



1SMC5.0CA  
THRU  
1SMC170CA



**SURFACE MOUNT SILICON  
BI-DIRECTIONAL  
GLASS PASSIVATED JUNCTION  
TRANSIENT VOLTAGE SUPPRESSORS  
1500 WATT, 5.0 THRU 170 VOLT**



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 1SMC5.0CA series devices are surface mount bi-directional glass passivated junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients.

**THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.**

Note: For uni-directional devices, please refer to the 1SMC5.0A series data sheet.

**MARKING CODE: SEE ELECTRICAL CHARACTERISTICS TABLE**



**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Peak Power Dissipation (Note 1)

Operating and Storage Junction Temperature

**SYMBOL**

$P_{PK}$

$T_J, T_{stg}$

1500

-65 to +150

**UNITS**

W

$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| TYPE      | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE |       | TEST CURRENT | MAXIMUM REVERSE LEAKAGE CURRENT | MAXIMUM CLAMPING VOLTAGE | PEAK PULSE CURRENT | MARKING CODE |
|-----------|---------------------------|-------------------|-------|--------------|---------------------------------|--------------------------|--------------------|--------------|
|           | $V_{RWM}$                 | $V_{BR} @ I_T$    |       | $I_T$        | $I_R @ V_{RWM}$                 | $V_C @ I_{pp}$           | (Note 1) $I_{pp}$  |              |
|           | V                         | MIN V             | MAX V | mA           | $\mu\text{A}$                   | V                        | A                  |              |
| 1SMC5.0CA | 5.0                       | 6.40              | 7.25  | 10           | 1000                            | 9.2                      | 163                | CBDE         |
| 1SMC6.0CA | 6.0                       | 6.67              | 7.67  | 10           | 1000                            | 10.3                     | 145.6              | CBDG         |
| 1SMC6.5CA | 6.5                       | 7.22              | 8.30  | 10           | 500                             | 11.2                     | 133.9              | CBDK         |
| 1SMC7.0CA | 7.0                       | 7.78              | 8.95  | 10           | 200                             | 12                       | 125                | CBDM         |
| 1SMC7.5CA | 7.5                       | 8.33              | 9.58  | 1.0          | 100                             | 12.9                     | 116.3              | CBDP         |
| 1SMC8.0CA | 8.0                       | 8.89              | 10.23 | 1.0          | 50                              | 13.6                     | 110.3              | CBDR         |
| 1SMC8.5CA | 8.5                       | 9.44              | 10.82 | 1.0          | 20                              | 14.4                     | 104.2              | CBDT         |
| 1SMC9.0CA | 9.0                       | 10                | 11.5  | 1.0          | 10                              | 15.4                     | 97.4               | CBDV         |
| 1SMC10CA  | 10                        | 11.1              | 12.8  | 1.0          | 5.0                             | 17                       | 88.2               | CBDX         |
| 1SMC11CA  | 11                        | 12.2              | 14    | 1.0          | 5.0                             | 18.2                     | 82.4               | CBDE         |
| 1SMC12CA  | 12                        | 13.3              | 15.3  | 1.0          | 5.0                             | 19.9                     | 75.3               | CBEE         |
| 1SMC13CA  | 13                        | 14.4              | 16.5  | 1.0          | 5.0                             | 21.5                     | 69.7               | CBEG         |
| 1SMC14CA  | 14                        | 15.6              | 17.9  | 1.0          | 5.0                             | 23.2                     | 64.7               | CBEK         |
| 1SMC15CA  | 15                        | 16.7              | 19.2  | 1.0          | 5.0                             | 24.4                     | 61.5               | CBEM         |
| 1SMC16CA  | 16                        | 17.8              | 20.5  | 1.0          | 5.0                             | 26                       | 57.7               | CBEP         |
| 1SMC17CA  | 17                        | 18.9              | 21.7  | 1.0          | 5.0                             | 27.6                     | 53.3               | CBER         |
| 1SMC18CA  | 18                        | 20                | 23.3  | 1.0          | 5.0                             | 29.2                     | 51.4               | CBET         |
| 1SMC20CA  | 20                        | 22.2              | 25.5  | 1.0          | 5.0                             | 32.4                     | 46.3               | CBEV         |
| 1SMC22CA  | 22                        | 24.4              | 28    | 1.0          | 5.0                             | 35.5                     | 42.2               | CBEX         |
| 1SMC24CA  | 24                        | 26.7              | 30.7  | 1.0          | 5.0                             | 38.9                     | 38.6               | CBEZ         |
| 1SMC26CA  | 26                        | 28.9              | 33.2  | 1.0          | 5.0                             | 42.1                     | 35.6               | CBFE         |
| 1SMC28CA  | 28                        | 31.1              | 35.8  | 1.0          | 5.0                             | 45.4                     | 33                 | CBFG         |
| 1SMC30CA  | 30                        | 33.3              | 38.3  | 1.0          | 5.0                             | 48.4                     | 31                 | CBFK         |

Note 1: Non-repetitive 10x1,000 $\mu\text{s}$  pulse.

