | NZ                       | SMBJ100CA               | DZ  | 100.0  | 111.00                            | 128.00 | 1.0  | 5.0  | 162.0   | 3.7  |
| SMBJ110                  | PD                       | SMBJ110C                | ED  | 110.0  | 122.00                            | 154.50 | 1.0  | 5.0  | 196.0   | 3.0  |
| SMBJ110A                 | PE                       | SMBJ110CA               | EE  | 110.0  | 122.00                            | 140.50 | 1.0  | 5.0  | 177.0   | 3.4  |
| SMBJ120                  | PF                       | SMBJ120C                | EF  | 120.0  | 133.00                            | 169.00 | 1.0  | 5.0  | 214.0   | 2.8  |
| SMBJ120A                 | PG                       | SMBJ120CA               | EG  | 120.0  | 133.00                            | 153.00 | 1.0  | 5.0  | 193.0   | 3.1  |
| SMBJ130                  | PH                       | SMBJ130C                | EH  | 130.0  | 144.00                            | 182.50 | 1.0  | 5.0  | 231.0   | 2.6  |
| SMBJ130A                 | PK                       | SMBJ130CA               | EK  | 130.0  | 144.00                            | 165.50 | 1.0  | 5.0  | 209.0   | 2.9  |
| SMBJ150                  | PL                       | SMBJ150C                | EL  | 150.0  | 167.00                            | 211.50 | 1.0  | 5.0  | 268.0   | 2.2  |
| SMBJ150A                 | PM                       | SMBJ150CA               | EM  | 150.0  | 167.00                            | 192.50 | 1.0  | 5.0  | 243.0   | 2.5  |
| SMBJ160                  | PN                       | SMBJ160C                | EN  | 160.0  | 178.00                            | 226.00 | 1.0  | 5.0  | 287.0   | 2.1  |
| SMBJ160A                 | PP                       | SMBJ160CA               | EP  | 160.0  | 178.00                            | 205.00 | 1.0  | 5.0  | 259.0   | 2.3  |
| SMBJ170                  | PQ                       | SMBJ170C                | EQ  | 170.0  | 189.00                            | 239.50 | 1.0  | 5.0  | 304.0   | 2.0  |
| SMBJ170A                 | PR                       | SMBJ170CA               | ER  | 170.0  | 189.00                            | 217.50 | 1.0  | 5.0  | 275.0   | 2.2  |



## SMBJ5.0 – SMBJ170CA Series



### Specify Crydom

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  - Zeners/Studs
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### Ordering Information

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E-mail: sales@crydom.com

Website: www.crydom.com

### About Crydom

Over the years Crydom has become the supplier of choice for advanced, high-quality products like those featured here. It's the result of our teams of design and production engineers – material, production control, and quality assurance experts, and more – working seamlessly together to create, produce, and deliver superior components and products that satisfy the most demanding environmental and performance requirements. We focus on timely delivery and competitive pricing aimed at meeting your needs and helping you succeed in today's fast-paced, fast-changing global markets.



FASTFAX Product Info: 1-888-267-9191

### Crydom

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