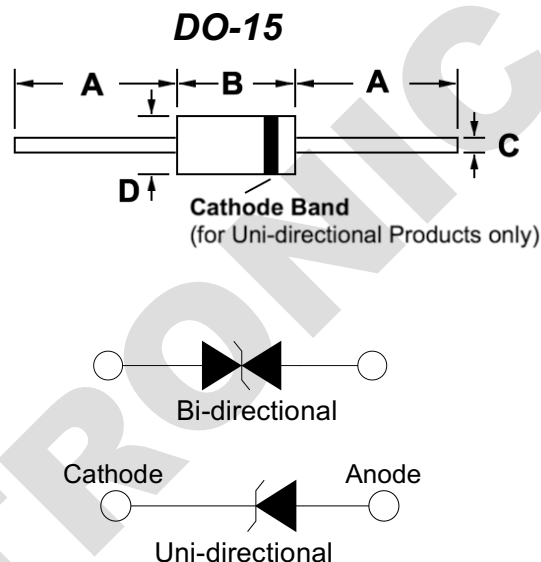


## 600W Axial Leaded Transient Voltage Suppressors

### Features

- Peak power dissipation 600W @10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- Fast response time: typically less than 1ps from 0 Volts to BV min
- Typical  $I_R$  less than 1uA when  $V_{BR}$  min above 12V.
- IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- RoHS compliant
- Lead-free finish



### Mechanical Characteristics

- CASE: DO-15 Molded Plastic
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.
- Terminal: Solder plated

| REF. | DIMENSIONS  |      |        |       |
|------|-------------|------|--------|-------|
|      | Millimeters |      | Inches |       |
|      | Min.        | Max. | Min.   | Max.  |
| A    | 25.4        | ---  | 1.000  | ---   |
| B    | 5.80        | 7.62 | 0.230  | 0.300 |
| C    | 0.70        | 0.90 | 0.028  | 0.034 |
| D    | 2.60        | 3.60 | 0.104  | 0.140 |

### Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

| Parameter                                                           | Symbol    | Value       | Units              |
|---------------------------------------------------------------------|-----------|-------------|--------------------|
| Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, FIG.1) | $P_{PPM}$ | Min 600     | W                  |
| Power Dissipation on Infinite Heat Sink at $T_L=75^{\circ}\text{C}$ | $P_D$     | 5.0         | W                  |
| Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)         | $I_{PPM}$ | See Table 1 | A                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2)    | $I_{FSM}$ | 100         | A                  |
| Operating Junction Temperature Range                                | $T_J$     | -55 to 150  | $^{\circ}\text{C}$ |
| Storage Temperature Range                                           | $T_{STG}$ | -55 to 150  | $^{\circ}\text{C}$ |
|                                                                     |           |             |                    |

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^{\circ}\text{C}$  per Fig.2.
2. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

