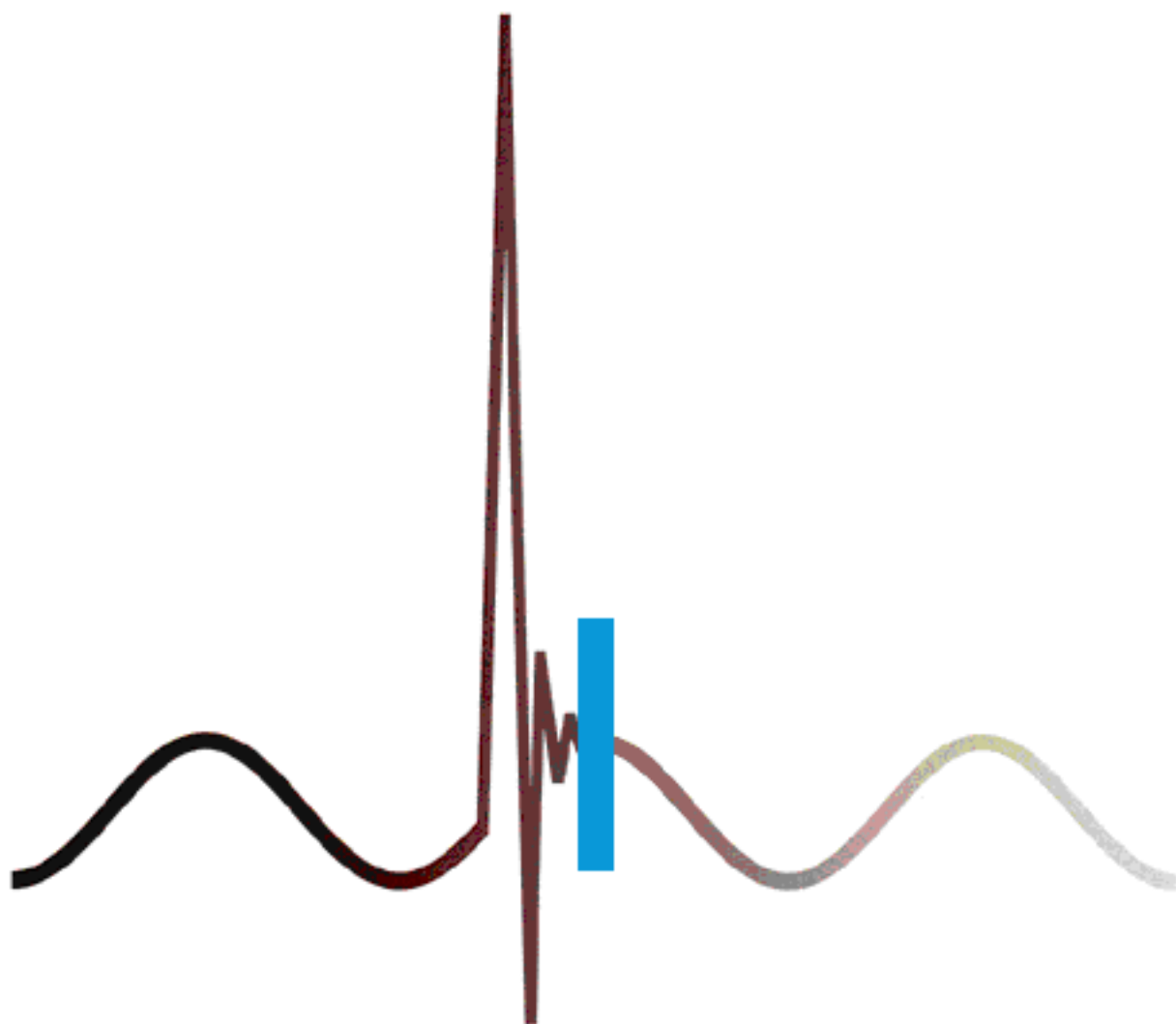


W O R L D P R O D U C T S

*TVS DIODES*



**Protection Products Group**



**WORLD PRODUCTS INC.**

# Transient Voltage Suppression Diodes

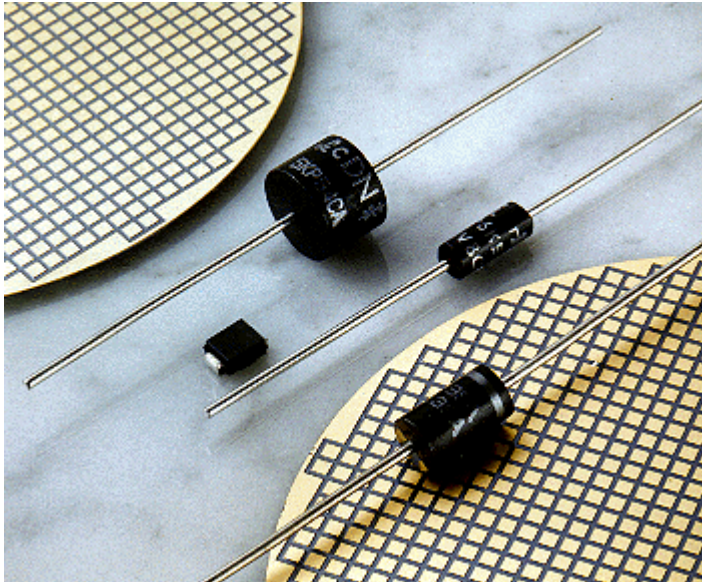
The Protection Products Group of World Products Inc. is committed to providing the optimum products for your transient/surge protection problems. Our TVS Diode satisfies the toughest requirements for a low clamping device and provides superior performance in all applications.

*World Products expands your options . . . .* Large selection of equivalents to essentially all TVS Diodes. World Products specifications are designed to provide all of the necessary physical and electrical parameters required for proper component selection.

***Discover why the first choice in TVS Diodes is WPI.***

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| General Information | Selecting the Correct Part Type, Definition of Terms, General Characteristics. |
| Axial Type          |                                                                                |
| P4KE Series         | 400 Watt                                                                       |
| SA Series           | 500 Watt                                                                       |
| P6KE Series         | 600 Watt                                                                       |
| 1.5KE Series        | 1500 Watt                                                                      |
| 3KP Series          | 3000 Watt                                                                      |
| 5KP Series          | 5000 Watt                                                                      |
| 15KP Series         | 15000 Watt                                                                     |
| Surface Mount       |                                                                                |
| P6SMBJ Series       | 600 Watt                                                                       |
| 1.5SMCJ Series      | 1500 Watt                                                                      |
| P4SMAJ Series       | 400 Watt                                                                       |
| 3.0SMCJ Series      | 3000 Watt                                                                      |
| Circuit Examples    | Data Line Protection, AC Line Protection, Telecom Circuit Protection           |



# Transient Voltage Suppression Diodes

## General Information

### TVS Diode Technology

World Products Transient Voltage Suppression (TVS) Diodes are silicon avalanche devices designed, manufactured, specified and tested according to voltage suppression applications.

These devices, with their fast response and low clamping characteristics, protect all MOS technology based devices, hybrids, and other voltage sensitive components. The low clamping factor and pico-second response time of World Products TVS Diodes clamps transient pulses early and maintains them at an acceptable level for their entire duration. In other overvoltage protection devices, response times are delayed by 24nS to 2 $\mu$ s allowing transients to reach dangerous levels. World Products TVS Diodes are designed to meet a 1.30 maximum clamping factor at their rated peak impulse current. This can be compared to clamping factors of 2 to 5 found in other protection devices.

### TVS Diode Applications

TVS Diodes are the optimum choice in protecting computer or data processor circuits and power supplies, airframe avionics and controls, numerically controlled machines, telecom circuits, and many other applications. These devices are designed to protect against transient voltages generated by lightning, electro-static discharge (ESD), and inductive switching.

### Selecting the Correct Part Type

The following guidelines should be observed in selecting the correct diode:

| TVS Parameters        |        | Application Parameters |                               |
|-----------------------|--------|------------------------|-------------------------------|
| 1. Stand-off Voltage  | (Vwm)  | >=                     | Operating Voltage (Vop)       |
| 2. Peak Pulse Current | (Ippm) | >=                     | Source Transient Current (Is) |
| 3. Clamping Voltage   | (Vc)   | =<                     | Voltage Withstand (Vws)       |

1. If the stand-off voltage is less than the operating voltage of the application, the diode will continually clamp the circuit voltage.
2. The Peak Pulse Current (Ippm) is the maximum current the TVS can handle. The source transient current is determined by dividing the peak transient voltage by the source impedance - this is often difficult to determine. In many cases, however, this may be obtained from industry standard documents, customer requirements, etc.
3. Determine the maximum voltage level that the protected device can withstand (Vws). Select a suppressor which will clamp the transient at a lower level (Vc).

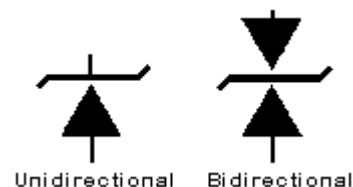
Consider the transient source: lightning, electro-static discharge, inductive switching or nuclear explosion (NEMP). Often, a 1500 watt peak pulse rated device will protect against transients due to secondary lightning effects or inductive switching on power, data and telephone lines. A 500 watt device is sufficient to protect sensitive components against transients generated by electro-static discharge.



# Transient Voltage Suppression Diodes

## General Information - (Continued)

### Schematic Symbols



### Definitions of Terms

#### V<sub>c</sub> Clamping Voltage:

Peak voltage across the suppressor measured at a specific I<sub>ppm</sub>. (Note: due to thermal, reactive or other effects, peak voltage and peak current are not necessarily coincident in time.)

#### I<sub>pp</sub> Peak Impulse Current:

Peak current measured using a specified waveform.

#### I<sub>ppm</sub> Rated Peak Impulse Current:

Rated maximum value of peak impulse current (I<sub>pp</sub>) applied using a 10 x 1000μs waveform. (Minimum of 10 pulses applied.)

#### V<sub>wm</sub> Rated Standoff Voltage:

Maximum working (continuous) DC or peak voltage which may be applied over the standard operating temperature range. (Note: V<sub>wm</sub> of a selected device must be greater than or equal to the maximum operating voltage of the line to be protected.)

#### I<sub>d</sub> Stand-By Current:

Maximum current that flows through the suppressor at rated standoff voltage (V<sub>wm</sub>) at a specified temperature.

#### V<sub>br</sub> Breakdown Voltage:

The voltage measured across the suppressor at a specified DC test current (I<sub>t</sub>).

#### I<sub>t</sub> Test Current:

The specific DC current applied to the suppressor used to determine breakdown voltage (V<sub>br</sub>).

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# Transient Voltage Suppression Diodes

## General Information - (Continued)

### Vbr Temperature Coefficient:

The ratio of change in breakdown voltage (Vbr) to changes in temperature. Expressed either as millivolts per degree centigrade (mV/°C) or percent change in breakdown voltage per degree centigrade (%Vbr/°C).

### Cf Clamping Factor:

Ratio of the measured clamping voltage (Vc) at specified peak pulse current (Ipp) to breakdown voltage (Vbr) on a specific device.

$$Cf = \frac{Vc}{Vbr}$$

### C Capacitance:

Capacitance between the two terminals of a suppressor measured at a specific frequency and bias voltage.

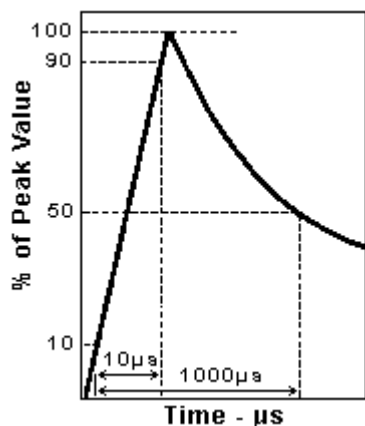
### Pppm Rated Multiple Peak Pulse Power:

Derived by multiplying the maximum clamping voltage (Vc) times the Rated Peak Impulse Current (Ippm).

### Ifsm Rated Forward Surge Current:

Unidirectional devices only. Maximum forward current during a 8.3ms half sine wave of AC line frequency (60Hz).

## Impulse Current Waveform



# Transient Voltage Suppression Diodes

## General Information - (Continued)

### Mechanical Characteristics

Case: UL94V-0 Molded Epoxy  
Leads: Tinned Copper  
Solderability: Military Standard 202E Method 208C  
Marking: World Products Logo, Part Number and EIA Date Code  
Method Available: Tape and Reel to EIA-296-D

### Part Numbering System

| Example - SA170A                  |                           |                             |                   |
|-----------------------------------|---------------------------|-----------------------------|-------------------|
| SA                                | 170                       |                             | A                 |
| Series                            | Voltage                   | Polarity                    | Tolerance         |
| Axial Type                        |                           | Blank=Unipolar<br>C=Bipolar | Blank=10%<br>A=5% |
| P4KE = 400 Watt                   | Nominal Breakdown Voltage |                             |                   |
| SA = 500 Watt                     | Rated Standoff Voltage    |                             |                   |
| P6KE = 600 Watt                   | Nominal Breakdown Voltage |                             |                   |
| 1.5KE = 1500 Watt                 | Nominal Breakdown Voltage |                             |                   |
| 3KP = 3000 Watt                   | Rated Standoff Voltage    |                             |                   |
| 5KP = 5000 Watt                   | Rated Standoff Voltage    |                             |                   |
| 15KP = 15000 Watt                 | Rated Standoff Voltage    |                             |                   |
| Surface Mount                     |                           |                             |                   |
| P4SMAJ = 400 Watt Surface Mount   | Rated Standoff Voltage    |                             |                   |
| P6SMBJ = 600 Watt Surface Mount   | Rated Standoff Voltage    |                             |                   |
| 1.5SMCJ = 1500 Watt Surface Mount | Rated Standoff Voltage    |                             |                   |
| 3.0SMCJ = 3000 Watt Surface Mount | Rated Standoff Voltage    |                             |                   |

