

## Silicon Avalanche Diodes

## 1500 Watt Axial Leaded Transient Voltage Suppressors

## RoHS 1.5KE Series

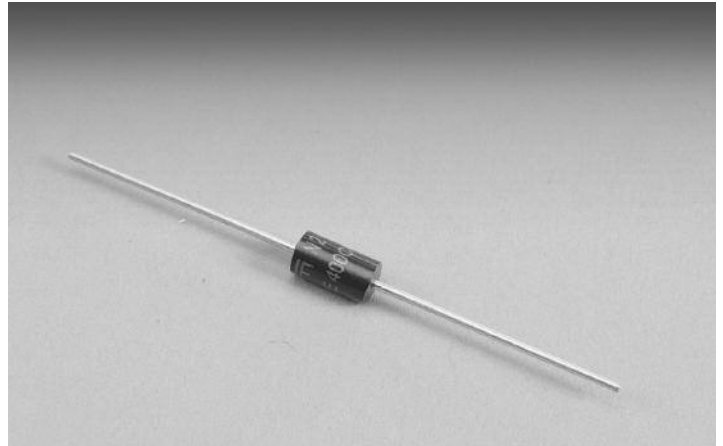
The 1.5KE Series is designed specifically to protect sensitive electronics equipment from voltage transients induced by lightning and other transient voltage events. These devices are ideal for the protection of I/O interfaces, Vcc bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

## FEATURES

- **RoHS Compliant**
- 6.8V to 550Volts
- Uni-directional and Bi-directional
- Glass passivated chip junction in DO-201 package
- 1500W surge capability at 10/1000 $\mu$ s wave form
- Excellent clamping capability
- Low zener impedance to BV min.
- Typical IR less than 1 $\mu$ A above 10V, (9.5mm) lead length, 5lbs., (2.3kg) tension

**Agency Approvals:** Recognized under the Components Program of Underwriters Laboratories.

**Agency File Number:** E128662



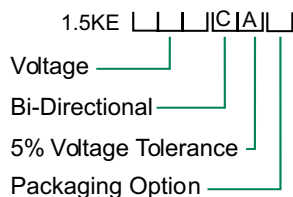
**MAXIMUM RATINGS AND CHARACTERISTICS @25°C  
AMBIENT TEMPERATURE (unless otherwise noted)**

| RATING                                                                                             | SYMBOL                            | VALUE       | UNIT  |
|----------------------------------------------------------------------------------------------------|-----------------------------------|-------------|-------|
| Peak Pulse Power Dissipation at<br>T <sub>A</sub> =25°C, T <sub>p</sub> =1ms(Note 1)               | P <sub>PPM</sub>                  | Min<br>1500 | Watts |
| Steady State Power Dissipation at<br>T <sub>L</sub> =75°C, Lead lengths .375",<br>(9.5mm) (Note 2) | P <sub>M(AV)</sub>                | 6.5         | Watts |
| Superimposed on Rated Load,<br>(JEDEC Method) (Note 3)                                             | I <sub>FSM</sub>                  | 200         | Amps  |
| Operating junction and Storage<br>Temperature Range                                                | T <sub>j</sub> , T <sub>STG</sub> | -55 to +175 | °C    |

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.2
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle= 4 pulses per minutes maximum.

## ORDERING INFORMATION



B = Bulk (500 pcs)

T = Tape and reeled (1200 pcs)

### Mechanical Specifications:

**Weight:** 0.045 ounce, 1.2 grams  
**Case:** JEDEC DO-201 Molded plastic

**Mounting Position:** Any  
**Polarity:** Color band denotes cathode except Bipolar

**Terminal:** Axial leads, solderable per MIL-STD-750, Method 2026

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#### ELECTRICAL SPECIFICATION @ Tamb 25°C

