

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<br>$I_T$ | WORKING PEAK REVERSE VOLTAGE<br>$V_{RWM}$ | MAXIMUM REVERSE LEAKAGE CURRENT<br>$I_R @ V_{RWM}$ | MAXIMUM CLAMPING VOLTAGE<br>$V_C @ I_{PP}$ | PEAK PULSE CURRENT (Note 1)<br>$I_{PP}$ | MAXIMUM TEMPERATURE COEFFICIENT<br>$\theta_{V_{BR}}$ |
|----------|-------------------|-------|-------|-----------------------|---|--|--|---|--|
|          | $V_{BR} @ I_T$    |       |       |                       |   |  |  |   |  |
|          | MIN V             | NOM V | MAX V | mA                    | V   | $\mu\text{A}$                                      | V  | A                                       | % / $^\circ\text{C}$                                 |
| 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 $\mu\text{s}$  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<br>$I_T$ | WORKING PEAK REVERSE VOLTAGE<br>$V_{RWM}$ | MAXIMUM REVERSE LEAKAGE CURRENT<br>$I_R @ V_{RWM}$ | MAXIMUM CLAMPING VOLTAGE<br>$V_C @ I_{PP}$ | PEAK PULSE CURRENT (Note 1)<br>$I_{PP}$ | MAXIMUM TEMPERATURE COEFFICIENT<br>$\Theta V_{BR}$ |
|----------|-------------------|-------|-------|-----------------------|---|--|--|---|--|
|          | $V_{BR} @ I_T$    |       |       |                       |   |  |  |   |  |
|          | MIN V             | NOM V | MAX V | mA                    | V   | $\mu\text{A}$                                      | V  | A                                       | % / $^{\circ}\text{C}$                             |
| 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



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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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