

1.5CE6.8A THRU 1.5CE440A
1.5CE6.8CA THRU 1.5CE440CA

UNI-DIRECTIONAL
AND BI-DIRECTIONAL
SILICON TRANSIENT
VOLTAGE SUPPRESSORS
1500 WATTS, 6.8 THRU 440 VOLTS



www.centrasemi.com

Specified by
BREAKDOWN VOLTAGE



DO-201 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1.5CE6.8A (Uni-Directional) and 1.5CE6.8CA (Bi-Directional) Series types are 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 add suffix "A" to part number. For Bi-Directional devices add suffix "CA" to part number.

MARKING: FULL PART NUMBER

Bi-directional devices shall not be marked with a Cathode band.

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

Peak Power Dissipation (Note 1)

Steady State Power Dissipation ($T_L=75^\circ\text{C}$, L.L.=3/8")

Forward Surge Current (Uni-Directional only)

Operating and Storage Junction Temperature

SYMBOL

P_{PK}

P_D

I_{FSM}

T_J, T_{stg}

1500

5.0

200

-65 to +175

UNITS

W

W

A

$^\circ\text{C}$

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

| TYPE | BREAKDOWN VOLTAGE | | | TEST CURRENT I_T mA | WORKING PEAK REVERSE VOLTAGE V_{RWM} V | MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_{RWM}$ μA | MAXIMUM CLAMPING VOLTAGE $V_C @ I_{PP}$ V | PEAK PULSE CURRENT (Note 1) I_{PP} A | MAXIMUM TEMPERATURE COEFFICIENT $\theta_{V_{BR}}$ % / $^\circ\text{C}$ |
|----------|-------------------|-------|-------|-----------------------------|--|---|---|--|--|
| | $V_{BR} @ I_T$ | | | | | | | | |
| | MIN V | NOM V | MAX V | | | | | | |
| 1.5CE6.8 | 6.45 | 6.8 | 7.14 | 10 | 5.8 | 1000 | 10.5 | 143 | 0.057 |
| 1.5CE7.5 | 7.13 | 7.5 | 7.88 | 10 | 6.4 | 500 | 11.3 | 132 | 0.061 |
| 1.5CE8.2 | 7.79 | 8.2 | 8.61 | 10 | 7.02 | 200 | 12.1 | 124 | 0.065 |
| 1.5CE9.1 | 8.65 | 9.1 | 9.55 | 1.0 | 7.78 | 50 | 13.4 | 112 | 0.068 |
| 1.5CE10 | 9.5 | 10 | 10.5 | 1.0 | 8.55 | 10 | 14.5 | 103 | 0.073 |
| 1.5CE11 | 10.5 | 11 | 11.6 | 1.0 | 9.4 | 5.0 | 15.6 | 96 | 0.075 |
| 1.5CE12 | 11.4 | 12 | 12.6 | 1.0 | 10.2 | 5.0 | 16.7 | 90 | 0.078 |
| 1.5CE13 | 12.4 | 13 | 13.7 | 1.0 | 11.1 | 5.0 | 18.2 | 82 | 0.081 |
| 1.5CE15 | 14.3 | 15 | 15.8 | 1.0 | 12.8 | 5.0 | 21.2 | 71 | 0.084 |
| 1.5CE16 | 15.2 | 16 | 16.8 | 1.0 | 13.6 | 5.0 | 22.5 | 67 | 0.086 |
| 1.5CE18 | 17.1 | 18 | 18.9 | 1.0 | 15.3 | 5.0 | 25.2 | 59.5 | 0.088 |
| 1.5CE20 | 19.0 | 20 | 21.0 | 1.0 | 17.1 | 5.0 | 27.7 | 54 | 0.090 |
| 1.5CE22 | 20.9 | 22 | 23.1 | 1.0 | 18.8 | 5.0 | 30.6 | 49 | 0.092 |
| 1.5CE24 | 22.8 | 24 | 25.2 | 1.0 | 20.5 | 5.0 | 33.2 | 45 | 0.094 |
| 1.5CE27 | 25.7 | 27 | 28.4 | 1.0 | 23.1 | 5.0 | 37.5 | 40 | 0.096 |
| 1.5CE30 | 28.5 | 30 | 31.5 | 1.0 | 25.6 | 5.0 | 41.4 | 36 | 0.097 |
| 1.5CE33 | 31.4 | 33 | 34.7 | 1.0 | 28.2 | 5.0 | 45.7 | 33 | 0.098 |
| 1.5CE36 | 34.2 | 36 | 37.8 | 1.0 | 30.8 | 5.0 | 49.9 | 30 | 0.099 |
| 1.5CE39 | 37.1 | 39 | 41 | 1.0 | 33.3 | 5.0 | 53.9 | 28 | 0.100 |
| 1.5CE43 | 40.9 | 43 | 45.2 | 1.0 | 36.8 | 5.0 | 59.3 | 25.3 | 0.101 |

Notes: (1) Non-repetitive 10x1,000 μs pulse.

