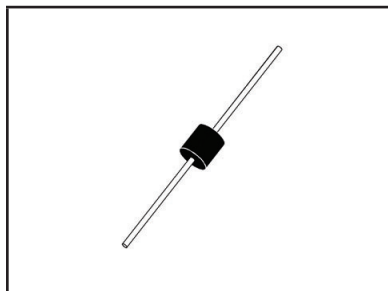


**30kW POWER TVS COMPONENT****AXIAL LEAD PACKAGE****DESCRIPTION**

The P30KP Series, are discrete 30,000 Watt, silicon transient voltage suppressors (TVS) designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The P30KP series is available in voltages ranging from 30V to 360V with 5 percent and 10 percent tolerances. Both tolerances are referenced to the power supply output or operating voltage level. This series is compatible with IEC 61000-4-5 (Surge) requirements.

**FEATURES**

- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 $\mu$ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 30,000 Watts Peak Pulse Power per Line (tp = 10/1000 $\mu$ s)
- Unidirectional and Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- tClamping (0V to V<sub>BR</sub> Min.) < 1 x 10<sup>-12</sup> seconds theoretical (Unidirectional) and < 5ns (Bidirectional)
- Available in Multiple Voltages Ranging From 30V to 360V
- RoHS Complaint (Exemption #7)

**APPLICATIONS**

- Relay Drives
- Motor (Start/Stop) Back EMF Protection
- Module Lightning Protection
- Secondary Lightning Protection for AC/DC

**MECHANICAL CHARACTERISTICS**

- Molded Case
- Approximate Weight: 5 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100%: 260-270°C
- Flammability Rating UL 94V-0

**CIRCUIT DIAGRAMS****UNIDIRECTIONAL****BIDIRECTIONAL**

**TYPICAL DEVICE CHARACTERISTICS****MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

| PARAMETER                                         | SYMBOL           | VALUE      | UNITS |
|---------------------------------------------------|------------------|------------|-------|
| Peak Pulse Power (tp = 10/1000µs) - See Figure 1  | P <sub>PP</sub>  | 30,000     | Watts |
| Forward Surge Rating - 1/120 seconds - See Note 2 | I <sub>F</sub>   | 200        | Amps  |
| Steady State Power Dissipation                    | P <sub>P</sub>   | 1.0        | Watts |
| Storage Temperature                               | T <sub>STG</sub> | -55 to 150 | °C    |
| Operating Temperature                             | T <sub>L</sub>   | -55 to 150 | °C    |

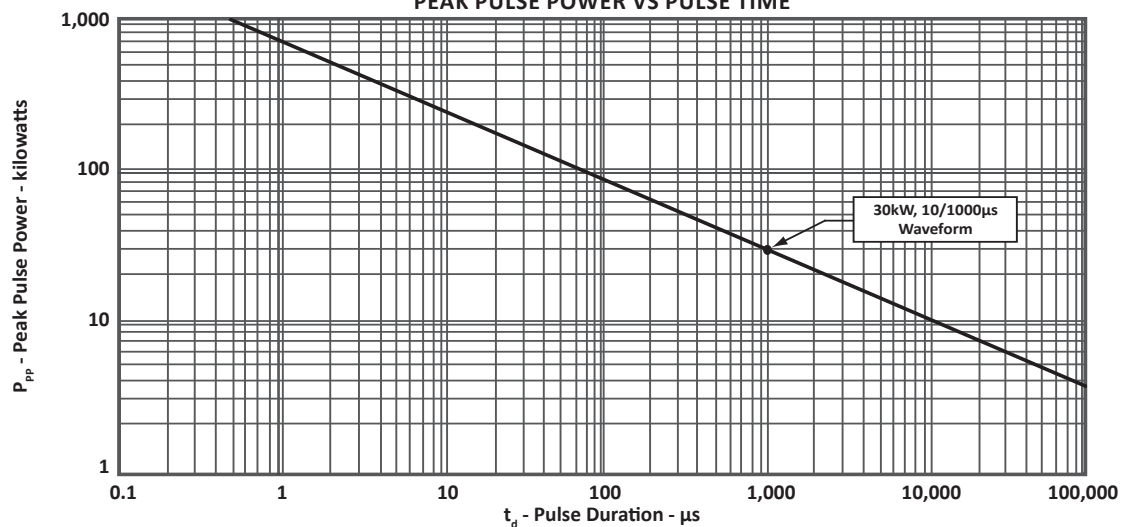
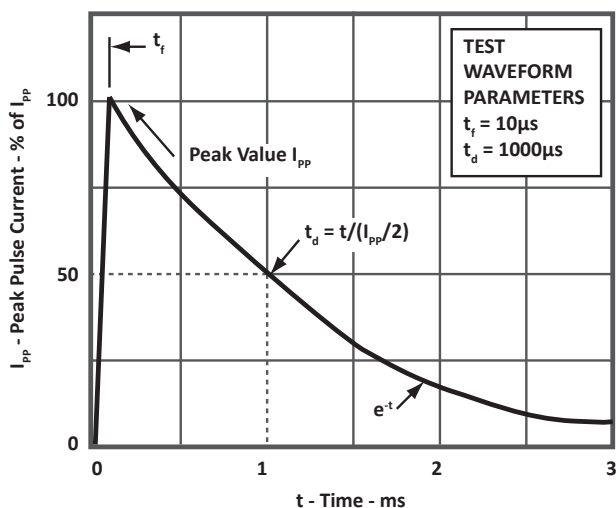
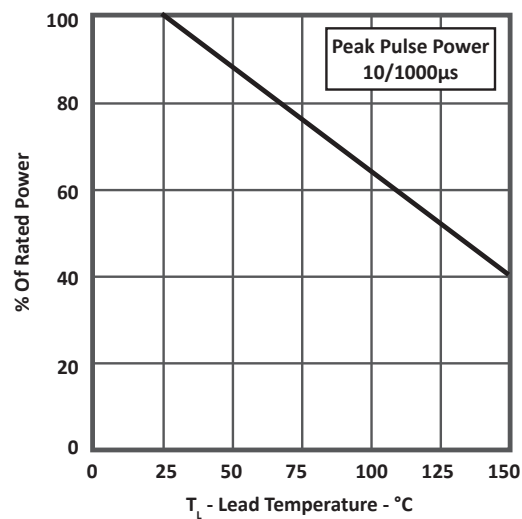
**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