| Part Numbers |            | Reverse Stand off Voltage<br>V <sub>R</sub><br>(Volts) | Breakdown Voltage<br>V <sub>BR</sub> (Volts) @ I <sub>T</sub> |        | Test Current<br>I <sub>T</sub> (mA) | Maximum Clamping Voltage<br>V <sub>C</sub> @ I <sub>PP</sub><br>(Volts) | Maximum Peak Pulse Current<br>I <sub>PP</sub><br>(A) | Maximum Reverse Leakage<br>I <sub>R</sub> @ V <sub>R</sub><br>(μA) |
|--------------|------------|--------------------------------------------------------|---------------------------------------------------------------|--------|-------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------|
| Uni-Polar    | Bi-Polar   |                                                        | MIN                                                           | MAX    |                                     |                                                                         |                                                      |                                                                    |
| 1.5KE6.8A    | 1.5KE6.8CA | 5.80                                                   | 6.45                                                          | 7.14   | 10                                  | 10.5                                                                    | 144.8                                                | 1000                                                               |
| 1.5KE7.5A    | 1.5KE7.5CA | 6.40                                                   | 7.13                                                          | 7.88   | 10                                  | 11.3                                                                    | 134.5                                                | 500                                                                |
| 1.5KE8.2A    | 1.5KE8.2CA | 7.02                                                   | 7.79                                                          | 8.61   | 10                                  | 12.1                                                                    | 125.6                                                | 200                                                                |
| 1.5KE9.1A    | 1.5KE9.1CA | 7.78                                                   | 8.65                                                          | 9.50   | 1                                   | 13.4                                                                    | 113.4                                                | 50                                                                 |
| 1.5KE10A     | 1.5KE10CA  | 8.55                                                   | 9.50                                                          | 10.50  | 1                                   | 14.5                                                                    | 104.8                                                | 10                                                                 |
| 1.5KE11A     | 1.5KE11CA  | 9.40                                                   | 10.50                                                         | 11.60  | 1                                   | 15.6                                                                    | 97.4                                                 | 5                                                                  |
| 1.5KE12A     | 1.5KE12CA  | 10.20                                                  | 11.40                                                         | 12.60  | 1                                   | 16.7                                                                    | 91.0                                                 | 5                                                                  |
| 1.5KE13A     | 1.5KE13CA  | 11.10                                                  | 12.40                                                         | 13.70  | 1                                   | 18.2                                                                    | 83.5                                                 | 5                                                                  |
| 1.5KE15A     | 1.5KE15CA  | 12.80                                                  | 14.30                                                         | 15.80  | 1                                   | 21.2                                                                    | 71.7                                                 | 5                                                                  |
| 1.5KE16A     | 1.5KE16CA  | 13.60                                                  | 15.20                                                         | 16.80  | 1                                   | 22.5                                                                    | 67.6                                                 | 5                                                                  |
| 1.5KE18A     | 1.5KE18CA  | 15.30                                                  | 17.10                                                         | 18.90  | 1                                   | 25.2                                                                    | 60.3                                                 | 5                                                                  |
| 1.5KE20A     | 1.5KE20CA  | 17.10                                                  | 19.00                                                         | 21.00  | 1                                   | 27.7                                                                    | 54.9                                                 | 5                                                                  |
| 1.5KE22A     | 1.5KE22CA  | 18.80                                                  | 20.90                                                         | 23.10  | 1                                   | 30.6                                                                    | 49.7                                                 | 5                                                                  |
| 1.5KE24A     | 1.5KE24CA  | 20.50                                                  | 22.80                                                         | 25.20  | 1                                   | 33.2                                                                    | 45.8                                                 | 5                                                                  |
| 1.5KE27A     | 1.5KE27CA  | 23.10                                                  | 25.70                                                         | 28.40  | 1                                   | 37.5                                                                    | 40.5                                                 | 5                                                                  |
| 1.5KE30A     | 1.5KE30CA  | 25.60                                                  | 28.50                                                         | 31.50  | 1                                   | 41.4                                                                    | 36.7                                                 | 5                                                                  |
| 1.5KE33A     | 1.5KE33CA  | 28.20                                                  | 31.40                                                         | 34.70  | 1                                   | 45.7                                                                    | 33.3                                                 | 5                                                                  |
| 1.5KE36A     | 1.5KE36CA  | 30.80                                                  | 34.20                                                         | 37.80  | 1                                   | 49.9                                                                    | 30.5                                                 | 5                                                                  |
| 1.5KE39A     | 1.5KE39CA  | 33.30                                                  | 37.10                                                         | 41.00  | 1                                   | 53.9                                                                    | 28.2                                                 | 5                                                                  |
| 1.5KE43A     | 1.5KE43CA  | 36.80                                                  | 40.90                                                         | 45.20  | 1                                   | 59.3                                                                    | 25.6                                                 | 5                                                                  |
| 1.5KE47A     | 1.5KE47CA  | 40.20                                                  | 44.70                                                         | 49.40  | 1                                   | 64.8                                                                    | 23.5                                                 | 5                                                                  |
| 1.5KE51A     | 1.5KE51CA  | 43.60                                                  | 48.50                                                         | 53.60  | 1                                   | 70.1                                                                    | 21.7                                                 | 5                                                                  |
| 1.5KE56A     | 1.5KE56CA  | 47.80                                                  | 53.20                                                         | 58.80  | 1                                   | 77.0                                                                    | 19.7                                                 | 5                                                                  |