**TVS Diodes - 400 Watt Specifications - Electrical Characteristics**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |       |      | Maximum Stand By Current @Vwm+ Id | 10/1000 $\mu$ s Maximum Clamping Voltage @Ippm# Vc Max | 10/1000 $\mu$ s Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|-------|------|-----------------------------------|--------------------------------------------------------|--------------------------------------------------|
|              |                        | Vbr (Volts)       |       | @It  |                                   |                                                        |                                                  |
|              | Vwm (Volts)            | Min               | Max   | (mA) | ( $\mu$ A)                        | (Volts)                                                | (Amperes)                                        |
| P4KE6.8      | 5.50                   | 6.12              | 7.48  | 10   | 1000                              | 10.8                                                   | 38.0                                             |
| P4KE6.8A     | 5.80                   | 6.45              | 7.14  | 10   | 1000                              | 10.5                                                   | 40.0                                             |
| P4KE7.5      | 6.05                   | 6.75              | 8.25  | 10   | 500                               | 11.7                                                   | 36.0                                             |
| P4KE7.5A     | 6.40                   | 7.13              | 7.88  | 10   | 500                               | 11.3                                                   | 37.0                                             |
| P4KE8.2      | 6.63                   | 7.38              | 9.02  | 10   | 200                               | 12.5                                                   | 33.0                                             |
| P4KE8.2A     | 7.02                   | 7.79              | 8.61  | 10   | 200                               | 12.1                                                   | 35.0                                             |
| P4KE9.1      | 7.37                   | 8.19              | 10.00 | 1    | 50                                | 13.8                                                   | 30.0                                             |
| P4KE9.1A     | 7.78                   | 8.65              | 9.55  | 1    | 50                                | 13.4                                                   | 31.0                                             |
| P4KE10       | 8.10                   | 9.00              | 11.00 | 1    | 10                                | 15.0                                                   | 28.0                                             |
| P4KE10A      | 8.55                   | 9.50              | 10.50 | 1    | 10                                | 14.5                                                   | 29.0                                             |
| P4KE11       | 8.92                   | 9.90              | 12.10 | 1    | 5                                 | 16.2                                                   | 26.0                                             |
| P4KE11A      | 9.40                   | 10.50             | 11.60 | 1    | 5                                 | 15.6                                                   | 27.0                                             |
| P4KE12       | 9.72                   | 10.80             | 13.20 | 1    | 5                                 | 17.3                                                   | 24.0                                             |
| P4KE12A      | 10.20                  | 11.40             | 12.60 | 1    | 5                                 | 16.7                                                   | 25.0                                             |
| P4KE13       | 10.50                  | 11.70             | 14.30 | 1    | 5                                 | 19.0                                                   | 22.0                                             |
| P4KE13A      | 11.10                  | 12.40             | 13.70 | 1    | 5                                 | 18.2                                                   | 23.0                                             |
| P4KE15       | 12.10                  | 13.50             | 16.50 | 1    | 5                                 | 22.0                                                   | 19.0                                             |
| P4KE15A      | 12.80                  | 14.30             | 15.80 | 1    | 5                                 | 21.2                                                   | 20.0                                             |
| P4KE16       | 12.90                  | 14.40             | 17.60 | 1    | 5                                 | 23.5                                                   | 18.0                                             |
| P4KE16A      | 13.60                  | 15.20             | 16.80 | 1    | 5                                 | 22.5                                                   | 19.0                                             |
| P4KE18       | 14.50                  | 16.20             | 19.80 | 1    | 5                                 | 26.5                                                   | 16.0                                             |
| P4KE18A      | 15.30                  | 17.10             | 18.90 | 1    | 5                                 | 25.2                                                   | 17.0                                             |
| P4KE20       | 16.20                  | 18.00             | 22.00 | 1    | 5                                 | 29.1                                                   | 14.0                                             |
| P4KE20A      | 17.10                  | 19.00             | 21.00 | 1    | 5                                 | 27.7                                                   | 15.0                                             |
| P4KE22       | 17.80                  | 19.80             | 24.20 | 1    | 5                                 | 31.9                                                   | 13.0                                             |
| P4KE22A      | 18.80                  | 20.90             | 23.10 | 1    | 5                                 | 30.6                                                   | 14.0                                             |
| P4KE24       | 19.40                  | 21.60             | 26.40 | 1    | 5                                 | 34.7                                                   | 12.0                                             |
| P4KE24A      | 20.50                  | 22.80             | 25.20 | 1    | 5                                 | 33.2                                                   | 13.0                                             |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 400 Watt Specifications - Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |        |      | Maximum Stand By Current @Vwm+ Id | 10/1000μs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000μs Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|--------|------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                        | Vbr (Volts)       |        | @It  |                                   |                                                  |                                            |
|              | Vwm (Volts)            | Min               | Max    | (mA) | (μA)                              | (Volts)                                          | (Amperes)                                  |
| P4KE27       | 21.80                  | 24.30             | 29.70  | 1    | 5                                 | 39.1                                             | 11.0                                       |
| P4KE27A      | 23.10                  | 25.70             | 28.40  | 1    | 5                                 | 37.5                                             | 11.2                                       |
| P4KE30       | 24.30                  | 27.00             | 33.00  | 1    | 5                                 | 43.5                                             | 10.0                                       |
| P4KE30A      | 25.60                  | 28.50             | 31.50  | 1    | 5                                 | 41.4                                             | 10.0                                       |
| P4KE33       | 26.80                  | 29.70             | 36.30  | 1    | 5                                 | 47.7                                             | 9.0                                        |
| P4KE33A      | 28.20                  | 31.40             | 34.70  | 1    | 5                                 | 45.7                                             | 9.0                                        |
| P4KE36       | 29.10                  | 32.40             | 39.60  | 1    | 5                                 | 52.0                                             | 8.0                                        |
| P4KE36A      | 30.80                  | 34.20             | 37.80  | 1    | 5                                 | 49.9                                             | 8.4                                        |
| P4KE39       | 31.60                  | 35.10             | 42.90  | 1    | 5                                 | 56.4                                             | 7.4                                        |
| P4KE39A      | 33.30                  | 37.10             | 41.00  | 1    | 5                                 | 53.9                                             | 7.8                                        |
| P4KE43       | 34.80                  | 38.70             | 47.30  | 1    | 5                                 | 61.9                                             | 6.8                                        |
| P4KE43A      | 36.80                  | 40.90             | 45.20  | 1    | 5                                 | 59.3                                             | 7.1                                        |
| P4KE47       | 38.10                  | 42.30             | 51.70  | 1    | 5                                 | 67.8                                             | 6.2                                        |
| P4KE47A      | 40.20                  | 44.70             | 49.40  | 1    | 5                                 | 64.8                                             | 5.0                                        |
| P4KE51       | 41.30                  | 45.90             | 56.10  | 1    | 5                                 | 73.5                                             | 5.7                                        |
| P4KE51A      | 43.60                  | 48.50             | 53.60  | 1    | 5                                 | 70.1                                             | 6.0                                        |
| P4KE56       | 45.60                  | 50.40             | 61.60  | 1    | 5                                 | 80.5                                             | 5.2                                        |
| P4KE56A      | 47.80                  | 53.20             | 58.80  | 1    | 5                                 | 77.0                                             | 5.5                                        |
| P4KE62       | 50.20                  | 55.80             | 68.20  | 1    | 5                                 | 89.0                                             | 4.7                                        |
| P4KE62A      | 53.00                  | 58.90             | 65.10  | 1    | 5                                 | 85.0                                             | 5.0                                        |
| P4KE68       | 55.10                  | 61.20             | 74.80  | 1    | 5                                 | 98.0                                             | 4.3                                        |
| P4KE68A      | 58.10                  | 64.60             | 71.40  | 1    | 5                                 | 92.0                                             | 4.6                                        |
| P4KE75       | 60.70                  | 67.50             | 82.50  | 1    | 5                                 | 108.0                                            | 3.9                                        |
| P4KE75A      | 64.10                  | 71.30             | 78.80  | 1    | 5                                 | 103.0                                            | 4.1                                        |
| P4KE82       | 66.40                  | 73.80             | 90.20  | 1    | 5                                 | 118.0                                            | 3.6                                        |
| P4KE82A      | 70.10                  | 77.90             | 86.10  | 1    | 5                                 | 113.0                                            | 3.7                                        |
| P4KE91       | 73.70                  | 81.90             | 100.00 | 1    | 5                                 | 131.0                                            | 3.2                                        |
| P4KE91A      | 77.80                  | 86.50             | 95.50  | 1    | 5                                 | 125.0                                            | 3.4                                        |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 400 Watt Specifications - Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |        |          | Maximum Stand By Current @Vwm+ Id | 10/1000µs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000µs Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|--------|----------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                        | Vbr (Volts)       | Max    | @It (mA) |                                   |                                                  |                                            |
| Vwm (Volts)  | Min                    | Max               | (mA)   | (µA)     | (Volts)                           | (Amperes)                                        |                                            |
| P4KE100      | 81.00                  | 90.00             | 110.00 | 1        | 5                                 | 144.0                                            | 2.9                                        |
| P4KE100A     | 85.50                  | 95.00             | 105.00 | 1        | 5                                 | 137.0                                            | 3.1                                        |
| P4KE110      | 89.20                  | 99.90             | 121.00 | 1        | 5                                 | 158.0                                            | 2.7                                        |
| P4KE110A     | 94.00                  | 105.00            | 116.00 | 1        | 5                                 | 152.0                                            | 2.8                                        |
| P4KE120      | 97.20                  | 108.00            | 132.00 | 1        | 5                                 | 173.0                                            | 2.4                                        |
| P4KE120A     | 102.00                 | 114.00            | 126.00 | 1        | 5                                 | 165.0                                            | 2.5                                        |
| P4KE130      | 105.00                 | 117.00            | 143.00 | 1        | 5                                 | 187.0                                            | 2.2                                        |
| P4KE130A     | 111.00                 | 124.00            | 137.00 | 1        | 5                                 | 179.0                                            | 2.3                                        |
| P4KE150      | 121.00                 | 135.00            | 165.00 | 1        | 5                                 | 215.0                                            | 2.0                                        |
| P4KE150A     | 128.00                 | 143.00            | 158.00 | 1        | 5                                 | 207.0                                            | 2.0                                        |
| P4KE160      | 130.00                 | 144.00            | 176.00 | 1        | 5                                 | 230.0                                            | 1.8                                        |
| P4KE160A     | 136.00                 | 152.00            | 168.00 | 1        | 5                                 | 219.0                                            | 1.9                                        |
| P4KE170      | 138.00                 | 153.00            | 187.00 | 1        | 5                                 | 244.0                                            | 1.7                                        |
| P4KE170A     | 145.00                 | 162.00            | 179.00 | 1        | 5                                 | 234.0                                            | 1.8                                        |
| P4KE180      | 146.00                 | 162.00            | 198.00 | 1        | 5                                 | 258.0                                            | 1.6                                        |
| P4KE180A     | 154.00                 | 171.00            | 189.00 | 1        | 5                                 | 246.0                                            | 1.7                                        |
| P4KE200      | 162.00                 | 180.00            | 220.00 | 1        | 5                                 | 287.0                                            | 1.5                                        |
| P4KE200A     | 171.00                 | 190.00            | 210.00 | 1        | 5                                 | 274.0                                            | 1.53                                       |
| P4KE220      | 175.00                 | 198.00            | 242.00 | 1        | 5                                 | 344.0                                            | 1.16                                       |
| P4KE220A     | 185.00                 | 209.00            | 231.00 | 1        | 5                                 | 328.0                                            | 1.22                                       |
| P4KE250      | 202.00                 | 225.00            | 275.00 | 1        | 5                                 | 360.0                                            | 1.10                                       |
| P4KE250A     | 214.00                 | 237.00            | 263.00 | 1        | 5                                 | 344.0                                            | 1.16                                       |
| P4KE300      | 243.00                 | 270.00            | 330.00 | 1        | 5                                 | 430.0                                            | 0.93                                       |
| P4KE300A     | 256.00                 | 285.00            | 315.00 | 1        | 5                                 | 414.0                                            | 0.97                                       |
| P4KE350      | 284.00                 | 315.00            | 385.00 | 1        | 5                                 | 504.0                                            | 0.79                                       |
| P4KE350A     | 300.00                 | 332.00            | 368.00 | 1        | 5                                 | 482.0                                            | 0.83                                       |
| P4KE400      | 324.00                 | 360.00            | 440.00 | 1        | 5                                 | 574.0                                            | 0.70                                       |
| P4KE400A     | 342.00                 | 380.00            | 420.00 | 1        | 5                                 | 548.0                                            | 0.73                                       |
| P4KE440      | 356.00                 | 396.00            | 484.00 | 1        | 5                                 | 631.0                                            | 0.66                                       |
| P4KE440A     | 376.00                 | 418.00            | 462.00 | 1        | 5                                 | 600.0                                            | 0.69                                       |

\* = Add "C" or "CA" suffix for bidirectional device types.

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# = See General Information for Impulse Current Waveform.

## TVS Diodes - 400 Watt Specifications - P4KE Series Features

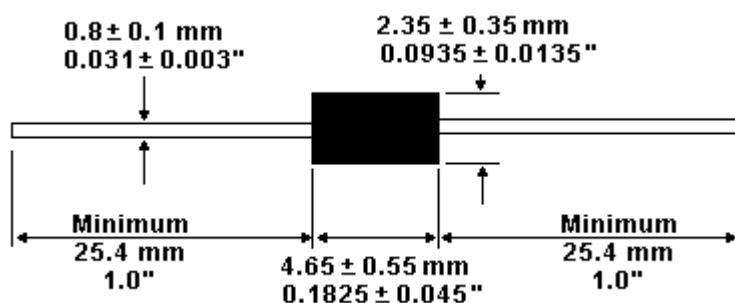
### P4KE Series Features

- 400 watt peak pulse power dissipation
- Available in voltages from 6.8V to 440V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 4,000 pieces)
- Each device 100% surge tested

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 400W
  - Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 1W
  - Operating and storage temperatures..... -65°C to + 175°C
- 
- UL497B, File # E135015

### Mechanical Dimensions



**TVS Diodes - 500 Watt Specifications - Electrical Characteristics**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |      |      | Maximum Stand By Current @Vwm+ Id | 10/1000µs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000µs Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|------|------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                        | Vbr (Volts)       |      | @It  |                                   |                                                  |                                            |
|              | Vwm (Volts)            | Min               | Max  | (mA) | (µA)                              | (Volts)                                          | (Amperes)                                  |
| SA5.0        | 5.0                    | 6.40              | 7.30 | 10   | 600                               | 9.6                                              | 52.0                                       |
| SA5.0A       | 5.0                    | 6.40              | 7.00 | 10   | 600                               | 9.2                                              | 54.3                                       |
| SA6.0        | 6.0                    | 6.67              | 8.15 | 10   | 600                               | 11.4                                             | 43.9                                       |
| SA6.0A       | 6.0                    | 6.67              | 7.37 | 10   | 600                               | 10.3                                             | 48.5                                       |
| SA6.5        | 6.5                    | 7.22              | 8.82 | 10   | 400                               | 12.3                                             | 40.7                                       |
| SA6.5A       | 6.5                    | 7.22              | 7.98 | 10   | 400                               | 11.2                                             | 44.7                                       |
| SA7.0        | 7.0                    | 7.78              | 9.51 | 10   | 150                               | 13.3                                             | 37.8                                       |
| SA7.0A       | 7.0                    | 7.78              | 8.60 | 10   | 150                               | 12.0                                             | 41.7                                       |
| SA7.5        | 7.5                    | 8.33              | 10.2 | 1    | 50                                | 14.3                                             | 35.0                                       |
| SA7.5A       | 7.5                    | 8.33              | 9.21 | 1    | 50                                | 12.9                                             | 38.8                                       |
| SA8.0        | 8.0                    | 8.89              | 10.9 | 1    | 25                                | 15.0                                             | 33.3                                       |
| SA8.0A       | 8.0                    | 8.89              | 8.93 | 1    | 25                                | 13.6                                             | 36.7                                       |
| SA8.5        | 8.5                    | 9.44              | 11.5 | 1    | 10                                | 15.9                                             | 31.4                                       |
| SA8.5A       | 8.5                    | 9.44              | 10.4 | 1    | 10                                | 14.4                                             | 34.7                                       |
| SA9.0        | 9.0                    | 10.0              | 12.2 | 1    | 5                                 | 16.9                                             | 29.5                                       |
| SA9.0A       | 9.0                    | 10.0              | 11.1 | 1    | 5                                 | 15.4                                             | 32.5                                       |
| SA10         | 10                     | 11.1              | 13.6 | 1    | 3                                 | 18.8                                             | 26.6                                       |
| SA10A        | 10                     | 11.1              | 12.3 | 1    | 3                                 | 17.0                                             | 29.4                                       |
| SA11         | 11                     | 12.2              | 14.9 | 1    | 3                                 | 20.1                                             | 24.9                                       |
| SA11A        | 11                     | 12.2              | 13.5 | 1    | 3                                 | 18.2                                             | 27.4                                       |
| SA12         | 12                     | 13.3              | 16.3 | 1    | 3                                 | 22.0                                             | 22.7                                       |
| SA12A        | 12                     | 13.3              | 14.7 | 1    | 3                                 | 19.9                                             | 25.1                                       |
| SA13         | 13                     | 14.4              | 17.6 | 1    | 3                                 | 23.8                                             | 21.0                                       |
| SA13A        | 13                     | 14.4              | 15.9 | 1    | 3                                 | 21.5                                             | 23.2                                       |
| SA14         | 14                     | 15.6              | 19.1 | 1    | 3                                 | 25.8                                             | 19.4                                       |
| SA14A        | 14                     | 15.6              | 17.2 | 1    | 3                                 | 23.2                                             | 21.5                                       |