| PART<br>NUMBER<br>(Notes 1 - 2) | RATED<br>STAND-OFF<br>VOLTAGE<br><br>V <sub>WM</sub><br>VOLTS | BREAKDOWN<br>VOLTAGE              |                       | MAXIMUM<br>LEAKAGE<br>CURRENT<br><br>@V <sub>WM</sub><br>I <sub>D</sub><br>µA | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>(Fig. 2)<br><br>@ 10/1000µS<br>V <sub>C</sub> @ I <sub>PP</sub> | TEMPERATURE<br>COEFFICIENT<br>OF V <sub>(BR)</sub><br><br>qV <sub>(BR)</sub><br>mV/°C |
|---------------------------------|---------------------------------------------------------------|-----------------------------------|-----------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                 |                                                               | MIN<br>V <sub>(BR)</sub><br>VOLTS | @I <sub>T</sub><br>mA |                                                                               |                                                                                                   |                                                                                       |
| P30KP30A                        | 30.0                                                          | 33.3                              | 50                    | 5000                                                                          | 55.2V @ 543.0A                                                                                    | 34                                                                                    |
| P30KP33A                        | 33.0                                                          | 36.7                              | 50                    | 5000                                                                          | 58.6V @ 512.0A                                                                                    | 39                                                                                    |
| P30KP36A                        | 36.0                                                          | 40.0                              | 50                    | 2000                                                                          | 61.8V @ 485.0A                                                                                    | 41                                                                                    |
| P30KP43A                        | 43.0                                                          | 47.8                              | 50                    | 1000                                                                          | 73.0V @ 410.0A                                                                                    | 50                                                                                    |
| P30KP48A                        | 48.0                                                          | 53.3                              | 5                     | 250                                                                           | 77.4V @ 388.0A                                                                                    | 56                                                                                    |
| P30KP54A                        | 54.0                                                          | 60.3                              | 5                     | 20                                                                            | 91.4V @ 331.5A                                                                                    | 62                                                                                    |
| P30KP58A                        | 58.0                                                          | 64.4                              | 5                     | 20                                                                            | 92.4V @ 325.0A                                                                                    | 68                                                                                    |
| P30KP64A                        | 64.0                                                          | 71.1                              | 5                     | 10                                                                            | 104.0V @ 294.0A                                                                                   | 76                                                                                    |
| P30KP70A                        | 70.0                                                          | 77.8                              | 5                     | 10                                                                            | 109.0V @ 274.0A                                                                                   | 83                                                                                    |
| P30KP75A                        | 75.0                                                          | 83.3                              | 5                     | 10                                                                            | 119.4V @ 251.0A                                                                                   | 89                                                                                    |
| P30KP85A                        | 85.0                                                          | 94.4                              | 5                     | 10                                                                            | 139.0V @ 216.0A                                                                                   | 105                                                                                   |
| P30KP90A                        | 90.0                                                          | 100.0                             | 5                     | 10                                                                            | 147.0V @ 206.0A                                                                                   | 109                                                                                   |
| P30KP100                        | 100.0                                                         | 111.0                             | 5                     | 10                                                                            | 179.0V @ 168.0A                                                                                   | 134                                                                                   |
| P30KP100A                       | 100.0                                                         | 111.0                             | 5                     | 10                                                                            | 162.0V @ 186.0A                                                                                   | 121                                                                                   |
| P30KP130A                       | 130.0                                                         | 144.0                             | 5                     | 10                                                                            | 209.0V @ 142.0A                                                                                   | 157                                                                                   |
| P30KP160A                       | 160.0                                                         | 178.0                             | 5                     | 10                                                                            | 252.6V @ 119.0A                                                                                   | 195                                                                                   |
| P30KP170A                       | 170.0                                                         | 189.0                             | 5                     | 10                                                                            | 274.0V @ 110.0A                                                                                   | 207                                                                                   |
| P30KP180A                       | 180.0                                                         | 200.0                             | 5                     | 10                                                                            | 291.0V @ 104.0A                                                                                   | 230                                                                                   |
| P30KP220A                       | 220.0                                                         | 245.0                             | 5                     | 10                                                                            | 356.0V @ 84.0A                                                                                    | 269                                                                                   |
| P30KP260A                       | 260.0                                                         | 289.0                             | 5                     | 10                                                                            | 416.0V @ 72.0A                                                                                    | 317                                                                                   |
| P30KP280A                       | 280.0                                                         | 311.0                             | 5                     | 10                                                                            | 464.0V @ 65.0A                                                                                    | 342                                                                                   |
| P30KP300A                       | 300.0                                                         | 334.0                             | 5                     | 10                                                                            | 484.0V @ 62.0A                                                                                    | 368                                                                                   |
| P30KP320A                       | 320.0                                                         | 356.0                             | 5                     | 10                                                                            | 530.0V @ 57.0A                                                                                    | 370                                                                                   |
| P30KP360A                       | 360.0                                                         | 400.0                             | 5                     | 10                                                                            | 640.0V @ 55.0A                                                                                    | 380                                                                                   |