| 1.5KE62A     | 1.5KE62CA  | 53.00                                                  | 58.90                                                         | 65.10  | 1                                   | 85.0                                                                    | 17.9                                                 | 5                                                                  |
| 1.5KE68A     | 1.5KE68CA  | 58.10                                                  | 64.60                                                         | 71.40  | 1                                   | 92.0                                                                    | 16.5                                                 | 5                                                                  |
| 1.5KE75A     | 1.5KE75CA  | 64.10                                                  | 71.30                                                         | 78.80  | 1                                   | 103.0                                                                   | 14.8                                                 | 5                                                                  |
| 1.5KE82A     | 1.5KE82CA  | 70.10                                                  | 77.90                                                         | 86.10  | 1                                   | 113.0                                                                   | 13.5                                                 | 5                                                                  |
| 1.5KE91A     | 1.5KE91CA  | 77.80                                                  | 86.50                                                         | 95.50  | 1                                   | 125.0                                                                   | 12.2                                                 | 5                                                                  |
| 1.5KE100A    | 1.5KE100CA | 85.50                                                  | 95.00                                                         | 105.00 | 1                                   | 137.0                                                                   | 11.1                                                 | 5                                                                  |
| 1.5KE110A    | 1.5KE110CA | 94.00                                                  | 105.00                                                        | 116.00 | 1                                   | 152.0                                                                   | 10.0                                                 | 5                                                                  |
| 1.5KE120A    | 1.5KE120CA | 102.00                                                 | 114.00                                                        | 126.00 | 1                                   | 165.0                                                                   | 9.2                                                  | 5                                                                  |
| 1.5KE130A    | 1.5KE130CA | 111.00                                                 | 124.00                                                        | 137.00 | 1                                   | 179.0                                                                   | 8.5                                                  | 5                                                                  |
| 1.5KE150A    | 1.5KE150CA | 128.00                                                 | 143.00                                                        | 158.00 | 1                                   | 207.0                                                                   | 7.3                                                  | 5                                                                  |
| 1.5KE160A    | 1.5KE160CA | 136.00                                                 | 152.00                                                        | 168.00 | 1                                   | 219.0                                                                   | 6.9                                                  | 5                                                                  |
| 1.5KE170A    | 1.5KE170CA | 145.00                                                 | 162.00                                                        | 179.00 | 1                                   | 234.0                                                                   | 6.5                                                  | 5                                                                  |
| 1.5KE180A    | 1.5KE180CA | 154.00                                                 | 171.00                                                        | 189.00 | 1                                   | 246.0                                                                   | 6.2                                                  | 5                                                                  |
| 1.5KE200A    | 1.5KE200CA | 171.00                                                 | 190.00                                                        | 210.00 | 1                                   | 274.0                                                                   | 5.5                                                  | 5                                                                  |
| 1.5KE220A    | 1.5KE220CA | 185.00                                                 | 209.00                                                        | 231.00 | 1                                   | 328.0                                                                   | 4.6                                                  | 5                                                                  |
| 1.5KE250A    | 1.5KE250CA | 214.00                                                 | 237.00                                                        | 263.00 | 1                                   | 344.0                                                                   | 4.4                                                  | 5                                                                  |
| 1.5KE300A    | 1.5KE300CA | 256.00                                                 | 285.00                                                        | 315.00 | 1                                   | 414.0                                                                   | 3.7                                                  | 5                                                                  |
| 1.5KE350A    | 1.5KE350CA | 300.00                                                 | 332.00                                                        | 368.00 | 1                                   | 482.0                                                                   | 3.2                                                  | 5                                                                  |
| 1.5KE400A    | 1.5KE400CA | 342.00                                                 | 380.00                                                        | 420.00 | 1                                   | 548.0                                                                   | 2.8                                                  | 5                                                                  |
| 1.5KE440A    | 1.5KE440CA | 376.00                                                 | 418.00                                                        | 462.00 | 1                                   | 602.0                                                                   | 2.5                                                  | 5                                                                  |
| 1.5KE480A    | 1.5KE480CA | 408.00                                                 | 456.00                                                        | 504.00 | 1                                   | 658.0                                                                   | 2.3                                                  | 5                                                                  |
| 1.5KE510A    | 1.5KE510CA | 434.00                                                 | 485.00                                                        | 535.00 | 1                                   | 698.0                                                                   | 2.1                                                  | 5                                                                  |
| 1.5KE530A    | 1.5KE530CA | 450.00                                                 | 503.50                                                        | 556.50 | 1                                   | 725.0                                                                   | 2.1                                                  | 5                                                                  |
| 1.5KE540A    | 1.5KE540CA | 459.00                                                 | 513.00                                                        | 567.00 | 1                                   | 740.0                                                                   | 2.0                                                  | 5                                                                  |
| 1.5KE550A    | 1.5KE550CA | 467.00                                                 | 522.50                                                        | 577.50 | 1                                   | 760.0                                                                   | 2.0                                                  | 5                                                                  |

