



**THE DATASHEET OF
1SMC51CA TR13**



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 | μA | 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 μs pulse.

R8 (17-March 2016)

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

| TYPE | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE | | TEST CURRENT | MAXIMUM REVERSE LEAKAGE CURRENT | MAXIMUM CLAMPING VOLTAGE | PEAK PULSE CURRENT (Note 1) | MARKING CODE |
|-----------|---------------------------------|----------------------|----------|-----------------|--|--------------------------------|--------------------------------------|-----------------|
| | V_{RWM} | $V_{BR} @ I_T$ | | I_T | $I_R @ V_{RWM}$ | $V_C @ I_{PP}$ | I_{PP} | |
| | V | MIN V | MAX V | mA | μA | 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



R8 (17-March 2016)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

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- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management