

# Axial Lead Transient Voltage Suppressors (TVS)

**8KP Series**
**22 to 43 V**
**8000W**
**R6/P600**

## Description

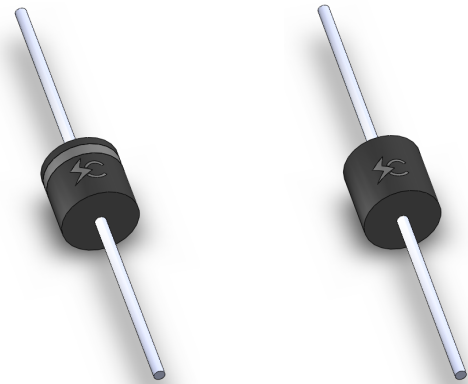
The 8KP series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

## Features

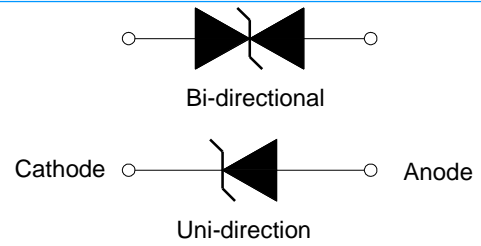
- u Glass passivated chip junction in P600 Package
- u Low leakage
- u Uni and Bidirectional unit
- u Excellent clamping capability
- u 8000W Peak power capability at 10 × 1000µs waveform Repetition rate (duty cycle):0.01%
- u Fast response time
- u RoHS compliant

## Applications

TVS devices are ideal for the protection of I/O interfaces, V<sub>CC</sub> bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

**Uni-directional**
**Bi-directional**


## Functional Diagram



## Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter  | Symbol                            | Value          | Unit  |
|--|-----------------------------------|----------------|-------|
| Peak Pulse Power Dissipation with a 10/1000µs waveform (Fig.1)(Note 1), (Note 2) | P <sub>PPM</sub>                  | 8000           | Watts |
| Peak Pulse Current with a 10/1000µs waveform.(Note1, Fig.3)                      | I <sub>PP</sub>                   | See Next Table | Amps  |
| Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =75°C                  | P <sub>M(AV)</sub>                | 8.0            | Watt  |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)                 | I <sub>FSM</sub>                  | 500            | Amps  |
| Operating junction and Storage Temperature Range.                                | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C    |

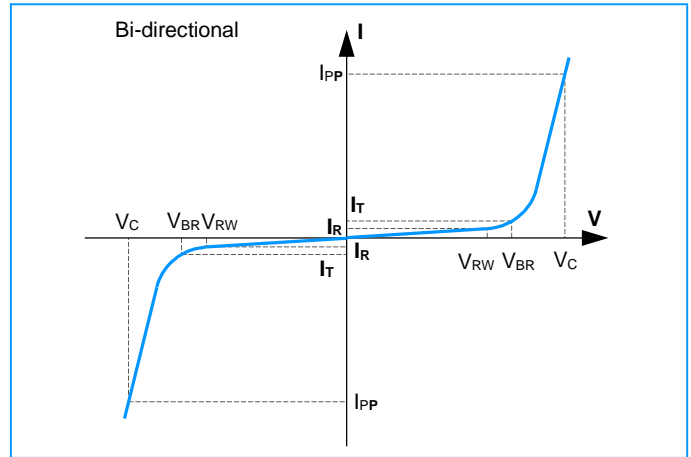
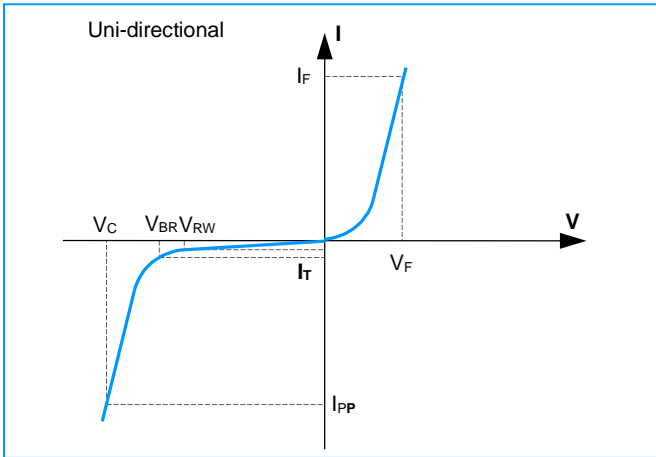
## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Part Number |         | Reverse Stand-Off Voltage V <sub>RWM</sub> (V) | Breakdown Voltage V <sub>BR</sub> (V) @I <sub>T</sub> |      | Test Current I <sub>T</sub> (mA) | Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V) | Maximum Peak Pulse Current I <sub>PP</sub> (A) | Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (µA) |
|-------------|---------|--|---|------|----------------------------------|--|--|---|
| Uni         | Bi      |  | MIN   | MAX  |                                  |  |  |   |
| 8KP22A      | 8KP22CA | 22   | 24.4  | 26.9 | 5                                | 35.5   | 225  | 5   |
| 8KP24A      | 8KP24CA | 24   | 26.7  | 29.5 | 5                                | 38.9   | 206  | 5   |
| 8KP30A      | 8KP30CA | 30   | 33.3  | 36.8 | 5                                | 48.4   | 165  | 5   |
| 8KP33A      | 8KP33CA | 33   | 36.7  | 40.6 | 5                                | 53.3   | 150  | 5   |
| 8KP36A      | 8KP36CA | 36   | 40.0  | 44.2 | 5                                | 58.1   | 148  | 5   |
| 8KP40A      | 8KP40CA | 40   | 44.4  | 49.1 | 5                                | 64.5   | 124  | 5   |
| 8KP43A      | 8KP43CA | 43   | 47.8  | 52.8 | 5                                | 69.4   | 115  | 5   |