\* = Add "C" or "CA" suffix for bidirectional device types. (SA5.0A is not available in Bi-Directional)

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 500 Watt Specifications - Electrical Characteristics - (Continued)**

|              | Rated<br>Standoff<br>Voltage | Breakdown Voltage |      |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000 $\mu$ s<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000 $\mu$ s<br>Rated Peak<br>Impulse<br>Current Ippm# |
|--------------|------------------------------|-------------------|------|------|-----------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|
|              |                              | Vbr (Volts)       |      | @It  |                                               |                                                                       |                                                           |
| Part Number* | Vwm (Volts)                  | Min               | Max  | (mA) | ( $\mu$ A)                                    | (Volts)                                                               | (Amperes)                                                 |
| SA15         | 15                           | 16.7              | 20.4 | 1    | 3                                             | 26.9                                                                  | 18.8                                                      |
| SA15A        | 15                           | 16.7              | 18.5 | 1    | 3                                             | 24.4                                                                  | 20.6                                                      |
| SA16         | 16                           | 17.8              | 21.8 | 1    | 3                                             | 28.8                                                                  | 17.6                                                      |
| SA16A        | 16                           | 17.8              | 19.7 | 1    | 3                                             | 26.0                                                                  | 19.2                                                      |
| SA17         | 17                           | 18.9              | 23.1 | 1    | 3                                             | 30.5                                                                  | 16.4                                                      |
| SA17A        | 17                           | 18.9              | 20.9 | 1    | 3                                             | 27.6                                                                  | 18.1                                                      |
| SA18         | 18                           | 20.0              | 24.4 | 1    | 3                                             | 32.2                                                                  | 15.5                                                      |
| SA18A        | 18                           | 20.0              | 22.1 | 1    | 3                                             | 29.2                                                                  | 17.2                                                      |
| SA20         | 20                           | 22.2              | 27.1 | 1    | 3                                             | 35.8                                                                  | 13.9                                                      |
| SA20A        | 20                           | 22.2              | 24.5 | 1    | 3                                             | 32.4                                                                  | 15.4                                                      |
| SA22         | 22                           | 24.4              | 29.8 | 1    | 3                                             | 39.4                                                                  | 12.7                                                      |
| SA22A        | 22                           | 24.4              | 26.9 | 1    | 3                                             | 35.5                                                                  | 14.1                                                      |
| SA24         | 24                           | 26.7              | 32.6 | 1    | 3                                             | 43.0                                                                  | 11.6                                                      |
| SA24A        | 24                           | 26.7              | 29.5 | 1    | 3                                             | 38.9                                                                  | 12.8                                                      |
| SA26         | 26                           | 28.9              | 35.3 | 1    | 3                                             | 46.6                                                                  | 10.7                                                      |
| SA26A        | 26                           | 28.9              | 31.9 | 1    | 3                                             | 42.1                                                                  | 11.9                                                      |
| SA28         | 28                           | 31.1              | 38.0 | 1    | 3                                             | 50.0                                                                  | 9.9                                                       |
| SA28A        | 28                           | 31.1              | 34.4 | 1    | 3                                             | 45.4                                                                  | 11.0                                                      |
| SA30         | 30                           | 33.3              | 40.7 | 1    | 3                                             | 53.5                                                                  | 9.3                                                       |
| SA30A        | 30                           | 33.3              | 36.8 | 1    | 3                                             | 48.4                                                                  | 10.3                                                      |
| SA33         | 33                           | 36.7              | 44.9 | 1    | 3                                             | 59.0                                                                  | 8.5                                                       |
| SA33A        | 33                           | 36.7              | 40.6 | 1    | 3                                             | 53.3                                                                  | 9.4                                                       |
| SA36         | 36                           | 40.0              | 48.9 | 1    | 3                                             | 64.3                                                                  | 7.8                                                       |
| SA36A        | 36                           | 40.0              | 44.2 | 1    | 3                                             | 58.1                                                                  | 8.6                                                       |
| SA40         | 40                           | 44.4              | 54.3 | 1    | 3                                             | 71.4                                                                  | 7.0                                                       |
| SA40A        | 40                           | 44.4              | 49.1 | 1    | 3                                             | 64.5                                                                  | 7.8                                                       |

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+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 500 Watt Specifications - Electrical Characteristics - (Continued)**

|              | Rated Standoff Voltage | Breakdown Voltage |       |      | Maximum Stand By Current @Vwm+ Id | 10/1000μs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000μs Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|-------|------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                        | Vbr (Volts)       |       | @It  |                                   |                                                  |                                            |
| Part Number* | Vwm (Volts)            | Min               | Max   | (mA) | (μA)                              | (Volts)                                          | (Amperes)                                  |
| SA43         | 43                     | 47.8              | 58.4  | 1    | 3                                 | 76.7                                             | 6.5                                        |
| SA43A        | 43                     | 47.8              | 52.8  | 1    | 3                                 | 69.4                                             | 7.2                                        |
| SA45         | 45                     | 50.0              | 61.1  | 1    | 3                                 | 80.3                                             | 6.2                                        |
| SA45A        | 45                     | 50.0              | 55.3  | 1    | 3                                 | 72.7                                             | 6.9                                        |
| SA48         | 48                     | 53.3              | 65.1  | 1    | 3                                 | 85.5                                             | 5.8                                        |
| SA48A        | 48                     | 53.3              | 58.9  | 1    | 3                                 | 77.4                                             | 6.5                                        |
| SA51         | 51                     | 56.7              | 69.3  | 1    | 3                                 | 91.1                                             | 5.5                                        |
| SA51A        | 51                     | 56.7              | 62.7  | 1    | 3                                 | 82.4                                             | 6.1                                        |
| SA54         | 54                     | 60.0              | 73.3  | 1    | 3                                 | 96.3                                             | 5.2                                        |
| SA54A        | 54                     | 60.0              | 66.3  | 1    | 3                                 | 87.1                                             | 5.7                                        |
| SA58         | 58                     | 64.4              | 78.7  | 1    | 3                                 | 103.0                                            | 4.9                                        |
| SA58A        | 58                     | 64.4              | 71.2  | 1    | 3                                 | 93.6                                             | 5.3                                        |
| SA60         | 60                     | 66.7              | 81.5  | 1    | 3                                 | 107.0                                            | 4.7                                        |
| SA60A        | 60                     | 66.7              | 73.7  | 1    | 3                                 | 96.8                                             | 5.2                                        |
| SA64         | 64                     | 71.1              | 86.9  | 1    | 3                                 | 114.0                                            | 4.4                                        |
| SA64A        | 64                     | 71.1              | 78.6  | 1    | 3                                 | 103.0                                            | 4.9                                        |
| SA70         | 70                     | 77.8              | 95.1  | 1    | 3                                 | 125.0                                            | 4.0                                        |
| SA70A        | 70                     | 77.8              | 86.0  | 1    | 3                                 | 113.0                                            | 4.4                                        |
| SA75         | 75                     | 83.3              | 102.0 | 1    | 3                                 | 134.0                                            | 3.7                                        |
| SA75A        | 75                     | 83.3              | 92.1  | 1    | 3                                 | 121.0                                            | 4.1                                        |
| SA78         | 78                     | 86.7              | 106.0 | 1    | 3                                 | 139.0                                            | 3.6                                        |
| SA78A        | 78                     | 86.7              | 95.8  | 1    | 3                                 | 126.0                                            | 4.0                                        |
| SA85         | 85                     | 94.4              | 115.0 | 1    | 3                                 | 151.0                                            | 3.3                                        |
| SA85A        | 85                     | 94.4              | 104.0 | 1    | 3                                 | 137.0                                            | 3.6                                        |
| SA90         | 90                     | 100               | 122.0 | 1    | 3                                 | 160.0                                            | 3.1                                        |
| SA90A        | 90                     | 100               | 111.0 | 1    | 3                                 | 146.0                                            | 3.4                                        |

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# = See General Information for Impulse Current Waveform.

## TVS Diodes - 500 Watt Specifications - Electrical Characteristics - (Continued)

|              | Rated<br>Standoff<br>Voltage | Breakdown Voltage |       |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000µs<br>Rated Peak<br>Impulse<br>Current Ippm# |
|--------------|------------------------------|-------------------|-------|------|-----------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
|              |                              | Vbr (Volts)       |       | @It  |                                               |                                                                 |                                                     |
| Part Number* | Vwm (Volts)                  | Min               | Max   | (mA) | (µA)                                          | (Volts)                                                         | (Amperes)                                           |
| SA100        | 100                          | 111               | 136.0 | 1    | 3                                             | 179.9                                                           | 2.8                                                 |
| SA100A       | 100                          | 111               | 123.0 | 1    | 3                                             | 162.0                                                           | 3.1                                                 |
| SA110        | 110                          | 122               | 149.0 | 1    | 3                                             | 196.0                                                           | 2.6                                                 |
| SA110A       | 110                          | 122               | 135.0 | 1    | 3                                             | 177.0                                                           | 2.8                                                 |
| SA120        | 120                          | 133               | 163.0 | 1    | 3                                             | 214.0                                                           | 2.3                                                 |
| SA120A       | 120                          | 133               | 147.0 | 1    | 3                                             | 193.0                                                           | 2.0                                                 |
| SA130        | 130                          | 144               | 176.0 | 1    | 3                                             | 231.0                                                           | 2.2                                                 |
| SA130A       | 130                          | 144               | 159.0 | 1    | 3                                             | 209.0                                                           | 2.4                                                 |
| SA150        | 150                          | 167               | 204.0 | 1    | 3                                             | 268.0                                                           | 1.9                                                 |
| SA150A       | 150                          | 167               | 185.0 | 1    | 3                                             | 243.0                                                           | 2.1                                                 |
| SA160        | 160                          | 178               | 218.0 | 1    | 3                                             | 287.0                                                           | 1.7                                                 |
| SA160A       | 160                          | 178               | 197.0 | 1    | 3                                             | 259.0                                                           | 1.9                                                 |
| SA170        | 170                          | 189               | 231.0 | 1    | 3                                             | 304.0                                                           | 1.6                                                 |
| SA170A       | 170                          | 189               | 209.0 | 1    | 3                                             | 275.0                                                           | 1.8                                                 |

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# = See General Information for Impulse Current Waveform.

## TVS Diodes - 500 Watt Specifications - SA Series Features

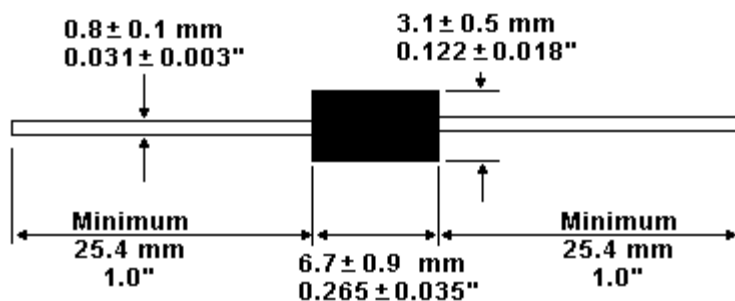
### SA Series Features

- 500 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 5,000 pieces)
- Each device 100% surge tested

### Absolute Maximum Ratings

- Peak pulse power dissipation (P<sub>ppm</sub>) at 25°C..... 500W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 1W
- Operating and storage temperatures..... -55°C to + 175°C