For bidirectional type having V<sub>rrm</sub> of 10 volts and less, the I<sub>R</sub> limit is double.  
For parts without A , the V<sub>BR</sub> is ± 10%

**6**
**SILICON DIODE  
ARRAYS**

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Ratings and Characteristic Curves  $T_A=25^\circ\text{C}$  unless otherwise noted



Fig. 1 Peak Pulse Power Rating Curve



Fig. 2 Pulse Derating Curve



Fig. 3 Pulse Waveform

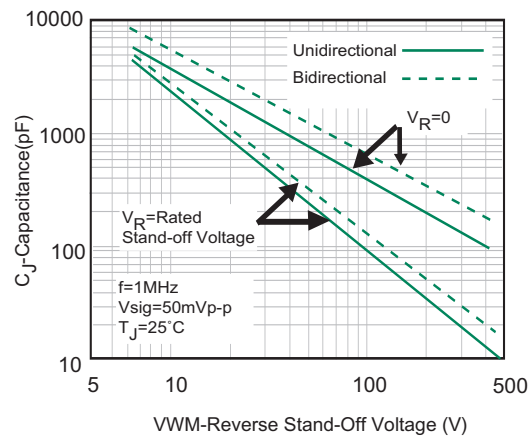


Fig. 4- Typical Junction Capacitance



Fig. 5 Steady State Power Derating Curve



Fig. 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

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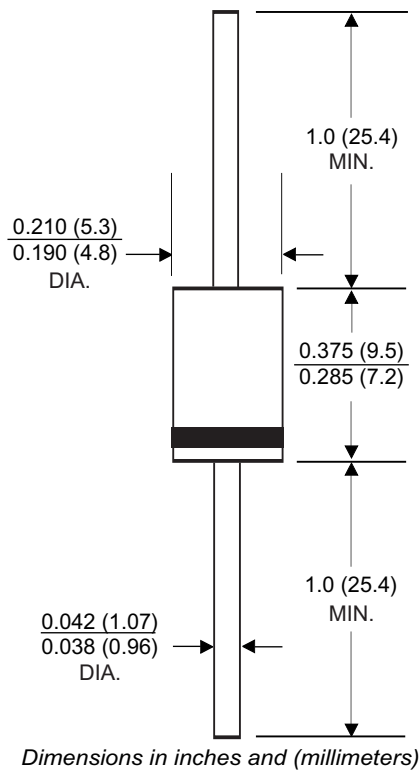
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### RoHS 1.5KE Series



#### Outline Dimensions

Case Style 1.5KE  
(DO-201)



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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.