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## I-V Curve Characteristics



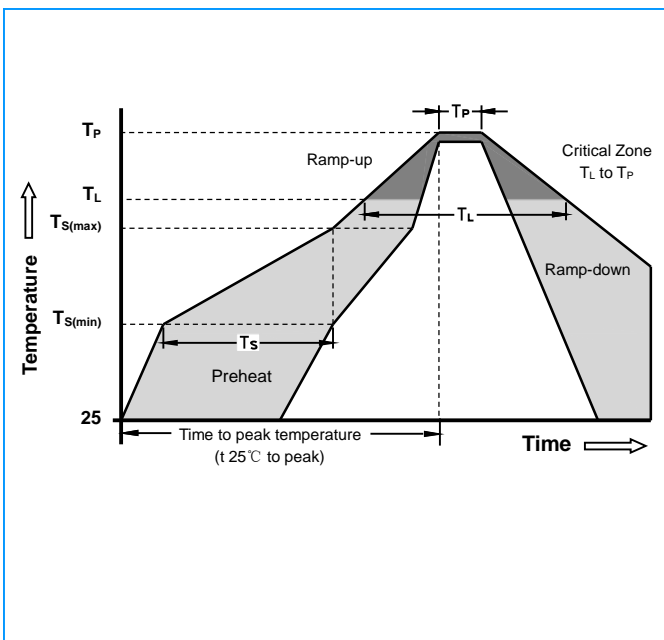
## Physical Specifications

|                 |  |
|-----------------|--|
| <b>Weight</b>   | 0.07 ounce, 2.1gram  |
| <b>Case</b>     | JEDEC R-6/P600 Molded Plastic over glass passivated junction |
| <b>Polarity</b> | Color band denotes cathode except Bipolar                    |
| <b>Terminal</b> | Matte Tin-plated leads, Solderable per JESD22-B102D          |

## Environmental Specifications

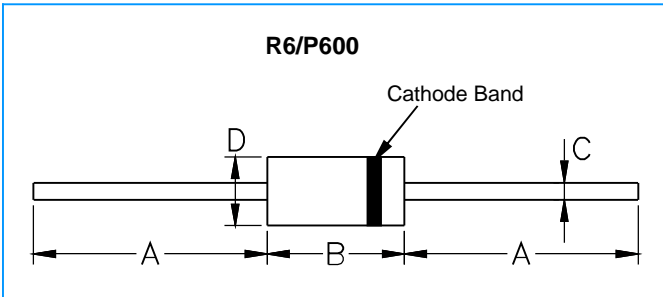
|                           |             |
|---------------------------|-------------|
| <b>Temperature Cycle</b>  | JESD22-A104 |
| <b>Pressure Cooker</b>    | JESD22-A102 |
| <b>High Temp. Storage</b> | JESD22-A103 |
| <b>HTRB</b>               | JESD22-A108 |
| <b>Thermal Shock</b>      | JESD22-A106 |