### Mechanical Dimensions



**TVS Diodes - 600 Watt Specifications - Electrical Characteristics**

| Part Number* | Rated Standoff Voltage<br>V <sub>wm</sub> (Volts) | Breakdown Voltage              |      |                      | Maximum Stand By Current<br>@V <sub>wm</sub> +<br>I <sub>d</sub> (μA) | 10/1000μs<br>Maximum Clamping Voltage<br>@I <sub>ppm</sub> #<br>V <sub>c</sub> Max (Volts) | 10/1000μs<br>Rated Peak Impulse Current I <sub>ppm</sub> # (Amperes) |
|--------------|---------------------------------------------------|--------------------------------|------|----------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|              |                                                   | V <sub>br</sub> (Volts)<br>Min | Max  | @I <sub>t</sub> (mA) |                                                                       |                                                                                            |                                                                      |
| P6KE6.8      | 5.50                                              | 6.12                           | 7.48 | 10                   | 1000                                                                  | 10.8                                                                                       | 56                                                                   |
| P6KE6.8A     | 5.80                                              | 6.45                           | 7.14 | 10                   | 1000                                                                  | 10.5                                                                                       | 57                                                                   |
| P6KE7.5      | 6.05                                              | 6.75                           | 8.25 | 10                   | 500                                                                   | 11.7                                                                                       | 51                                                                   |
| P6KE7.5A     | 6.40                                              | 7.13                           | 7.88 | 10                   | 500                                                                   | 11.3                                                                                       | 53                                                                   |
| P6KE8.2      | 6.63                                              | 7.38                           | 9.02 | 10                   | 200                                                                   | 12.5                                                                                       | 48                                                                   |
| P6KE8.2A     | 7.02                                              | 7.79                           | 8.61 | 10                   | 200                                                                   | 12.1                                                                                       | 50                                                                   |
| P6KE9.1      | 7.37                                              | 8.19                           | 10.0 | 1                    | 50                                                                    | 13.8                                                                                       | 44                                                                   |
| P6KE9.1A     | 7.78                                              | 8.65                           | 9.55 | 1                    | 50                                                                    | 13.4                                                                                       | 45                                                                   |
| P6KE10       | 8.10                                              | 9.00                           | 11.0 | 1                    | 10                                                                    | 15.0                                                                                       | 40                                                                   |
| P6KE10A      | 8.55                                              | 9.5                            | 10.5 | 1                    | 10                                                                    | 14.5                                                                                       | 41                                                                   |
| P6KE11       | 8.92                                              | 9.9                            | 12.1 | 1                    | 5                                                                     | 16.2                                                                                       | 37                                                                   |
| P6KE11A      | 9.40                                              | 10.5                           | 11.6 | 1                    | 5                                                                     | 15.6                                                                                       | 38                                                                   |
| P6KE12       | 9.72                                              | 10.8                           | 13.2 | 1                    | 5                                                                     | 17.3                                                                                       | 35                                                                   |
| P6KE12A      | 10.2                                              | 11.4                           | 12.6 | 1                    | 5                                                                     | 16.7                                                                                       | 36                                                                   |
| P6KE13       | 10.5                                              | 11.7                           | 14.3 | 1                    | 5                                                                     | 19.0                                                                                       | 32                                                                   |
| P6KE13A      | 11.1                                              | 12.4                           | 13.7 | 1                    | 5                                                                     | 18.2                                                                                       | 33                                                                   |
| P6KE15       | 12.1                                              | 13.5                           | 16.5 | 1                    | 5                                                                     | 22.0                                                                                       | 27                                                                   |
| P6KE15A      | 12.8                                              | 14.3                           | 15.8 | 1                    | 5                                                                     | 21.2                                                                                       | 28                                                                   |
| P6KE16       | 12.9                                              | 14.4                           | 17.6 | 1                    | 5                                                                     | 23.5                                                                                       | 26                                                                   |
| P6KE16A      | 13.6                                              | 15.2                           | 16.8 | 1                    | 5                                                                     | 22.5                                                                                       | 27                                                                   |
| P6KE18       | 14.5                                              | 16.2                           | 19.8 | 1                    | 5                                                                     | 26.5                                                                                       | 23                                                                   |
| P6KE18A      | 15.3                                              | 17.1                           | 18.9 | 1                    | 5                                                                     | 25.2                                                                                       | 24                                                                   |
| P6KE20       | 16.2                                              | 18.0                           | 22.0 | 1                    | 5                                                                     | 29.1                                                                                       | 21                                                                   |
| P6KE20A      | 17.1                                              | 19.0                           | 21.0 | 1                    | 5                                                                     | 27.7                                                                                       | 22                                                                   |
| P6KE22       | 17.8                                              | 19.8                           | 24.2 | 1                    | 5                                                                     | 31.9                                                                                       | 19                                                                   |
| P6KE22A      | 18.8                                              | 20.9                           | 23.1 | 1                    | 5                                                                     | 30.6                                                                                       | 20                                                                   |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having V<sub>wm</sub> ≤ 10V, their I<sub>d</sub> limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 600 Watt Specifications - Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |      |      | Maximum Stand By Current @Vwm+ Id | 10/1000 $\mu$ s Maximum Clamping Voltage @Ippm# Vc Max | 10/1000 $\mu$ s Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|------|------|-----------------------------------|--------------------------------------------------------|--------------------------------------------------|
|              |                        | Vbr (Volts)       |      | @It  |                                   |                                                        |                                                  |
|              | Vwm (Volts)            | Min               | Max  | (mA) | ( $\mu$ A)                        | (Volts)                                                | (Amperes)                                        |
| P6KE24       | 19.4                   | 21.6              | 26.4 | 1    | 5                                 | 34.7                                                   | 17                                               |
| P6KE24A      | 20.5                   | 22.8              | 25.2 | 1    | 5                                 | 33.2                                                   | 18                                               |
| P6KE27       | 21.8                   | 24.3              | 29.7 | 1    | 5                                 | 39.1                                                   | 15                                               |
| P6KE27A      | 23.1                   | 25.7              | 28.4 | 1    | 5                                 | 37.5                                                   | 16                                               |
| P6KE30       | 24.3                   | 27.0              | 33.0 | 1    | 5                                 | 43.5                                                   | 14                                               |
| P6KE30A      | 25.6                   | 28.5              | 31.5 | 1    | 5                                 | 41.4                                                   | 14.4                                             |
| P6KE33       | 26.8                   | 29.7              | 36.3 | 1    | 5                                 | 47.7                                                   | 12.6                                             |
| P6KE33A      | 28.2                   | 31.4              | 34.7 | 1    | 5                                 | 45.7                                                   | 13.2                                             |
| P6KE36       | 29.1                   | 32.4              | 39.6 | 1    | 5                                 | 52.0                                                   | 11.6                                             |
| P6KE36A      | 30.8                   | 34.2              | 37.8 | 1    | 5                                 | 49.9                                                   | 12.0                                             |
| P6KE39       | 31.6                   | 35.1              | 42.9 | 1    | 5                                 | 56.4                                                   | 10.5                                             |
| P6KE39A      | 33.3                   | 37.1              | 41.0 | 1    | 5                                 | 53.9                                                   | 11.2                                             |
| P6KE43       | 34.8                   | 38.7              | 47.3 | 1    | 5                                 | 61.9                                                   | 9.6                                              |
| P6KE43A      | 36.8                   | 40.9              | 45.2 | 1    | 5                                 | 59.3                                                   | 10.1                                             |
| P6KE47       | 38.1                   | 42.3              | 51.7 | 1    | 5                                 | 67.8                                                   | 8.9                                              |
| P6KE47A      | 40.2                   | 44.7              | 49.4 | 1    | 5                                 | 64.8                                                   | 9.3                                              |
| P6KE51       | 41.3                   | 45.9              | 56.1 | 1    | 5                                 | 73.5                                                   | 8.2                                              |
| P6KE51A      | 43.6                   | 48.5              | 53.6 | 1    | 5                                 | 70.1                                                   | 8.6                                              |
| P6KE56       | 45.4                   | 50.4              | 61.6 | 1    | 5                                 | 80.5                                                   | 7.4                                              |
| P6KE56A      | 47.8                   | 53.2              | 58.8 | 1    | 5                                 | 77.0                                                   | 7.8                                              |
| P6KE62       | 50.2                   | 55.8              | 68.2 | 1    | 5                                 | 89.0                                                   | 6.8                                              |
| P6KE62A      | 53.0                   | 58.9              | 65.1 | 1    | 5                                 | 85.0                                                   | 7.1                                              |
| P6KE68       | 55.1                   | 61.2              | 74.8 | 1    | 5                                 | 98.0                                                   | 6.1                                              |
| P6KE68A      | 58.1                   | 64.6              | 71.4 | 1    | 5                                 | 92.0                                                   | 6.5                                              |
| P6KE75       | 60.7                   | 67.5              | 82.5 | 1    | 5                                 | 108.0                                                  | 5.5                                              |
| P6KE75A      | 64.1                   | 71.3              | 78.8 | 1    | 5                                 | 103.0                                                  | 5.8                                              |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 600 Watt Specifications - Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |       |      | Maximum Stand By Current @Vwm+ Id | 10/1000 $\mu$ s Maximum Clamping Voltage @Ippm# Vc Max | 10/1000 $\mu$ s Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|-------|------|-----------------------------------|--------------------------------------------------------|--------------------------------------------------|
|              |                        | Vbr (Volts)       |       | @It  |                                   |                                                        |                                                  |
|              | Vwm (Volts)            | Min               | Max   | (mA) | ( $\mu$ A)                        | (Volts)                                                | (Amperes)                                        |
| P6KE82       | 66.4                   | 73.8              | 90.2  | 1    | 5                                 | 118.0                                                  | 5.1                                              |
| P6KE82A      | 70.1                   | 77.9              | 86.1  | 1    | 5                                 | 113.0                                                  | 5.3                                              |
| P6KE91       | 73.7                   | 81.9              | 100.0 | 1    | 5                                 | 131.0                                                  | 4.5                                              |
| P6KE91A      | 77.8                   | 86.5              | 95.5  | 1    | 5                                 | 125.0                                                  | 4.8                                              |
| P6KE100      | 81.0                   | 90.0              | 110.0 | 1    | 5                                 | 144.0                                                  | 4.2                                              |
| P6KE100A     | 85.5                   | 95.0              | 105.0 | 1    | 5                                 | 137.0                                                  | 4.4                                              |
| P6KE110      | 89.2                   | 99.0              | 121.0 | 1    | 5                                 | 158.0                                                  | 3.8                                              |
| P6KE110A     | 94.0                   | 105.0             | 116.0 | 1    | 5                                 | 152.0                                                  | 4.0                                              |
| P6KE120      | 97.2                   | 108.0             | 132.0 | 1    | 5                                 | 173.0                                                  | 3.5                                              |
| P6KE120A     | 102.0                  | 114.0             | 126.0 | 1    | 5                                 | 165.0                                                  | 3.6                                              |
| P6KE130      | 105.0                  | 117.0             | 143.0 | 1    | 5                                 | 187.0                                                  | 3.2                                              |
| P6KE130A     | 111.0                  | 124.0             | 137.0 | 1    | 5                                 | 179.0                                                  | 3.3                                              |
| P6KE150      | 121.0                  | 135.0             | 165.0 | 1    | 5                                 | 215.0                                                  | 2.8                                              |
| P6KE150A     | 128.0                  | 143.0             | 158.0 | 1    | 5                                 | 207.0                                                  | 2.9                                              |
| P6KE160      | 130.0                  | 144.0             | 176.0 | 1    | 5                                 | 230.0                                                  | 2.6                                              |
| P6KE160A     | 136.0                  | 152.0             | 168.0 | 1    | 5                                 | 219.0                                                  | 2.7                                              |
| P6KE170      | 138.0                  | 153.0             | 187.0 | 1    | 5                                 | 244.0                                                  | 2.5                                              |
| P6KE170A     | 145.0                  | 162.0             | 179.0 | 1    | 5                                 | 234.0                                                  | 2.6                                              |
| P6KE180      | 146.0                  | 162.0             | 198.0 | 1    | 5                                 | 258.0                                                  | 2.3                                              |
| P6KE180A     | 154.0                  | 171.0             | 189.0 | 1    | 5                                 | 246.0                                                  | 2.4                                              |
| P6KE200      | 162.0                  | 180.0             | 220.0 | 1    | 5                                 | 287.0                                                  | 2.1                                              |
| P6KE200A     | 171.0                  | 190.0             | 210.0 | 1    | 5                                 | 274.0                                                  | 2.2                                              |
| P6KE220      | 175.0                  | 198.0             | 242.0 | 1    | 5                                 | 344.0                                                  | 1.75                                             |
| P6KE220A     | 185.0                  | 209.0             | 231.0 | 1    | 5                                 | 328.0                                                  | 1.83                                             |
| P6KE250      | 202.0                  | 225.0             | 275.0 | 1    | 5                                 | 360.0                                                  | 1.67                                             |
| P6KE250A     | 214.0                  | 237.0             | 263.0 | 1    | 5                                 | 344.0                                                  | 1.75                                             |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 600 Watt Specifications - Electrical Characteristics - (Continued)

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |       |      | Maximum Stand By Current @Vwm+ Id | 10/1000 $\mu$ s Maximum Clamping Voltage @Ippm# Vc Max | 10/1000 $\mu$ s Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|-------|------|-----------------------------------|--------------------------------------------------------|--------------------------------------------------|
|              |                        | Vbr (Volts)       |       | @It  |                                   |                                                        |                                                  |
|              | Vwm (Volts)            | Min               | Max   | (mA) | ( $\mu$ A)                        | (Volts)                                                | (Amperes)                                        |
| P6KE300      | 243.0                  | 270.0             | 330.0 | 1    | 5                                 | 430.0                                                  | 1.40                                             |
| P6KE300A     | 256.0                  | 285.0             | 315.0 | 1    | 5                                 | 414.0                                                  | 1.45                                             |
| P6KE350      | 284.0                  | 315.0             | 385.0 | 1    | 5                                 | 504.0                                                  | 1.20                                             |
| P6KE350A     | 300.0                  | 332.0             | 368.0 | 1    | 5                                 | 482.0                                                  | 1.25                                             |
| P6KE400      | 324.0                  | 360.0             | 440.0 | 1    | 5                                 | 574.0                                                  | 1.05                                             |
| P6KE400A     | 342.0                  | 380.0             | 420.0 | 1    | 5                                 | 548.0                                                  | 1.10                                             |
| P6KE440      | 356.0                  | 396.0             | 484.0 | 1    | 5                                 | 631.0                                                  | 0.99                                             |
| P6KE440A     | 376.0                  | 418.0             | 462.0 | 1    | 5                                 | 600.0                                                  | 1.04                                             |
| P6KE550      | 445.5                  | 495.0             | 605.0 | 1    | 5                                 | 792.0                                                  | 0.76                                             |
| P6KE550A     | 467.5                  | 522.5             | 577.5 | 1    | 5                                 | 753.5                                                  | 0.80                                             |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 600 Watt Specifications - P6KE Series Features

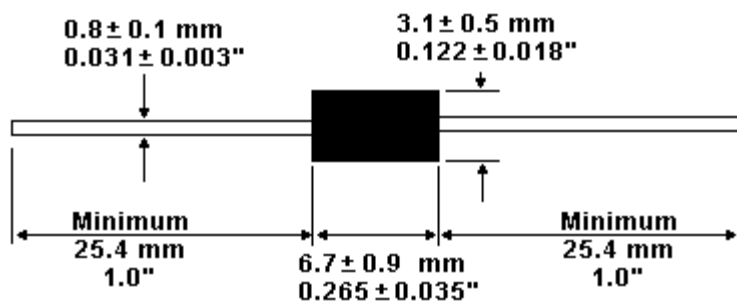
### P6KE Series Features

- 600 watt peak pulse power dissipation
- Available in voltages from 6.8V to 400V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 5,000 pieces)
- Each device 100% surge tested

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 600W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 5W
- Operating and storage temperatures..... -55°C to + 175°C

### Mechanical Dimensions



**TVS Diodes - 1500 Watt Specifications - 1.5KE Series Electrical Characteristics**

| Part Number* | Rated Standoff Voltage<br>Vwm (Volts) | Breakdown Voltage  |      |             | Maximum Stand By Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum Clamping Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak Impulse Current Ippm#<br>(Amperes) |
|--------------|---------------------------------------|--------------------|------|-------------|-------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------|
|              |                                       | Vbr (Volts)<br>Min | Max  | @It<br>(mA) |                                                 |                                                                      |                                                            |
| 1.5KE6.8     | 5.50                                  | 6.12               | 7.48 | 10          | 1000                                            | 10.8                                                                 | 139.0                                                      |
| 1.5KE6.8A    | 5.80                                  | 6.45               | 7.14 | 10          | 1000                                            | 10.5                                                                 | 143.0                                                      |
| 1.5KE7.5     | 6.05                                  | 6.75               | 8.25 | 10          | 500                                             | 11.7                                                                 | 128.0                                                      |
| 1.5KE7.5A    | 6.40                                  | 7.13               | 7.88 | 10          | 500                                             | 11.3                                                                 | 132.0                                                      |
| 1.5KE8.2     | 6.63                                  | 7.38               | 9.02 | 10          | 200                                             | 12.5                                                                 | 120.0                                                      |
| 1.5KE8.2A    | 7.02                                  | 7.79               | 8.61 | 10          | 200                                             | 12.1                                                                 | 124.0                                                      |
| 1.5KE9.1     | 7.37                                  | 8.19               | 10.0 | 1           | 50                                              | 13.8                                                                 | 109.0                                                      |
| 1.5KE9.1A    | 7.78                                  | 8.65               | 9.55 | 1           | 50                                              | 13.4                                                                 | 112.0                                                      |
| 1.5KE10      | 8.10                                  | 9.00               | 11.0 | 1           | 10                                              | 15.0                                                                 | 100.0                                                      |
| 1.5KE10A     | 8.55                                  | 9.5                | 10.5 | 1           | 10                                              | 14.5                                                                 | 103.0                                                      |
| 1.5KE11      | 8.92                                  | 9.9                | 12.1 | 1           | 5                                               | 16.2                                                                 | 93.0                                                       |
| 1.5KE11A     | 9.40                                  | 10.5               | 11.6 | 1           | 5                                               | 15.6                                                                 | 96.0                                                       |
| 1.5KE12      | 9.72                                  | 10.8               | 13.2 | 1           | 5                                               | 17.3                                                                 | 87.0                                                       |
| 1.5KE12A     | 10.2                                  | 11.4               | 12.6 | 1           | 5                                               | 16.7                                                                 | 90.0                                                       |
| 1.5KE13      | 10.5                                  | 11.7               | 14.3 | 1           | 5                                               | 19.0                                                                 | 79.0                                                       |
| 1.5KE13A     | 11.1                                  | 12.4               | 13.7 | 1           | 5                                               | 18.2                                                                 | 82.0                                                       |
| 1.5KE15      | 12.1                                  | 13.5               | 16.5 | 1           | 5                                               | 22.0                                                                 | 68.0                                                       |
| 1.5KE15A     | 12.8                                  | 14.3               | 15.8 | 1           | 5                                               | 21.2                                                                 | 71.0                                                       |
| 1.5KE16      | 12.9                                  | 14.4               | 17.6 | 1           | 5                                               | 23.5                                                                 | 64.0                                                       |
| 1.5KE16A     | 13.6                                  | 15.2               | 16.8 | 1           | 5                                               | 22.5                                                                 | 67.0                                                       |
| 1.5KE18      | 14.5                                  | 16.2               | 19.8 | 1           | 5                                               | 26.5                                                                 | 56.5                                                       |
| 1.5KE18A     | 15.3                                  | 17.1               | 18.9 | 1           | 5                                               | 25.2                                                                 | 59.5                                                       |
| 1.5KE20      | 16.2                                  | 18.0               | 22.0 | 1           | 5                                               | 29.1                                                                 | 51.5                                                       |
| 1.5KE20A     | 17.1                                  | 19.0               | 21.0 | 1           | 5                                               | 27.7                                                                 | 54.0                                                       |
| 1.5KE22      | 17.8                                  | 19.8               | 24.2 | 1           | 5                                               | 31.9                                                                 | 47.0                                                       |
| 1.5KE22A     | 18.8                                  | 20.9               | 23.1 | 1           | 5                                               | 30.6                                                                 | 49.0                                                       |

Metal hermetically sealed (DO13) version of this diode is available upon request.