**NOTES**

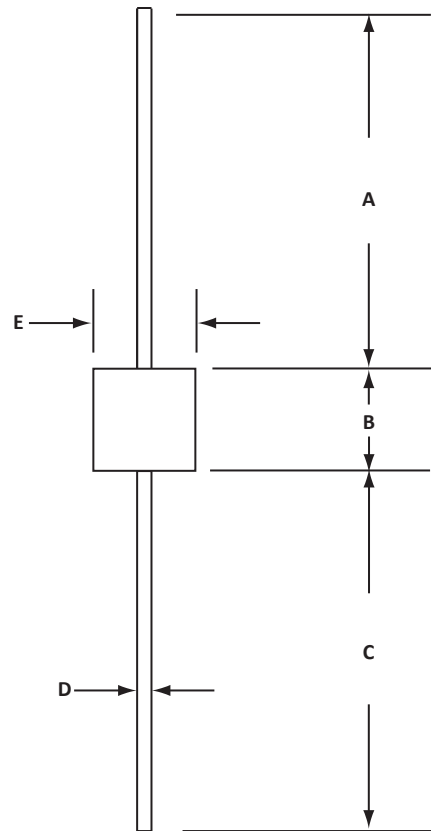
- Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as P30KP30CA. Devices shown are preferred voltages. Contact factory for additional voltages.
- V<sub>F</sub> = 15 Volts @ 200A, 8.3ms(1/2 Sine Wave) - Unidirectional devices only.

## TYPICAL DEVICE CHARACTERISTICS

 FIGURE 1  
 PEAK PULSE POWER VS PULSE TIME

 FIGURE 2  
 PULSE WAVEFORM

 FIGURE 3  
 POWER DERATING CURVE


**AXIAL LEAD(MOD) PACKAGE INFORMATION**

| OUTLINE DIMENSIONS                                                         |             |           |            |            |
|----------------------------------------------------------------------------|-------------|-----------|------------|------------|
| DIM                                                                        | MILLIMETERS |           | INCHES     |            |
|                                                                            | MIN         | MAX       | MIN        | MAX        |
| A                                                                          | 25.4        | -         | 1.00       | -          |
| B                                                                          | 9.27        | 9.77      | 0.365      | 0.385      |
| C                                                                          | 25.4        | -         | 1.00       | -          |
| D                                                                          | 1.20 DIA.   | 1.30 DIA. | 0.048 DIA. | 0.052 DIA. |
| E                                                                          | 5.96        | 6.47      | 0.235      | 0.255      |
| <b>NOTES</b><br>1. Dimensions are exclusive of mold flash and metal burrs. |             |           |            |            |



| ORDERING INFORMATION                                                                                                           |                 |             |                 |           |          |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|-----------------|-----------|----------|
| BASE PART NUMBER<br>(xx = Voltage)                                                                                             | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL        | REEL SIZE | TUBE QTY |
| P30KPxx                                                                                                                        | -LF             | n/a         | n/a             | n/a       | n/a      |
| P30KPxxA                                                                                                                       | -LF             | n/a         | n/a             | n/a       | n/a      |
| P30KPxxCA                                                                                                                      | -LF             | n/a         | n/a             | n/a       | n/a      |
| <b>NOTES</b><br>1. Marking on Part - logo, part number, date code and positive terminal marked with band(unidirectional only). |                 |             | MARKING DIAGRAM |           |          |
|                                                                                                                                |                 |             |                 |           |          |

## COMPANY INFORMATION

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### COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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