**Electrical Specification** ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)

| Type Number |           | Reverse Stand-Off Voltage | Breakdown Voltage Min. @ $I_T$ | Breakdown Voltage Max. @ $I_T$ | Test Current | Maximum Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage @ $V_{RMW}$ |
|-------------|-----------|---------------------------|--------------------------------|--------------------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| (Uni)       | (Bi)      | $V_{RMW}(V)$              | $V_{BR\ MIN}(V)$               | $V_{BR\ MAX}(V)$               | $I_T\ (mA)$  | $V_C(V)$                            | $I_{PP}(A)$        | $I_R(\mu A)$                |
| P6KE6.8A    | P6KE6.8CA | 5.80                      | 6.45                           | 7.14                           | 10           | 10.5                                | 58.1               | 1000                        |
| P6KE7.5A    | P6KE7.5CA | 6.40                      | 7.13                           | 7.88                           | 10           | 11.3                                | 54.0               | 500                         |
| P6KE8.2A    | P6KE8.2CA | 7.02                      | 7.79                           | 8.61                           | 10           | 12.1                                | 50.4               | 200                         |
| P6KE9.1A    | P6KE9.1CA | 7.78                      | 8.65                           | 9.55                           | 1            | 13.4                                | 45.5               | 50                          |
| P6KE10A     | P6KE10CA  | 8.55                      | 9.50                           | 10.50                          | 1            | 14.5                                | 42.1               | 10                          |
| P6KE11A     | P6KE11CA  | 9.40                      | 10.50                          | 11.60                          | 1            | 15.6                                | 39.1               | 5                           |
| P6KE12A     | P6KE12CA  | 10.20                     | 11.40                          | 12.60                          | 1            | 16.7                                | 36.5               | 5                           |
| P6KE13A     | P6KE13CA  | 11.10                     | 12.40                          | 13.70                          | 1            | 18.2                                | 33.5               | 1                           |
| P6KE15A     | P6KE15CA  | 12.80                     | 14.30                          | 15.80                          | 1            | 21.2                                | 28.8               | 1                           |
| P6KE16A     | P6KE16CA  | 13.60                     | 15.20                          | 16.80                          | 1            | 22.5                                | 27.1               | 1                           |
| P6KE18A     | P6KE18CA  | 15.30                     | 17.10                          | 18.90                          | 1            | 25.2                                | 24.2               | 1                           |
| P6KE20A     | P6KE20CA  | 17.10                     | 19.00                          | 21.00                          | 1            | 27.7                                | 22.0               | 1                           |
| P6KE22A     | P6KE22CA  | 18.80                     | 20.90                          | 23.10                          | 1            | 30.6                                | 19.9               | 1                           |
| P6KE24A     | P6KE24CA  | 20.50                     | 22.80                          | 25.20                          | 1            | 33.2                                | 18.4               | 1                           |
| P6KE27A     | P6KE27CA  | 23.10                     | 25.70                          | 28.40                          | 1            | 37.5                                | 16.3               | 1                           |
| P6KE30A     | P6KE30CA  | 25.60                     | 28.50                          | 31.50                          | 1            | 41.4                                | 14.7               | 1                           |
| P6KE33A     | P6KE33CA  | 28.20                     | 31.40                          | 34.70                          | 1            | 45.7                                | 13.3               | 1                           |
| P6KE36A     | P6KE36CA  | 30.80                     | 34.20                          | 37.80                          | 1            | 49.9                                | 12.2               | 1                           |
| P6KE39A     | P6KE39CA  | 33.30                     | 37.10                          | 41.00                          | 1            | 53.9                                | 11.3               | 1                           |
| P6KE43A     | P6KE43CA  | 36.80                     | 40.90                          | 45.20                          | 1            | 59.3                                | 10.3               | 1                           |
| P6KE47A     | P6KE47CA  | 40.20                     | 44.70                          | 49.40                          | 1            | 64.8                                | 9.4                | 1                           |
| P6KE51A     | P6KE51CA  | 43.60                     | 48.50                          | 53.60                          | 1            | 70.1                                | 8.7                | 1                           |
| P6KE56A     | P6KE56CA  | 47.80                     | 53.20                          | 58.80                          | 1            | 77.0                                | 7.9                | 1                           |
| P6KE62A     | P6KE62CA  | 53.00                     | 58.90                          | 65.10                          | 1            | 85.0                                | 7.2                | 1                           |
| P6KE68A     | P6KE68CA  | 58.10                     | 64.60                          | 71.40                          | 1            | 92.0                                | 6.6                | 1                           |
| P6KE75A     | P6KE75CA  | 64.10                     | 71.30                          | 78.80                          | 1            | 103.0                               | 5.9                | 1                           |
| P6KE82A     | P6KE82CA  | 70.10                     | 77.90                          | 86.10                          | 1            | 113.0                               | 5.4                | 1                           |
| P6KE91A     | P6KE91CA  | 77.80                     | 86.50                          | 95.50                          | 1            | 125.0                               | 4.9                | 1                           |
| P6KE100A    | P6KE100CA | 85.50                     | 95.00                          | 105.00                         | 1            | 137.0                               | 4.5                | 1                           |
| P6KE110A    | P6KE110CA | 94.00                     | 105.00                         | 116.00                         | 1            | 152.0                               | 4.0                | 1                           |
| P6KE120A    | P6KE120CA | 102.00                    | 114.00                         | 126.00                         | 1            | 165.0                               | 3.7                | 1                           |
| P6KE130A    | P6KE130CA | 111.00                    | 124.00                         | 137.00                         | 1            | 179.0                               | 3.4                | 1                           |
| P6KE150A    | P6KE150CA | 128.00                    | 143.00                         | 158.00                         | 1            | 207.0                               | 2.9                | 1                           |
| P6KE160A    | P6KE160CA | 136.00                    | 152.00                         | 168.00                         | 1            | 219.0                               | 2.8                | 1                           |
| P6KE170A    | P6KE170CA | 145.00                    | 162.00                         | 179.00                         | 1            | 234.0                               | 2.6                | 1                           |
| P6KE180A    | P6KE180CA | 154.00                    | 171.00                         | 189.00                         | 1            | 246.0                               | 2.5                | 1                           |

※ For Bi-directional type having  $V_{RWM}$  of 10 Volts and less, the  $I_R$  limit is double.