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 1500 Watt Specifications - 1.5KE Series Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage<br>Vwm (Volts) | Breakdown Voltage  |      |             | Maximum Stand By Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum Clamping Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak Impulse Current Ippm#<br>(Amperes) |
|--------------|---------------------------------------|--------------------|------|-------------|-------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------|
|              |                                       | Vbr (Volts)<br>Min | Max  | @It<br>(mA) |                                                 |                                                                      |                                                            |
| 1.5KE24      | 19.4                                  | 21.6               | 26.4 | 1           | 5                                               | 34.7                                                                 | 43.0                                                       |
| 1.5KE24A     | 20.5                                  | 22.8               | 25.2 | 1           | 5                                               | 33.2                                                                 | 45.0                                                       |
| 1.5KE27      | 21.8                                  | 24.3               | 29.7 | 1           | 5                                               | 39.1                                                                 | 38.5                                                       |
| 1.5KE27A     | 23.1                                  | 25.7               | 28.4 | 1           | 5                                               | 37.5                                                                 | 40.0                                                       |
| 1.5KE30      | 24.3                                  | 27.0               | 33.0 | 1           | 5                                               | 43.5                                                                 | 34.5                                                       |
| 1.5KE30A     | 25.6                                  | 28.5               | 31.5 | 1           | 5                                               | 41.4                                                                 | 36.0                                                       |
| 1.5KE33      | 26.8                                  | 29.7               | 36.3 | 1           | 5                                               | 47.7                                                                 | 31.5                                                       |
| 1.5KE33A     | 28.2                                  | 31.4               | 34.7 | 1           | 5                                               | 45.7                                                                 | 33.0                                                       |
| 1.5KE36      | 29.1                                  | 32.4               | 39.6 | 1           | 5                                               | 52.0                                                                 | 29.0                                                       |
| 1.5KE36A     | 30.8                                  | 34.2               | 37.8 | 1           | 5                                               | 49.9                                                                 | 30.0                                                       |
| 1.5KE39      | 31.6                                  | 35.1               | 42.9 | 1           | 5                                               | 56.4                                                                 | 26.5                                                       |
| 1.5KE39A     | 33.3                                  | 37.1               | 41.0 | 1           | 5                                               | 53.9                                                                 | 28.0                                                       |
| 1.5KE43      | 34.8                                  | 38.7               | 47.3 | 1           | 5                                               | 61.9                                                                 | 24.0                                                       |
| 1.5KE43A     | 36.8                                  | 40.9               | 45.2 | 1           | 5                                               | 59.3                                                                 | 25.3                                                       |
| 1.5KE47      | 38.1                                  | 42.3               | 51.7 | 1           | 5                                               | 67.8                                                                 | 22.2                                                       |
| 1.5KE47A     | 40.2                                  | 44.7               | 49.4 | 1           | 5                                               | 64.8                                                                 | 23.2                                                       |
| 1.5KE51      | 41.3                                  | 45.9               | 56.1 | 1           | 5                                               | 73.5                                                                 | 20.4                                                       |
| 1.5KE51A     | 43.6                                  | 48.5               | 53.6 | 1           | 5                                               | 70.1                                                                 | 21.4                                                       |
| 1.5KE56      | 45.4                                  | 50.4               | 61.6 | 1           | 5                                               | 80.5                                                                 | 18.6                                                       |
| 1.5KE56A     | 47.8                                  | 53.2               | 58.8 | 1           | 5                                               | 77.0                                                                 | 19.5                                                       |
| 1.5KE62      | 50.2                                  | 55.8               | 68.2 | 1           | 5                                               | 89.0                                                                 | 16.9                                                       |
| 1.5KE62A     | 53.0                                  | 58.9               | 65.1 | 1           | 5                                               | 85.0                                                                 | 17.7                                                       |
| 1.5KE68      | 55.1                                  | 61.2               | 74.8 | 1           | 5                                               | 98.0                                                                 | 15.3                                                       |
| 1.5KE68A     | 58.1                                  | 64.6               | 71.4 | 1           | 5                                               | 92.0                                                                 | 16.3                                                       |
| 1.5KE75      | 60.7                                  | 67.5               | 82.5 | 1           | 5                                               | 108.0                                                                | 13.9                                                       |
| 1.5KE75A     | 64.1                                  | 71.3               | 78.8 | 1           | 5                                               | 103.0                                                                | 14.6                                                       |

Metal hermetically sealed (DO13) version of this diode is available upon request.

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 1500 Watt Specifications - 1.5KE Series Electrical Characteristics - (Continued)**

| Part Number* | Rated Standoff Voltage | Breakdown Voltage |       |      | Maximum Stand By Current @Vwm+ Id | 10/1000μs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000μs Rated Peak Impulse Current Ippm# |
|--------------|------------------------|-------------------|-------|------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                        | Vbr (Volts)       |       | @It  |                                   |                                                  |                                            |
|              | Vwm (Volts)            | Min               | Max   | (mA) | (μA)                              | (Volts)                                          | (Amperes)                                  |
| 1.5KE82      | 66.4                   | 73.8              | 90.2  | 1    | 5                                 | 118.0                                            | 12.7                                       |
| 1.5KE82A     | 70.1                   | 77.9              | 86.1  | 1    | 5                                 | 113.0                                            | 13.3                                       |
| 1.5KE91      | 73.7                   | 81.9              | 100.0 | 1    | 5                                 | 131.0                                            | 11.4                                       |
| 1.5KE91A     | 77.8                   | 86.5              | 95.5  | 1    | 5                                 | 125.0                                            | 12.0                                       |
| 1.5KE100     | 81.0                   | 90.0              | 110.0 | 1    | 5                                 | 144.0                                            | 10.4                                       |
| 1.5KE100A    | 85.5                   | 95.0              | 105.0 | 1    | 5                                 | 137.0                                            | 11.0                                       |
| 1.5KE110     | 89.2                   | 99.0              | 121.0 | 1    | 5                                 | 158.0                                            | 9.5                                        |
| 1.5KE110A    | 94.0                   | 105.0             | 116.0 | 1    | 5                                 | 152.0                                            | 9.9                                        |
| 1.5KE120     | 97.2                   | 108.0             | 132.0 | 1    | 5                                 | 173.0                                            | 8.7                                        |
| 1.5KE120A    | 102.0                  | 114.0             | 126.0 | 1    | 5                                 | 165.0                                            | 9.1                                        |
| 1.5KE130     | 105.0                  | 117.0             | 143.0 | 1    | 5                                 | 187.0                                            | 8.0                                        |
| 1.5KE130A    | 111.0                  | 124.0             | 137.0 | 1    | 5                                 | 179.0                                            | 8.4                                        |
| 1.5KE150     | 121.0                  | 135.0             | 165.0 | 1    | 5                                 | 215.0                                            | 7.0                                        |
| 1.5KE150A    | 128.0                  | 143.0             | 158.0 | 1    | 5                                 | 207.0                                            | 7.2                                        |
| 1.5KE160     | 130.0                  | 144.0             | 176.0 | 1    | 5                                 | 230.0                                            | 6.5                                        |
| 1.5KE160A    | 136.0                  | 152.0             | 168.0 | 1    | 5                                 | 219.0                                            | 6.8                                        |
| 1.5KE170     | 138.0                  | 153.0             | 187.0 | 1    | 5                                 | 244.0                                            | 6.2                                        |
| 1.5KE170A    | 145.0                  | 162.0             | 179.0 | 1    | 5                                 | 234.0                                            | 6.4                                        |
| 1.5KE180     | 146.0                  | 162.0             | 198.0 | 1    | 5                                 | 258.0                                            | 5.8                                        |
| 1.5KE180A    | 154.0                  | 171.0             | 189.0 | 1    | 5                                 | 246.0                                            | 6.1                                        |
| 1.5KE200     | 162.0                  | 180.0             | 220.0 | 1    | 5                                 | 287.0                                            | 5.2                                        |
| 1.5KE200A    | 171.0                  | 190.0             | 210.0 | 1    | 5                                 | 274.0                                            | 5.5                                        |
| 1.5KE220     | 175.0                  | 198.0             | 242.0 | 1    | 5                                 | 344.0                                            | 4.3                                        |
| 1.5KE220A    | 185.0                  | 209.0             | 231.0 | 1    | 5                                 | 328.0                                            | 4.6                                        |
| 1.5KE250     | 202.0                  | 225.0             | 275.0 | 1    | 5                                 | 360.0                                            | 5.0                                        |
| 1.5KE250A    | 214.0                  | 237.0             | 263.0 | 1    | 5                                 | 344.0                                            | 5.0                                        |

Metal hermetically sealed (DO13) version of this diode is available upon request.

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 1500 Watt Specifications - 1.5KE Series Electrical Characteristics - (Continued)

|              | Rated<br>Standoff<br>Voltage | Breakdown Voltage |       |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000µs<br>Rated Peak<br>Impulse<br>Current Ippm# |
|--------------|------------------------------|-------------------|-------|------|-----------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
|              |                              | Vbr (Volts)       |       | @It  |                                               |                                                                 |                                                     |
| Part Number* | Vwm (Volts)                  | Min               | Max   | (mA) | (µA)                                          | (Volts)                                                         | (Amperes)                                           |
| 1.5KE300     | 243.0                        | 270.0             | 330.0 | 1    | 5                                             | 430.0                                                           | 5.0                                                 |
| 1.5KE300A    | 256.0                        | 285.0             | 315.0 | 1    | 5                                             | 414.0                                                           | 5.0                                                 |
| 1.5KE350     | 284.0                        | 315.0             | 385.0 | 1    | 5                                             | 504.0                                                           | 4.0                                                 |
| 1.5KE350A    | 300.0                        | 360.0             | 440.0 | 1    | 5                                             | 574.0                                                           | 4.0                                                 |
| 1.5KE400     | 324.0                        | 360.0             | 440.0 | 1    | 5                                             | 574.0                                                           | 4.0                                                 |
| 1.5KE400A    | 342.0                        | 380.0             | 420.0 | 1    | 5                                             | 548.0                                                           | 4.0                                                 |
| 1.5KE440     | 356.0                        | 396.0             | 484.0 | 1    | 5                                             | 631.0                                                           | 2.4                                                 |
| 1.5KE440A    | 376.0                        | 418.0             | 462.0 | 1    | 5                                             | 600.0                                                           | 2.6                                                 |

Metal hermetically sealed (DO13) version of this diode is available upon request.

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 1500 Watt Specifications - 1.5KE Series Features

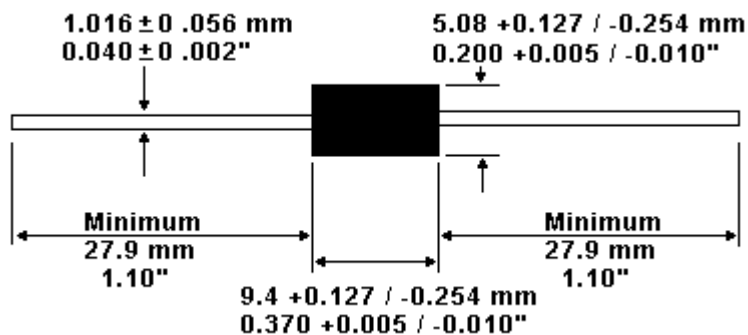
### 1.5KE Series Features

- 1500 watt peak pulse power dissipation
- Available in voltages from 6.8V to 400V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 1,500 pieces)
- Each device 100% surge tested
- Metal hermetically sealed (DO13) version of this diode is available upon request.