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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| TYPE      | REVERSE<br>STAND-OFF<br>VOLTAGE | BREAKDOWN<br>VOLTAGE |          | TEST<br>CURRENT | MAXIMUM<br>REVERSE<br>LEAKAGE<br>CURRENT | MAXIMUM<br>CLAMPING<br>VOLTAGE | PEAK<br>PULSE<br>CURRENT<br>(Note 1) | MARKING<br>CODE |
|-----------|---------------------------------|----------------------|----------|-----------------|--|--------------------------------|--------------------------------------|-----------------|
|           | $V_{RWM}$                       | $V_{BR} @ I_T$       |          | $I_T$           | $I_R @ V_{RWM}$                          | $V_C @ I_{PP}$                 | $I_{PP}$                             |                 |
|           | V                               | MIN<br>V             | MAX<br>V | mA              | $\mu\text{A}$                            | V                              | A                                    |                 |
| 1SMC33CA  | 33                              | 36.7                 | 42.2     | 1.0             | 5.0                                      | 53.3                           | 28.1                                 | CBFM            |
| 1SMC36CA  | 36                              | 40                   | 46       | 1.0             | 5.0                                      | 58.1                           | 25.8                                 | CBFP            |
| 1SMC40CA  | 40                              | 44.4                 | 51.1     | 1.0             | 5.0                                      | 64.5                           | 23.2                                 | CBFR            |
| 1SMC43CA  | 43                              | 47.8                 | 54.9     | 1.0             | 5.0                                      | 69.4                           | 21.6                                 | CBFT            |
| 1SMC45CA  | 45                              | 50                   | 57.5     | 1.0             | 5.0                                      | 72.7                           | 20.6                                 | CBFV            |
| 1SMC48CA  | 48                              | 53.3                 | 61.3     | 1.0             | 5.0                                      | 77.4                           | 19.4                                 | CBFX            |
| 1SMC51CA  | 51                              | 56.7                 | 65.2     | 1.0             | 5.0                                      | 82.4                           | 18.2                                 | CBFZ            |
| 1SMC54CA  | 54                              | 60                   | 69       | 1.0             | 5.0                                      | 87.1                           | 17.2                                 | CBGE            |
| 1SMC58CA  | 58                              | 64.4                 | 74.1     | 1.0             | 5.0                                      | 93.6                           | 16                                   | CBGG            |
| 1SMC60CA  | 60                              | 66.7                 | 76.7     | 1.0             | 5.0                                      | 96.8                           | 15.5                                 | CBGK            |
| 1SMC64CA  | 64                              | 71.1                 | 81.8     | 1.0             | 5.0                                      | 103                            | 14.6                                 | CBGM            |
| 1SMC70CA  | 70                              | 77.8                 | 89.5     | 1.0             | 5.0                                      | 113                            | 13.3                                 | CBGP            |
| 1SMC75CA  | 75                              | 83.3                 | 95.8     | 1.0             | 5.0                                      | 121                            | 12.4                                 | CBGR            |
| 1SMC78CA  | 78                              | 86.7                 | 99.7     | 1.0             | 5.0                                      | 126                            | 11.4                                 | CBGT            |
| 1SMC85CA  | 85                              | 94.4                 | 108.2    | 1.0             | 5.0                                      | 137                            | 10.4                                 | CBGV            |
| 1SMC90CA  | 90                              | 100                  | 115.5    | 1.0             | 5.0                                      | 146                            | 10.3                                 | CBGX            |
| 1SMC100CA | 100                             | 111                  | 128      | 1.0             | 5.0                                      | 162                            | 9.3                                  | CBGZ            |
| 1SMC110CA | 110                             | 122                  | 140.5    | 1.0             | 5.0                                      | 177                            | 8.4                                  | CBHE            |
| 1SMC120CA | 120                             | 133                  | 153      | 1.0             | 5.0                                      | 193                            | 7.9                                  | CBHG            |
| 1SMC130CA | 130                             | 144                  | 165.5    | 1.0             | 5.0                                      | 209                            | 7.2                                  | CBHK            |
| 1SMC150CA | 150                             | 167                  | 192.5    | 1.0             | 5.0                                      | 243                            | 6.2                                  | CBHM            |
| 1SMC160CA | 160                             | 178                  | 205      | 1.0             | 5.0                                      | 259                            | 5.8                                  | CBHP            |
| 1SMC170CA | 170                             | 189                  | 217.5    | 1.0             | 5.0                                      | 275                            | 5.5                                  | CBHR            |

**SMC CASE - MECHANICAL OUTLINE**



| SYMBOL | INCHES |       | MILLIMETERS |      |
|--------|--------|-------|-------------|------|
|        | MIN    | MAX   | MIN         | MAX  |
| A      | 0.030  | 0.060 | 0.76        | 1.52 |
| B      | 0.002  | 0.008 | 0.05        | 0.20 |
| C      | 0.305  | 0.320 | 7.75        | 8.13 |
| D      | 0.006  | 0.012 | 0.15        | 0.31 |
| E      | 0.079  | 0.103 | 2.00        | 2.62 |
| F      | 0.260  | 0.280 | 6.60        | 7.11 |
| G      | 0.108  | 0.128 | 2.75        | 3.25 |
| H      | 0.220  | 0.245 | 5.59        | 6.22 |

SMC (REV: R2)

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### TYPICAL ELECTRICAL CHARACTERISTICS



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## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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- ✓ Alternative Solution
- ✓ Excess Inventory Management