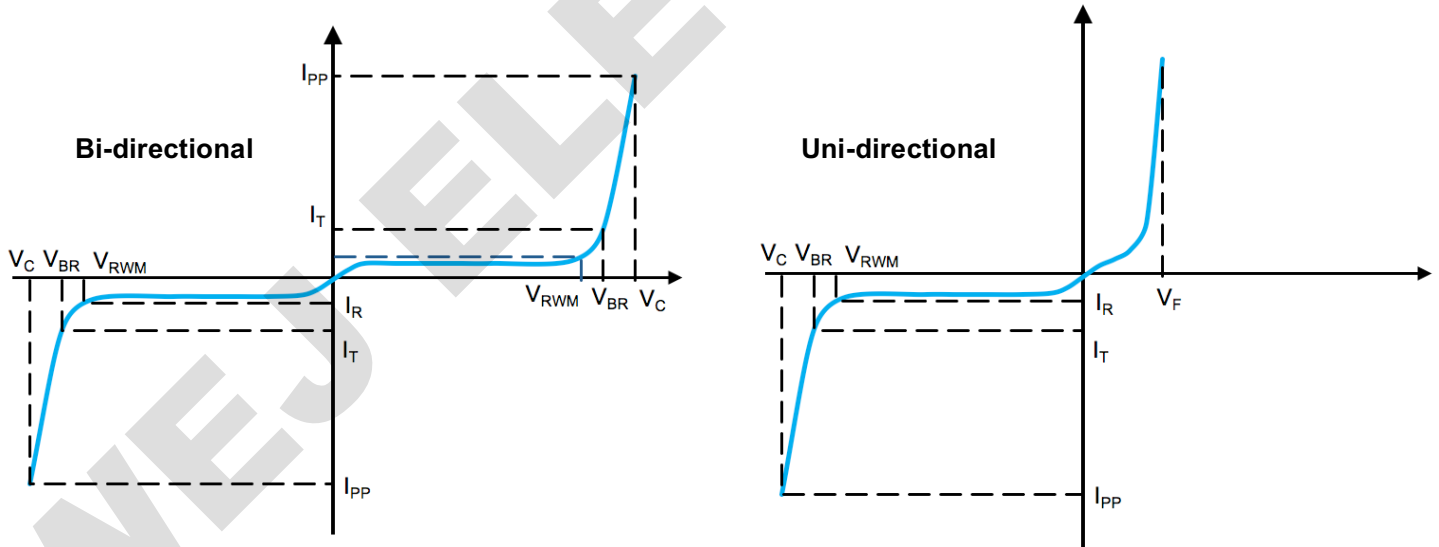
※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

| Type Number |           | Reverse Stand-Off Voltage | Breakdown Voltage Min. @ $I_T$ | Breakdown Voltage Max. @ $I_T$ | Test Current | Maximum Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage @ $V_{RWM}$ |
|-------------|-----------|---------------------------|--------------------------------|--------------------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| (Uni)       | (Bi)      | $V_{RWM}(V)$              | $V_{BR MIN}(V)$                | $V_{BR MAX}(V)$                | $I_T (mA)$   | $V_C(V)$                            | $I_{PP}(A)$        | $I_R(uA)$                   |
| P6KE200A    | P6KE200CA | 171.00                    | 190.00                         | 210.00                         | 1            | 274.0                               | 2.2                | 1                           |
| P6KE220A    | P6KE220CA | 185.00                    | 209.00                         | 231.00                         | 1            | 328.0                               | 1.9                | 1                           |
| P6KE250A    | P6KE250CA | 214.00                    | 237.00                         | 263.00                         | 1            | 344.0                               | 1.8                | 1                           |
| P6KE300A    | P6KE300CA | 256.00                    | 285.00                         | 315.00                         | 1            | 414.0                               | 1.5                | 1                           |
| P6KE350A    | P6KE350CA | 300.00                    | 332.00                         | 368.00                         | 1            | 482.0                               | 1.3                | 1                           |
| P6KE400A    | P6KE400CA | 342.00                    | 380.00                         | 420.00                         | 1            | 548.0                               | 1.1                | 1                           |
| P6KE440A    | P6KE440CA | 376.00                    | 418.00                         | 462.00                         | 1            | 602.0                               | 1.0                | 1                           |
| P6KE480A    | P6KE480CA | 408.00                    | 456.00                         | 504.00                         | 1            | 658.0                               | 0.9                | 1                           |
| P6KE510A    | P6KE510CA | 434.00                    | 485.00                         | 535.00                         | 1            | 698.0                               | 0.9                | 1                           |
| P6KE530A    | P6KE530CA | 451.00                    | 503.50                         | 556.50                         | 1            | 725.0                               | 0.8                | 1                           |
| P6KE540A    | P6KE540CA | 460.00                    | 513.00                         | 567.00                         | 1            | 740.0                               | 0.8                | 1                           |
| P6KE550A    | P6KE550CA | 468.00                    | 522.50                         | 577.50                         | 1            | 760.0                               | 0.8                | 1                           |
| P6KE600A    | P6KE600CA | 512.00                    | 570.00                         | 630.00                         | 1            | 828.0                               | 0.75               | 1                           |

※ For Bi-directional type having  $V_{RWM}$  of 10 Volts and less, the  $I_R$  limit is double.

※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

## I-V Curve Characteristics



**$P_{PPM}$  Peak Pulse Power Dissipation** - Max power dissipation

**$V_{RWM}$  Reverse Stand-off Voltage** - Maximum voltage that can be applied to TVS without operation

**$V_{BR}$  Breakdown Voltage** – Maximum voltage that flows though the TVS at a specified current ( $I_T$ )

**$V_C$  Clamping Voltage** – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)

**$I_R$  Reverse Leakage Current** – Current measured at  $V_R$

**$V_F$  Forward Voltage Drop for Uni-directional**

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