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 1500W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 5W
- Operating and storage temperatures..... -55°C to + 175°C

### Mechanical Dimensions



**TVS Diodes - 3000 Watt Specifications - 3KP Series Electrical Characteristics**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |       |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|-------------------------------------|-------------------|-------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                                     | Vbr (Volts)       |       | @It  |                                               |                                                                 |                                                        |
|                 | (Volts)                             | Min               | Max   | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| 3KP5.0          | 5.00                                | 6.40              | 7.55  | 10   | 1000                                          | 9.6                                                             | 312.5                                                  |
| 3KP5.0A         | 5.00                                | 6.40              | 7.25  | 10   | 1000                                          | 9.2                                                             | 326.0                                                  |
| 3KP6.0          | 6.00                                | 6.67              | 8.45  | 10   | 1000                                          | 11.4                                                            | 263.2                                                  |
| 3KP6.0A         | 6.00                                | 6.67              | 7.67  | 10   | 1000                                          | 10.3                                                            | 291.3                                                  |
| 3KP6.5          | 6.50                                | 7.22              | 9.14  | 10   | 500                                           | 12.3                                                            | 243.9                                                  |
| 3KP6.5A         | 6.50                                | 7.22              | 8.30  | 10   | 500                                           | 11.2                                                            | 267.9                                                  |
| 3KP7.0          | 7.00                                | 7.78              | 9.86  | 10   | 200                                           | 13.3                                                            | 225.6                                                  |
| 3KP7.0A         | 7.00                                | 7.78              | 8.95  | 10   | 200                                           | 12.0                                                            | 250.0                                                  |
| 3KP7.5          | 7.50                                | 8.33              | 10.67 | 1    | 100                                           | 14.3                                                            | 209.8                                                  |
| 3KP7.5A         | 7.50                                | 8.33              | 9.58  | 1    | 100                                           | 12.9                                                            | 232.6                                                  |
| 3KP8.0          | 8.00                                | 8.89              | 11.30 | 1    | 50                                            | 15.0                                                            | 220.0                                                  |
| 3KP8.0A         | 8.00                                | 8.89              | 10.23 | 1    | 50                                            | 13.6                                                            | 220.6                                                  |
| 3KP8.5          | 8.50                                | 9.44              | 11.92 | 1    | 25                                            | 15.9                                                            | 188.8                                                  |
| 3KP8.5A         | 8.50                                | 9.44              | 10.82 | 1    | 25                                            | 14.4                                                            | 208.4                                                  |
| 3KP9.0          | 9.00                                | 10.00             | 12.60 | 1    | 10                                            | 16.9                                                            | 177.4                                                  |
| 3KP9.0A         | 9.00                                | 10.00             | 11.50 | 1    | 10                                            | 15.4                                                            | 194.8                                                  |
| 3KP10           | 10.00                               | 11.10             | 14.10 | 1    | 5                                             | 18.8                                                            | 159.6                                                  |
| 3KP10A          | 10.00                               | 11.10             | 12.80 | 1    | 5                                             | 17.0                                                            | 176.4                                                  |
| 3KP11           | 11.00                               | 12.20             | 15.40 | 1    | 5                                             | 20.1                                                            | 149.2                                                  |
| 3KP11A          | 11.00                               | 12.20             | 14.00 | 1    | 5                                             | 18.2                                                            | 184.8                                                  |
| 3KP12           | 12.00                               | 13.30             | 16.90 | 1    | 5                                             | 22.0                                                            | 136.4                                                  |
| 3KP12A          | 12.00                               | 13.30             | 15.30 | 1    | 5                                             | 19.9                                                            | 150.6                                                  |
| 3KP13           | 13.00                               | 14.40             | 18.20 | 1    | 5                                             | 23.8                                                            | 126.0                                                  |
| 3KP13A          | 13.00                               | 14.40             | 16.50 | 1    | 5                                             | 21.5                                                            | 139.4                                                  |
| 3KP14           | 14.00                               | 15.60             | 19.80 | 1    | 5                                             | 25.8                                                            | 116.2                                                  |
| 3KP14A          | 14.00                               | 15.60             | 17.90 | 1    | 5                                             | 23.2                                                            | 129.4                                                  |
| 3KP15           | 15.00                               | 16.70             | 21.10 | 1    | 5                                             | 26.9                                                            | 111.6                                                  |
| 3KP15A          | 15.00                               | 16.70             | 19.20 | 1    | 5                                             | 24.4                                                            | 123.0                                                  |

Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 3000 Watt Specifications - 3KP Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |       |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|-------------------------------------|-------------------|-------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                                     | Vbr (Volts)       |       | @It  |                                               |                                                                 |                                                        |
|                 | (Volts)                             | Min               | Max   | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| 3KP16           | 16.00                               | 17.80             | 22.60 | 1    | 5                                             | 28.8                                                            | 104.2                                                  |
| 3KP16A          | 16.00                               | 17.80             | 20.50 | 1    | 5                                             | 26.0                                                            | 115.4                                                  |
| 3KP17           | 17.00                               | 18.90             | 23.90 | 1    | 5                                             | 30.5                                                            | 98.4                                                   |
| 3KP17A          | 17.00                               | 18.90             | 21.70 | 1    | 5                                             | 27.6                                                            | 106.6                                                  |
| 3KP18           | 18.00                               | 20.00             | 25.30 | 1    | 5                                             | 32.2                                                            | 93.2                                                   |
| 3KP18A          | 18.00                               | 20.00             | 23.30 | 1    | 5                                             | 29.2                                                            | 102.8                                                  |
| 3KP20           | 20.00                               | 22.20             | 28.10 | 1    | 5                                             | 35.8                                                            | 83.8                                                   |
| 3KP20A          | 20.00                               | 22.20             | 25.50 | 1    | 5                                             | 32.4                                                            | 92.6                                                   |
| 3KP22           | 22.00                               | 24.40             | 30.90 | 1    | 5                                             | 39.4                                                            | 76.2                                                   |
| 3KP22A          | 22.00                               | 24.40             | 28.00 | 1    | 5                                             | 35.5                                                            | 84.4                                                   |
| 3KP24           | 24.00                               | 26.70             | 33.80 | 1    | 5                                             | 43.0                                                            | 69.8                                                   |
| 3KP24A          | 24.00                               | 26.70             | 30.70 | 1    | 5                                             | 38.9                                                            | 77.2                                                   |
| 3KP26           | 26.00                               | 28.90             | 36.60 | 1    | 5                                             | 46.6                                                            | 64.4                                                   |
| 3KP26A          | 26.00                               | 28.90             | 33.20 | 1    | 5                                             | 42.1                                                            | 71.2                                                   |
| 3KP28           | 28.00                               | 31.10             | 39.40 | 1    | 5                                             | 50.0                                                            | 60.0                                                   |
| 3KP28A          | 28.00                               | 31.10             | 35.80 | 1    | 5                                             | 45.4                                                            | 66.0                                                   |
| 3KP30           | 30.00                               | 33.30             | 42.20 | 1    | 5                                             | 53.5                                                            | 56.0                                                   |
| 3KP30A          | 30.00                               | 33.30             | 38.30 | 1    | 5                                             | 48.4                                                            | 62.0                                                   |
| 3KP33           | 33.00                               | 36.70             | 46.50 | 1    | 5                                             | 59.0                                                            | 50.4                                                   |
| 3KP33A          | 33.00                               | 36.70             | 42.20 | 1    | 5                                             | 53.3                                                            | 56.2                                                   |
| 3KP36           | 36.00                               | 40.00             | 50.70 | 1    | 5                                             | 64.3                                                            | 46.6                                                   |
| 3KP36A          | 36.00                               | 40.00             | 46.00 | 1    | 5                                             | 58.1                                                            | 51.6                                                   |
| 3KP40           | 40.00                               | 44.40             | 53.30 | 1    | 5                                             | 71.4                                                            | 42.0                                                   |
| 3KP40A          | 40.00                               | 44.40             | 51.10 | 1    | 5                                             | 64.5                                                            | 46.4                                                   |
| 3KP43           | 43.00                               | 47.80             | 60.50 | 1    | 5                                             | 76.7                                                            | 39.2                                                   |
| 3KP43A          | 43.00                               | 47.80             | 54.90 | 1    | 5                                             | 69.4                                                            | 43.2                                                   |
| 3KP45           | 45.00                               | 50.00             | 63.30 | 1    | 5                                             | 80.3                                                            | 37.4                                                   |
| 3KP45A          | 45.00                               | 50.00             | 57.50 | 1    | 5                                             | 72.7                                                            | 41.2                                                   |

Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 3000 Watt Specifications - 3KP Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |        |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>( $\mu$ A) | 10/1000 $\mu$ s<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000 $\mu$ s<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------------------------------|-------------------|--------|-------------|-------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                 |                                                | Vbr (Volts)       |        | @It<br>(mA) |                                                             |                                                                                  |                                                                           |
|                 |                                                | Min               | Max    |             |                                                             |                                                                                  |                                                                           |
| 3KP48           | 48.00                                          | 53.30             | 67.50  | 1           | 5                                                           | 85.5                                                                             | 35.0                                                                      |
| 3KP48A          | 48.00                                          | 53.30             | 61.30  | 1           | 5                                                           | 77.4                                                                             | 38.8                                                                      |
| 3KP51           | 51.00                                          | 56.70             | 71.80  | 1           | 5                                                           | 91.1                                                                             | 37.0                                                                      |
| 3KP51A          | 51.00                                          | 56.70             | 65.20  | 1           | 5                                                           | 82.4                                                                             | 36.4                                                                      |
| 3KP54           | 54.00                                          | 60.00             | 76.00  | 1           | 5                                                           | 96.3                                                                             | 31.2                                                                      |
| 3KP54A          | 54.00                                          | 60.00             | 69.00  | 1           | 5                                                           | 87.1                                                                             | 34.4                                                                      |
| 3KP58           | 58.00                                          | 64.40             | 81.60  | 1           | 5                                                           | 103.0                                                                            | 29.2                                                                      |
| 3KP58A          | 58.00                                          | 64.40             | 74.10  | 1           | 5                                                           | 93.6                                                                             | 32.0                                                                      |
| 3KP60           | 60.00                                          | 66.70             | 84.50  | 1           | 5                                                           | 107.0                                                                            | 28.0                                                                      |
| 3KP60A          | 60.00                                          | 66.70             | 76.70  | 1           | 5                                                           | 96.8                                                                             | 31.0                                                                      |
| 3KP64           | 64.00                                          | 71.10             | 90.10  | 1           | 5                                                           | 114.0                                                                            | 26.4                                                                      |
| 3KP64A          | 64.00                                          | 71.10             | 81.80  | 1           | 5                                                           | 103.0                                                                            | 29.2                                                                      |
| 3KP70           | 70.00                                          | 77.80             | 98.60  | 1           | 5                                                           | 125.0                                                                            | 24.0                                                                      |
| 3KP70A          | 70.00                                          | 77.80             | 89.50  | 1           | 5                                                           | 113.0                                                                            | 26.6                                                                      |
| 3KP75           | 75.00                                          | 83.30             | 105.70 | 1           | 5                                                           | 134.0                                                                            | 22.4                                                                      |
| 3KP75A          | 75.00                                          | 83.30             | 98.80  | 1           | 5                                                           | 121.0                                                                            | 24.8                                                                      |
| 3KP78           | 78.00                                          | 86.70             | 109.80 | 1           | 5                                                           | 139.0                                                                            | 21.6                                                                      |
| 3KP78A          | 78.00                                          | 86.70             | 99.70  | 1           | 5                                                           | 126.0                                                                            | 22.8                                                                      |
| 3KP85           | 85.00                                          | 94.40             | 119.20 | 1           | 5                                                           | 151.0                                                                            | 19.8                                                                      |
| 3KP85A          | 85.00                                          | 94.40             | 108.20 | 1           | 5                                                           | 137.0                                                                            | 20.8                                                                      |
| 3KP90           | 90.00                                          | 100.00            | 126.50 | 1           | 5                                                           | 160.0                                                                            | 18.8                                                                      |
| 3KP90A          | 90.00                                          | 100.00            | 115.50 | 1           | 5                                                           | 146.0                                                                            | 20.6                                                                      |
| 3KP100          | 100.00                                         | 111.00            | 141.00 | 1           | 5                                                           | 179.0                                                                            | 16.6                                                                      |
| 3KP100A         | 100.00                                         | 111.00            | 128.00 | 1           | 5                                                           | 162.0                                                                            | 18.6                                                                      |
| 3KP110          | 110.00                                         | 122.00            | 154.50 | 1           | 5                                                           | 196.0                                                                            | 15.4                                                                      |
| 3KP110A         | 110.00                                         | 122.00            | 140.50 | 1           | 5                                                           | 177.0                                                                            | 16.8                                                                      |
| 3KP120          | 120.00                                         | 133.00            | 169.00 | 1           | 5                                                           | 214.0                                                                            | 14.0                                                                      |
| 3KP120A         | 120.00                                         | 133.00            | 153.00 | 1           | 5                                                           | 193.0                                                                            | 15.6                                                                      |

Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 3000 Watt Specifications - 3KP Series Electrical Characteristics - (Continued)

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |        |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------------------------------|-------------------|--------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                                                | Vbr (Volts)       |        | @It<br>(mA) |                                                       |                                                                            |                                                                     |
|                 |                                                | Min               | Max    |             |                                                       |                                                                            |                                                                     |
| 3KP130          | 130.00                                         | 144.00            | 182.50 | 1           | 5                                                     | 231.0                                                                      | 13.0                                                                |
| 3KP130A         | 130.00                                         | 144.00            | 165.50 | 1           | 5                                                     | 209.0                                                                      | 14.4                                                                |
| 3KP150          | 150.00                                         | 167.00            | 211.50 | 1           | 5                                                     | 268.0                                                                      | 11.2                                                                |
| 3KP150A         | 150.00                                         | 167.00            | 192.50 | 1           | 5                                                     | 243.0                                                                      | 12.4                                                                |
| 3KP160          | 160.00                                         | 178.00            | 226.00 | 1           | 5                                                     | 287.0                                                                      | 10.4                                                                |
| 3KP160A         | 160.00                                         | 178.00            | 205.00 | 1           | 5                                                     | 259.0                                                                      | 11.6                                                                |
| 3KP170          | 170.00                                         | 189.00            | 239.50 | 1           | 5                                                     | 304.0                                                                      | 9.8                                                                 |
| 3KP170A         | 170.00                                         | 189.00            | 217.50 | 1           | 5                                                     | 275.0                                                                      | 11.0                                                                |

Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 3000 Watt - 3KP Series Features

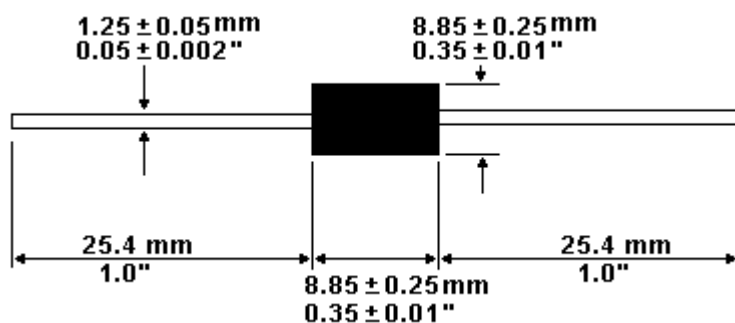
### 3KP Series Features

- 3000 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 800 pieces)
- Each device 100% surge tested

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 3000W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 8W
- Operating and storage temperatures..... -55°C to + 175°C
- UL497B, File # E135015