## Soldering Parameters

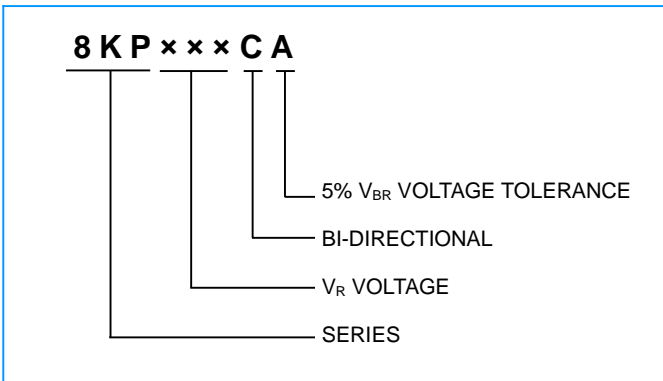
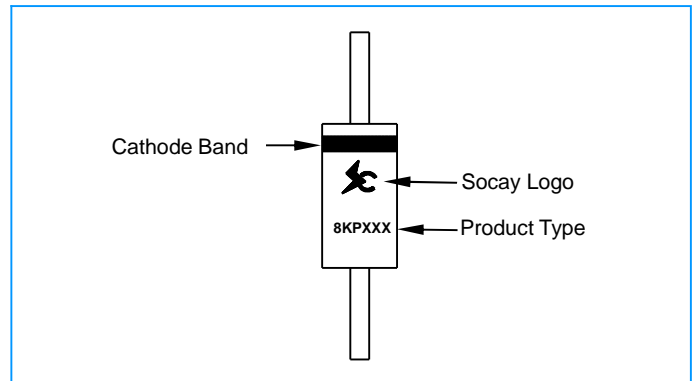


|  |  |                    |
|--|--|--------------------|
| <b>Reflow Condition</b>  |  | Lead-free assembly |
| <b>Pre Heat</b>  | - Temperature Min (T <sub>S(min)</sub> )   | 150°C              |
|  | - Temperature Max (T <sub>S(max)</sub> )   | 200°C              |
|  | - Time (min to max) (T <sub>S</sub> )      | 60 - 180 Seconds   |
| <b>Average ramp up rate ( Liquidus Temp T<sub>L</sub>) to peak</b> |  | 3°C/second max     |
| <b>T<sub>S(max)</sub> to T<sub>L</sub> - Ramp-up Rate</b>          |  | 3°C/second max     |
| <b>Reflow</b>  | - Temperature (T <sub>L</sub> ) (Liquidus) | 217°C              |
|  | - Time (min to max) (T <sub>L</sub> )      | 60 - 150 Seconds   |
| <b>Peak Temperature (T<sub>P</sub>)</b>                            |  | 260 +0/-5°C        |
| <b>Time within 5°C of actual peak Temperature (t<sub>p</sub>)</b>  |  | 20 - 40 Seconds    |
| <b>Ramp-down Rate</b>  |  | 6°C/second max     |
| <b>Time 25°C to peak Temperature (T<sub>P</sub>)</b>               |  | 8 minutes Max      |
| <b>Do not exceed</b>   |  | 280°C              |

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**Dimensions**


| Dimensions | Inches |       | Millimeters |      |
|------------|--------|-------|-------------|------|
|            | Min    | Max   | Min         | Max  |
| <b>A</b>   | 1.000  | -     | 25.40       | -    |
| <b>B</b>   | 0.340  | 0.360 | 8.64        | 9.14 |
| <b>C</b>   | 0.048  | 0.052 | 1.22        | 1.32 |
| <b>D</b>   | 0.340  | 0.360 | 8.64        | 9.14 |

**Part Numbering**

**Part Marking**

**Packaging**

| Part Number | Component Package | Quantity | Packaging Option |
|-------------|-------------------|----------|------------------|
| 8KPXXXXX    | R6/P600           | 250 PCS  | Box              |

**Packaging Dimensions Unit: Inches (Millimeters)**