R1 (8-September 2011)

1.5CE6.8A THRU 1.5CE440A
 1.5CE6.8CA THRU 1.5CE440CA

UNI-DIRECTIONAL
 AND BI-DIRECTIONAL
 SILICON TRANSIENT
 VOLTAGE SUPPRESSORS
 1500 WATTS, 6.8 THRU 440 VOLTS



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

| TYPE | BREAKDOWN VOLTAGE | | | TEST CURRENT I_T mA | WORKING PEAK REVERSE VOLTAGE V_{RWM} V | MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_{RWM}$ μA | MAXIMUM CLAMPING VOLTAGE $V_C @ I_{PP}$ V | PEAK PULSE CURRENT (Note 1) I_{PP} A | MAXIMUM TEMPERATURE COEFFICIENT ΘV_{BR} %/ $^{\circ}\text{C}$ |
|----------|-------------------|-------|-------|-----------------------------|--|---|---|--|---|
| | $V_{BR} @ I_T$ | | | | | | | | |
| | MIN V | NOM V | MAX V | | | | | | |
| 1.5CE47 | 44.7 | 47 | 49.4 | 1.0 | 40.2 | 5.0 | 64.8 | 23.2 | 0.101 |
| 1.5CE51 | 48.5 | 51 | 53.6 | 1.0 | 43.6 | 5.0 | 70.1 | 21.4 | 0.102 |
| 1.5CE56 | 53.2 | 56 | 58.8 | 1.0 | 47.8 | 5.0 | 77 | 19.5 | 0.103 |
| 1.5CE62 | 58.9 | 62 | 65.1 | 1.0 | 53.0 | 5.0 | 85 | 17.7 | 0.104 |
| 1.5CE68 | 64.6 | 68 | 71.4 | 1.0 | 58.1 | 5.0 | 92 | 16.3 | 0.104 |
| 1.5CE75 | 71.3 | 75 | 78.8 | 1.0 | 64.1 | 5.0 | 103 | 14.6 | 0.105 |
| 1.5CE82 | 77.9 | 82 | 86.1 | 1.0 | 70.1 | 5.0 | 113 | 13.3 | 0.105 |
| 1.5CE91 | 86.5 | 91 | 95.5 | 1.0 | 77.8 | 5.0 | 125 | 12 | 0.106 |
| 1.5CE100 | 95.0 | 100 | 105 | 1.0 | 85.5 | 5.0 | 137 | 11 | 0.106 |
| 1.5CE110 | 104.5 | 110 | 115.5 | 1.0 | 94.0 | 5.0 | 152 | 9.9 | 0.107 |
| 1.5CE120 | 114 | 120 | 126 | 1.0 | 102 | 5.0 | 165 | 9.1 | 0.107 |
| 1.5CE130 | 123.5 | 130 | 136.5 | 1.0 | 111 | 5.0 | 179 | 8.4 | 0.107 |
| 1.5CE150 | 142.5 | 150 | 157.5 | 1.0 | 128 | 5.0 | 207 | 7.2 | 0.108 |
| 1.5CE160 | 152 | 160 | 168 | 1.0 | 136 | 5.0 | 219 | 6.8 | 0.108 |
| 1.5CE170 | 161.5 | 170 | 178.5 | 1.0 | 145 | 5.0 | 234 | 6.4 | 0.108 |
| 1.5CE180 | 171 | 180 | 189 | 1.0 | 154 | 5.0 | 246 | 6.1 | 0.108 |
| 1.5CE200 | 190 | 200 | 210 | 1.0 | 171 | 5.0 | 274 | 5.5 | 0.108 |
| 1.5CE220 | 209 | 220 | 231 | 1.0 | 185 | 5.0 | 328 | 4.6 | 0.108 |
| 1.5CE250 | 237.5 | 250 | 262.5 | 1.0 | 214 | 5.0 | 344 | 5.0 | 0.110 |
| 1.5CE300 | 285 | 300 | 315 | 1.0 | 256 | 5.0 | 414 | 5.0 | 0.110 |
| 1.5CE350 | 332.5 | 350 | 367.5 | 1.0 | 300 | 5.0 | 482 | 4.0 | 0.110 |
| 1.5CE400 | 380 | 400 | 420 | 1.0 | 342 | 5.0 | 548 | 4.0 | 0.110 |
| 1.5CE440 | 418 | 440 | 462 | 1.0 | 376 | 5.0 | 600 | 2.6 | 0.110 |

DO-201 CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 1.000 | - | 25.40 | - |
| B | 0.285 | 0.375 | 7.24 | 9.53 |
| C | 0.188 | 0.210 | 4.78 | 5.33 |
| D | 0.037 | 0.042 | 0.94 | 1.07 |

DO-201(REV: R1)

MARKING: FULL PART NUMBER
 Bi-directional devices shall not be marked with a Cathode band.

R1 (8-September 2011)

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

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centrasemi.com

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

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