### Mechanical Dimensions



**TVS Diodes - 5000 Watt Specifications - 5KP Series Electrical Characteristics**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |      |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) | Temperature<br>Coefficient<br>of Vbr<br>(mV/°C) |
|-----------------|------------------------------------------------|-------------------|------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------|
|                 |                                                | Vbr (Volts)       |      | @It<br>(mA) |                                                       |                                                                            |                                                                     |                                                 |
|                 |                                                | Min               | Max  |             |                                                       |                                                                            |                                                                     |                                                 |
| %5KP5.0         | 5.0                                            | 6.40              | 7.30 | 50          | 5000                                                  | 9.6                                                                        | 520.0                                                               | 4.0                                             |
| %5KP5.0A        | 5.0                                            | 6.40              | 7.00 | 50          | 5000                                                  | 9.2                                                                        | 543.0                                                               | 4.0                                             |
| %5KP6.0         | 6.0                                            | 6.67              | 8.15 | 50          | 5000                                                  | 11.4                                                                       | 439.0                                                               | 4.0                                             |
| %5KP6.0A        | 6.0                                            | 6.67              | 7.37 | 50          | 5000                                                  | 10.3                                                                       | 485.0                                                               | 4.0                                             |
| 5KP6.5          | 6.5                                            | 7.22              | 8.82 | 50          | 2000                                                  | 12.3                                                                       | 407.0                                                               | 4.0                                             |
| 5KP6.5A         | 6.5                                            | 7.22              | 7.98 | 50          | 2000                                                  | 11.2                                                                       | 447.0                                                               | 4.0                                             |
| 5KP7.0          | 7.0                                            | 7.78              | 9.51 | 50          | 1000                                                  | 13.3                                                                       | 378.0                                                               | 5.0                                             |
| 5KP7.0A         | 7.0                                            | 7.78              | 8.60 | 50          | 1000                                                  | 12.0                                                                       | 417.0                                                               | 5.0                                             |
| 5KP7.5          | 7.5                                            | 8.33              | 10.2 | 5.0         | 250                                                   | 14.3                                                                       | 350.0                                                               | 6.0                                             |
| 5KP7.5A         | 7.5                                            | 8.33              | 9.21 | 5.0         | 250                                                   | 12.9                                                                       | 388.0                                                               | 6.0                                             |
| 5KP8.0          | 8.0                                            | 8.89              | 10.9 | 5.0         | 150                                                   | 15.0                                                                       | 333.0                                                               | 6.0                                             |
| 5KP8.0A         | 8.0                                            | 8.89              | 9.83 | 5.0         | 150                                                   | 13.6                                                                       | 367.0                                                               | 6.0                                             |
| 5KP8.5          | 8.5                                            | 9.44              | 11.5 | 5.0         | 50                                                    | 15.9                                                                       | 314.0                                                               | 7.0                                             |
| 5KP8.5A         | 8.5                                            | 9.44              | 10.4 | 5.0         | 50                                                    | 14.4                                                                       | 347.0                                                               | 7.0                                             |
| 5KP9.0          | 9.0                                            | 10.0              | 12.2 | 5.0         | 20                                                    | 16.9                                                                       | 295.0                                                               | 8.0                                             |
| 5KP9.0A         | 9.0                                            | 10.0              | 11.1 | 5.0         | 20                                                    | 15.4                                                                       | 325.0                                                               | 8.0                                             |
| 5KP10           | 10.0                                           | 11.1              | 13.6 | 5.0         | 15                                                    | 18.8                                                                       | 266.0                                                               | 9.0                                             |
| 5KP10A          | 10.0                                           | 11.1              | 12.3 | 5.0         | 15                                                    | 17.0                                                                       | 294.0                                                               | 9.0                                             |
| 5KP11           | 11.0                                           | 12.2              | 14.9 | 5.0         | 10                                                    | 20.1                                                                       | 249.0                                                               | 10.0                                            |
| 5KP11A          | 11.0                                           | 12.2              | 13.5 | 5.0         | 10                                                    | 18.2                                                                       | 274.0                                                               | 10.0                                            |
| 5KP12           | 12.0                                           | 13.3              | 16.3 | 5.0         | 10                                                    | 22.0                                                                       | 227.0                                                               | 11.0                                            |
| 5KP12A          | 12.0                                           | 13.3              | 14.7 | 5.0         | 10                                                    | 19.9                                                                       | 251.0                                                               | 11.0                                            |
| 5KP13           | 13.0                                           | 14.4              | 17.6 | 5.0         | 10                                                    | 23.8                                                                       | 210.0                                                               | 12.0                                            |
| 5KP13A          | 13.0                                           | 14.4              | 15.9 | 5.0         | 10                                                    | 21.5                                                                       | 232.0                                                               | 12.0                                            |
| 5KP14           | 14.0                                           | 15.6              | 19.1 | 5.0         | 10                                                    | 25.8                                                                       | 194.0                                                               | 13.0                                            |
| 5KP14A          | 14.0                                           | 15.6              | 17.2 | 5.0         | 10                                                    | 23.2                                                                       | 215.0                                                               | 13.0                                            |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

% = Only available in Uni-Polar.

**TVS Diodes - 5000 Watt Specifications - 5KP Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |      |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) | Temperature<br>Coefficient<br>of Vbr<br>(mV/°C) |
|-----------------|------------------------------------------------|-------------------|------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------|
|                 |                                                | Vbr (Volts)       |      | @It<br>(mA) |                                                       |                                                                            |                                                                     |                                                 |
|                 |                                                | Min               | Max  |             |                                                       |                                                                            |                                                                     |                                                 |
| 5KP15           | 15.0                                           | 16.7              | 20.4 | 5.0         | 10                                                    | 26.9                                                                       | 188.0                                                               | 15.0                                            |
| 5KP15A          | 15.0                                           | 16.7              | 18.5 | 5.0         | 10                                                    | 24.4                                                                       | 206.0                                                               | 15.0                                            |
| 5KP16           | 16.0                                           | 17.8              | 21.8 | 5.0         | 10                                                    | 28.8                                                                       | 176.0                                                               | 18.0                                            |
| 5KP16A          | 16.0                                           | 17.8              | 19.7 | 5.0         | 10                                                    | 26.0                                                                       | 192.0                                                               | 16.0                                            |
| 5KP17           | 17.0                                           | 18.9              | 23.1 | 5.0         | 10                                                    | 30.5                                                                       | 164.0                                                               | 19.0                                            |
| 5KP17A          | 17.0                                           | 18.9              | 20.9 | 5.0         | 10                                                    | 27.6                                                                       | 181.0                                                               | 18.0                                            |
| 5KP18           | 18.0                                           | 20.0              | 24.4 | 5.0         | 10                                                    | 32.2                                                                       | 155.0                                                               | 20.0                                            |
| 5KP18A          | 18.0                                           | 20.0              | 22.1 | 5.0         | 10                                                    | 29.2                                                                       | 172.0                                                               | 19.0                                            |
| 5KP20           | 20.0                                           | 22.2              | 27.1 | 5.0         | 10                                                    | 35.8                                                                       | 139.0                                                               | 24.0                                            |
| 5KP20A          | 20.0                                           | 22.2              | 24.5 | 5.0         | 10                                                    | 32.4                                                                       | 154.0                                                               | 22.0                                            |
| 5KP22           | 22.0                                           | 24.4              | 29.8 | 5.0         | 10                                                    | 39.4                                                                       | 127.0                                                               | 27.0                                            |
| 5KP22A          | 22.0                                           | 24.4              | 26.9 | 5.0         | 10                                                    | 35.5                                                                       | 141.0                                                               | 24.0                                            |
| 5KP24           | 24.0                                           | 26.7              | 32.6 | 5.0         | 10                                                    | 43.0                                                                       | 116.0                                                               | 30.0                                            |
| 5KP24A          | 24.0                                           | 26.7              | 29.5 | 5.0         | 10                                                    | 38.9                                                                       | 128.0                                                               | 27.0                                            |
| 5KP26           | 26.0                                           | 28.9              | 35.3 | 5.0         | 10                                                    | 46.6                                                                       | 107.0                                                               | 33.0                                            |
| 5KP26A          | 26.0                                           | 28.9              | 31.9 | 5.0         | 10                                                    | 42.1                                                                       | 119.0                                                               | 29.0                                            |
| 5KP28           | 28.0                                           | 31.1              | 39.0 | 5.0         | 10                                                    | 50.1                                                                       | 99.0                                                                | 34.0                                            |
| 5KP28A          | 28.0                                           | 31.1              | 34.4 | 5.0         | 10                                                    | 45.5                                                                       | 110.0                                                               | 30.0                                            |
| 5KP30           | 30.0                                           | 33.3              | 40.7 | 5.0         | 10                                                    | 53.5                                                                       | 93.0                                                                | 38.0                                            |
| 5KP30A          | 30.0                                           | 33.3              | 36.8 | 5.0         | 10                                                    | 48.4                                                                       | 103.0                                                               | 35.0                                            |
| 5KP33           | 33.0                                           | 36.7              | 44.9 | 5.0         | 10                                                    | 59.0                                                                       | 85.0                                                                | 41.0                                            |
| 5KP33A          | 33.0                                           | 36.7              | 40.6 | 5.0         | 10                                                    | 53.3                                                                       | 94.0                                                                | 38.0                                            |
| 5KP36           | 36.0                                           | 40.0              | 48.9 | 5.0         | 10                                                    | 64.3                                                                       | 78.0                                                                | 45.0                                            |
| 5KP36A          | 36.0                                           | 40.0              | 44.2 | 5.0         | 10                                                    | 58.1                                                                       | 86.0                                                                | 40.0                                            |
| 5KP40           | 40.0                                           | 44.4              | 54.3 | 5.0         | 10                                                    | 71.4                                                                       | 70.0                                                                | 50.0                                            |
| 5KP40A          | 40.0                                           | 44.4              | 49.1 | 5.0         | 10                                                    | 64.5                                                                       | 78.0                                                                | 45.0                                            |

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+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 5000 Watt Specifications - 5KP Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |       |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>( $\mu$ A) | 10/1000 $\mu$ s<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000 $\mu$ s<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) | Temperature<br>Coefficient<br>of Vbr<br>(mV/°C) |
|-----------------|------------------------------------------------|-------------------|-------|-------------|-------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------|
|                 |                                                | Vbr (Volts)       |       | @It<br>(mA) |                                                             |                                                                                  |                                                                           |                                                 |
| 5KP43           | 43.0                                           | 47.8              | 58.4  | 5.0         | 10                                                          | 76.7                                                                             | 65.0                                                                      | 54.0                                            |
| 5KP43A          | 43.0                                           | 47.8              | 52.8  | 5.0         | 10                                                          | 69.4                                                                             | 72.0                                                                      | 49.0                                            |
| 5KP45           | 45.0                                           | 50.0              | 61.1  | 5.0         | 10                                                          | 80.3                                                                             | 62.0                                                                      | 57.0                                            |
| 5KP45A          | 45.0                                           | 50.0              | 55.3  | 5.0         | 10                                                          | 72.7                                                                             | 69.0                                                                      | 51.0                                            |
| 5KP48           | 48.0                                           | 53.3              | 65.2  | 5.0         | 10                                                          | 85.5                                                                             | 58.0                                                                      | 62.0                                            |
| 5KP48A          | 48.0                                           | 53.3              | 58.9  | 5.0         | 10                                                          | 77.4                                                                             | 65.0                                                                      | 55.0                                            |
| 5KP51           | 51.0                                           | 56.7              | 69.3  | 5.0         | 10                                                          | 91.1                                                                             | 55.0                                                                      | 65.0                                            |
| 5KP51A          | 51.0                                           | 56.7              | 62.7  | 5.0         | 10                                                          | 82.4                                                                             | 61.0                                                                      | 60.0                                            |
| 5KP54           | 54.0                                           | 60.0              | 73.3  | 5.0         | 10                                                          | 96.3                                                                             | 52.0                                                                      | 70.0                                            |
| 5KP54A          | 54.0                                           | 60.0              | 66.3  | 5.0         | 10                                                          | 87.1                                                                             | 57.0                                                                      | 64.0                                            |
| 5KP58           | 58.0                                           | 64.4              | 78.7  | 5.0         | 10                                                          | 103.0                                                                            | 49.0                                                                      | 77.0                                            |
| 5KP58A          | 58.0                                           | 64.4              | 71.2  | 5.0         | 10                                                          | 93.6                                                                             | 53.0                                                                      | 69.0                                            |
| 5KP60           | 60.0                                           | 66.7              | 81.5  | 5.0         | 10                                                          | 107.0                                                                            | 47.0                                                                      | 79.0                                            |
| 5KP60A          | 60.0                                           | 66.7              | 73.7  | 5.0         | 10                                                          | 96.8                                                                             | 52.0                                                                      | 70.0                                            |
| 5KP64           | 64.0                                           | 71.1              | 96.9  | 5.0         | 10                                                          | 114.0                                                                            | 44.0                                                                      | 85.0                                            |
| 5KP64A          | 64.0                                           | 71.1              | 78.6  | 5.0         | 10                                                          | 103.0                                                                            | 49.0                                                                      | 75.0                                            |
| 5KP70           | 70.0                                           | 77.6              | 95.1  | 5.0         | 10                                                          | 125.0                                                                            | 40.0                                                                      | 93.0                                            |
| 5KP70A          | 70.0                                           | 77.6              | 86.0  | 5.0         | 10                                                          | 113.0                                                                            | 44.0                                                                      | 84.0                                            |
| 5KP75           | 75.0                                           | 83.3              | 102.0 | 5.0         | 10                                                          | 134.0                                                                            | 37.0                                                                      | 100.0                                           |
| 5KP75A          | 75.0                                           | 83.3              | 92.1  | 5.0         | 10                                                          | 121.0                                                                            | 41.0                                                                      | 90.0                                            |
| 5KP78           | 78.0                                           | 86.7              | 106.0 | 5.0         | 10                                                          | 139.0                                                                            | 36.0                                                                      | 104.0                                           |
| 5KP78A          | 78.0                                           | 86.7              | 95.8  | 5.0         | 10                                                          | 126.0                                                                            | 40.0                                                                      | 94.0                                            |
| 5KP85           | 85.0                                           | 94.4              | 115.0 | 5.0         | 10                                                          | 151.0                                                                            | 33.0                                                                      | 113.0                                           |
| 5KP85A          | 85.0                                           | 94.4              | 104.0 | 5.0         | 10                                                          | 137.0                                                                            | 36.0                                                                      | 102.0                                           |
| 5KP90           | 90.0                                           | 100.0             | 122.0 | 5.0         | 10                                                          | 160.0                                                                            | 31.0                                                                      | 120.0                                           |
| 5KP90A          | 90.0                                           | 100.0             | 111.0 | 5.0         | 10                                                          | 146.0                                                                            | 34.0                                                                      | 109.0                                           |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 5000 Watt Specifications - 5KP Series Electrical Characteristics - (Continued)

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage |       |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) | Temperature<br>Coefficient<br>of Vbr<br>(mV/°C) |
|-----------------|------------------------------------------------|-------------------|-------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------|
|                 |                                                | Vbr (Volts)       |       | @It<br>(mA) |                                                       |                                                                            |                                                                     |                                                 |
|                 |                                                | Min               | Max   |             |                                                       |                                                                            |                                                                     |                                                 |
| 5KP100          | 100.0                                          | 111.0             | 136.0 | 5.0         | 10                                                    | 179.0                                                                      | 28.0                                                                | 134.0                                           |
| 5KP110          | 110.0                                          | 122.0             | 149.0 | 5.0         | 10                                                    | 196.0                                                                      | 26.0                                                                | 147.0                                           |
| 5KP120          | 120.0                                          | 133.0             | 163.0 | 5.0         | 10                                                    | 215.0                                                                      | 23.0                                                                | 158.0                                           |
| 5KP150          | 150.0                                          | 166.0             | 204.0 | 5.0         | 10                                                    | 268.0                                                                      | 18.5                                                                | 200.0                                           |
| 5KP180          | 180.0                                          | 200.0             | 244.0 | 5.0         | 10                                                    | 320.0                                                                      | 15.0                                                                | 240.0                                           |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm  $\leq$  10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 5000 Watt - 5KP Series Features

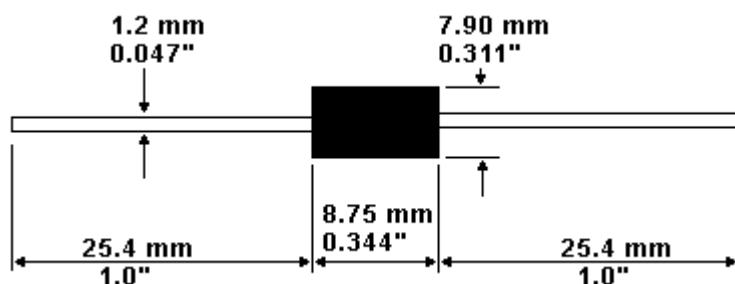
### 5KP Series Features

- 5000 watt peak pulse power dissipation
- Available in voltages from 5.0V to 180V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Available in bulk or tape and reel (Reel quantity = 1,000 pieces)
- Each device 100% surge tested

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 5000W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 8W
- Operating and storage temperatures..... -55°C to + 175°C

### Mechanical Dimensions



**TVS Diodes - 15000 Watt Specifications - 15KP Series Electrical Characteristics**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                                     | Vbr (Volts)       | @It  |                                               |                                                                 |                                                        |
|                 | (Volts)                             | Min               | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| 15KP17          | 17                                  | 18.9              | 50   | 5000                                          | 32.2                                                            | 464.0                                                  |
| 15KP17A         | 17                                  | 18.9              | 50   | 5000                                          | 29.3                                                            | 512.0                                                  |
| 15KP18          | 18                                  | 20.0              | 50   | 5000                                          | 34.2                                                            | 439.0                                                  |
| 15KP18A         | 18                                  | 20.0              | 50   | 5000                                          | 30.9                                                            | 485.0                                                  |
| 15KP20          | 20                                  | 22.2              | 20   | 1500                                          | 37.9                                                            | 396.0                                                  |
| 15KP20A         | 20                                  | 22.2              | 20   | 1500                                          | 34.3                                                            | 437.0                                                  |
| 15KP22          | 22                                  | 24.4              | 10   | 500                                           | 41.1                                                            | 365.0                                                  |
| 15KP22A         | 22                                  | 24.4              | 10   | 500                                           | 37.1                                                            | 404.0                                                  |
| 15KP24          | 24                                  | 26.7              | 5    | 150                                           | 45.0                                                            | 333.0                                                  |
| 15KP24A         | 24                                  | 26.7              | 5    | 150                                           | 40.7                                                            | 369.0                                                  |
| 15KP26          | 26                                  | 28.9              | 5    | 50                                            | 48.7                                                            | 308.0                                                  |
| 15KP26A         | 26                                  | 28.9              | 5    | 50                                            | 44.0                                                            | 341.0                                                  |
| 15KP28          | 28                                  | 31.1              | 5    | 25                                            | 52.4                                                            | 286.0                                                  |
| 15KP28A         | 28                                  | 31.1              | 5    | 25                                            | 47.5                                                            | 316.0                                                  |
| 15KP30          | 30                                  | 33.3              | 5    | 15                                            | 56.2                                                            | 267.0                                                  |
| 15KP30A         | 30                                  | 33.3              | 5    | 15                                            | 50.7                                                            | 296.0                                                  |
| 15KP33          | 33                                  | 36.7              | 5    | 10                                            | 60.6                                                            | 248.0                                                  |
| 15KP33A         | 33                                  | 36.7              | 5    | 10                                            | 54.8                                                            | 274.0                                                  |
| 15KP36          | 36                                  | 40.0              | 5    | 10                                            | 66.0                                                            | 227.0                                                  |
| 15KP36A         | 36                                  | 40.0              | 5    | 10                                            | 59.7                                                            | 251.0                                                  |
| 15KP40          | 40                                  | 44.4              | 5    | 10                                            | 72.8                                                            | 206.0                                                  |
| 15KP40A         | 40                                  | 44.4              | 5    | 10                                            | 65.8                                                            | 228.0                                                  |
| 15KP43          | 43                                  | 47.8              | 5    | 10                                            | 77.1                                                            | 195.0                                                  |
| 15KP43A         | 43                                  | 47.8              | 5    | 10                                            | 69.7                                                            | 215.0                                                  |
| 15KP45          | 45                                  | 50.0              | 5    | 10                                            | 80.7                                                            | 186.0                                                  |
| 15KP45A         | 45                                  | 50.0              | 5    | 10                                            | 73.0                                                            | 205.0                                                  |
| 15KP48          | 48                                  | 53.3              | 5    | 10                                            | 85.9                                                            | 175.0                                                  |
| 15KP48A         | 48                                  | 53.3              | 5    | 10                                            | 77.7                                                            | 193.0                                                  |

\* = Add "C" or "CA" suffix for bidirectional device types.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - 15000 Watt Specifications - 15KP Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                                                | Vbr (Volts)<br>Min | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| 15KP51          | 51                                             | 56.7               | 5           | 10                                                    | 91.5                                                                       | 164.0                                                               |
| 15KP51A         | 51                                             | 56.7               | 5           | 10                                                    | 82.8                                                                       | 181.0                                                               |
| 15KP54          | 54                                             | 60.0               | 5           | 10                                                    | 96.8                                                                       | 155.0                                                               |
| 15KP54A         | 54                                             | 60.0               | 5           | 10                                                    | 87.5                                                                       | 171.0                                                               |
| 15KP58          | 58                                             | 64.4               | 5           | 10                                                    | 104.0                                                                      | 144.0                                                               |
| 15KP58A         | 58                                             | 64.4               | 5           | 10                                                    | 94.0                                                                       | 160.0                                                               |
| 15KP60          | 60                                             | 66.7               | 5           | 10                                                    | 107.0                                                                      | 140.0                                                               |
| 15KP60A         | 60                                             | 66.7               | 5           | 10                                                    | 97.3                                                                       | 154.0                                                               |
| 15KP64          | 64                                             | 71.1               | 5           | 10                                                    | 115.0                                                                      | 130.0                                                               |
| 15KP64A         | 64                                             | 71.1               | 5           | 10                                                    | 104.0                                                                      | 144.0                                                               |
| 15KP70          | 70                                             | 77.8               | 5           | 10                                                    | 126.0                                                                      | 119.0                                                               |
| 15KP70A         | 70                                             | 77.8               | 5           | 10                                                    | 114.0                                                                      | 132.0                                                               |
| 15KP75          | 75                                             | 83.3               | 5           | 10                                                    | 135.0                                                                      | 111.0                                                               |
| 15KP75A         | 75                                             | 83.3               | 5           | 10                                                    | 122.0                                                                      | 123.0                                                               |
| 15KP78          | 78                                             | 86.7               | 5           | 10                                                    | 140.0                                                                      | 107.0                                                               |
| 15KP78A         | 78                                             | 86.7               | 5           | 10                                                    | 126.0                                                                      | 119.0                                                               |
| 15KP85          | 85                                             | 94.4               | 5           | 10                                                    | 152.0                                                                      | 99.0                                                                |
| 15KP85A         | 85                                             | 94.4               | 5           | 10                                                    | 137.0                                                                      | 109.0                                                               |
| 15KP90          | 90                                             | 100.0              | 5           | 10                                                    | 160.0                                                                      | 94.0                                                                |
| 15KP90A         | 90                                             | 100.0              | 5           | 10                                                    | 146.0                                                                      | 103.0                                                               |
| 15KP100         | 100                                            | 111.0              | 5           | 10                                                    | 179.0                                                                      | 84.0                                                                |
| 15KP110         | 110                                            | 122.0              | 5           | 10                                                    | 196.0                                                                      | 77.0                                                                |
| 15KP120         | 120                                            | 133.0              | 5           | 10                                                    | 214.0                                                                      | 70.0                                                                |
| 15KP130         | 130                                            | 144.0              | 5           | 10                                                    | 231.0                                                                      | 65.0                                                                |

\* = Add "C" or "CA" suffix for bidirectional device types.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 15000 Watt Specifications - 15KP Series Electrical Characteristics - (Continued)

| Part<br>Number* | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                                                | Vbr (Volts)<br>Min | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| 15KP150         | 150                                            | 167.0              | 5           | 10                                                    | 268.0                                                                      | 56.0                                                                |
| 15KP160         | 160                                            | 178.0              | 5           | 10                                                    | 287.0                                                                      | 52.0                                                                |
| 15KP170         | 170                                            | 189.0              | 5           | 10                                                    | 304.0                                                                      | 49.0                                                                |
| 15KP180         | 180                                            | 200.0              | 5           | 10                                                    | 321.0                                                                      | 47.0                                                                |
| 15KP200         | 200                                            | 222.0              | 5           | 10                                                    | 356.0                                                                      | 42.0                                                                |
| 15KP220         | 220                                            | 245.0              | 5           | 10                                                    | 393.0                                                                      | 38.0                                                                |
| 15KP240         | 240                                            | 267.0              | 5           | 10                                                    | 428.0                                                                      | 35.0                                                                |
| 15KP260         | 260                                            | 289.0              | 5           | 10                                                    | 464.0                                                                      | 32.0                                                                |
| 15KP280         | 280                                            | 311.0              | 5           | 10                                                    | 500.0                                                                      | 30.0                                                                |

\* = Add "C" or "CA" suffix for bidirectional device types.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - 15000 Watt - 15KP Series Features

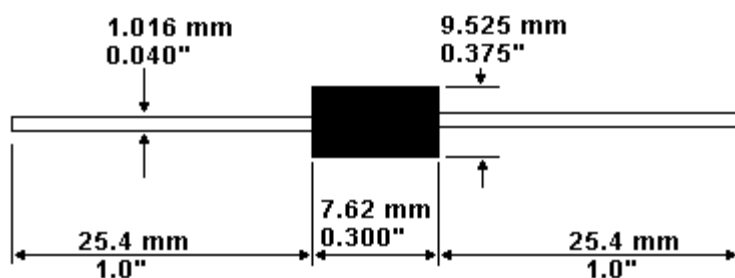
### 15KP Series Features

- 15000 watt peak pulse power dissipation
- Available in voltages from 17V to 280V
- Unidirectional and Bidirectional
- Glass passivated junction
- Low clamping factor
- Each device 100% surge tested
- Available in bulk or tape and reel (Reel quantity = 1,000 pieces)

### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 15000W
- Steady state power dissipation at lead temperature = 75°C (Lead length 3/8" min.)..... 5W
- Operating and storage temperatures..... -65°C to + 175°C

### Mechanical Dimensions



**TVS Diodes - Surface Mount - 600 Watt Specifications - P6SMBJ Series Electrical Characteristics**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                        |                       |                                     | Vbr<br>Min        | @It  |                                               |                                                                 |                                                        |
|                 |                        |                       | (Volts)                             | (Volts)           | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| P6SMBJ5.0       | KD                     | AD                    | 5.0                                 | 6.40              | 10   | 800.0                                         | 9.6                                                             | 62.5                                                   |
| P6SMBJ5.0A      | KE                     | AE                    | 5.0                                 | 6.40              | 10   | 800.0                                         | 9.2                                                             | 65.2                                                   |
| P6SMBJ6.0       | KF                     | AF                    | 6.0                                 | 6.67              | 10   | 800.0                                         | 11.4                                                            | 52.6                                                   |
| P6SMBJ6.0A      | KG                     | AG                    | 6.0                                 | 6.67              | 10   | 800.0                                         | 10.3                                                            | 58.3                                                   |
| P6SMBJ6.5       | KH                     | AH                    | 6.5                                 | 7.22              | 10   | 500.0                                         | 12.3                                                            | 48.7                                                   |
| P6SMBJ6.5A      | KK                     | AK                    | 6.5                                 | 7.22              | 10   | 500.0                                         | 11.2                                                            | 53.6                                                   |
| P6SMBJ7.0       | KL                     | AL                    | 7.0                                 | 7.78              | 10   | 200.0                                         | 13.3                                                            | 45.1                                                   |
| P6SMBJ7.0A      | KM                     | AM                    | 7.0                                 | 7.78              | 10   | 200.0                                         | 12.0                                                            | 50.0                                                   |
| P6SMBJ7.5       | KN                     | AN                    | 7.5                                 | 8.33              | 1    | 100.0                                         | 14.3                                                            | 42.0                                                   |
| P6SMBJ7.5A      | KP                     | AP                    | 7.5                                 | 8.33              | 1    | 100.0                                         | 12.9                                                            | 46.5                                                   |
| P6SMBJ8.0       | KQ                     | AQ                    | 8.0                                 | 8.89              | 1    | 50.0                                          | 15.0                                                            | 40.0                                                   |
| P6SMBJ8.0A      | KR                     | AR                    | 8.0                                 | 8.89              | 1    | 50.0                                          | 13.6                                                            | 44.1                                                   |
| P6SMBJ8.5       | KS                     | AS                    | 8.5                                 | 9.44              | 1    | 20.0                                          | 15.9                                                            | 37.7                                                   |
| P6SMBJ8.5A      | KT                     | AT                    | 8.5                                 | 9.44              | 1    | 20.0                                          | 14.4                                                            | 41.7                                                   |
| P6SMBJ9.0       | KU                     | AU                    | 9.0                                 | 10.00             | 1    | 10.0                                          | 16.9                                                            | 35.5                                                   |
| P6SMBJ9.0A      | KV                     | AV                    | 9.0                                 | 10.00             | 1    | 10.0                                          | 15.4                                                            | 39.0                                                   |
| P6SMBJ10        | KW                     | AW                    | 10.0                                | 11.10             | 1    | 5.0                                           | 18.8                                                            | 31.9                                                   |
| P6SMBJ10A       | KX                     | AX                    | 10.0                                | 11.10             | 1    | 5.0                                           | 17.0                                                            | 35.3                                                   |
| P6SMBJ11        | KY                     | AY                    | 11.0                                | 12.20             | 1    | 5.0                                           | 20.1                                                            | 29.9                                                   |
| P6SMBJ11A       | KZ                     | AZ                    | 11.0                                | 12.20             | 1    | 5.0                                           | 18.2                                                            | 33.0                                                   |
| P6SMBJ12        | LD                     | BD                    | 12.0                                | 13.30             | 1    | 5.0                                           | 22.0                                                            | 27.3                                                   |
| P6SMBJ12A       | LE                     | BE                    | 12.0                                | 13.30             | 1    | 5.0                                           | 19.9                                                            | 30.2                                                   |
| P6SMBJ13        | LF                     | BF                    | 13.0                                | 14.40             | 1    | 5.0                                           | 23.8                                                            | 25.2                                                   |
| P6SMBJ13A       | LG                     | BG                    | 13.0                                | 14.40             | 1    | 5.0                                           | 21.5                                                            | 27.9                                                   |
| P6SMBJ14        | LH                     | BH                    | 14.0                                | 15.60             | 1    | 5.0                                           | 25.8                                                            | 23.3                                                   |
| P6SMBJ14A       | LK                     | BK                    | 14.0                                | 15.60             | 1    | 5.0                                           | 23.2                                                            | 25.8                                                   |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 600 Watt Specifications - P6SMBJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage     |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|-----------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr<br>Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| P6SMBJ15        | LL                     | BL                    | 15.0                                           | 16.70                 | 1           | 5.0                                                   | 26.9                                                                       | 22.3                                                                |
| P6SMBJ15A       | LM                     | BM                    | 15.0                                           | 16.70                 | 1           | 5.0                                                   | 24.4                                                                       | 24.0                                                                |
| P6SMBJ16        | LN                     | BN                    | 16.0                                           | 17.80                 | 1           | 5.0                                                   | 28.8                                                                       | 20.8                                                                |
| P6SMBJ16A       | LP                     | BP                    | 16.0                                           | 17.80                 | 1           | 5.0                                                   | 26.0                                                                       | 23.1                                                                |
| P6SMBJ17        | LQ                     | BQ                    | 17.0                                           | 18.90                 | 1           | 5.0                                                   | 30.5                                                                       | 19.7                                                                |
| P6SMBJ17A       | LR                     | BR                    | 17.0                                           | 18.90                 | 1           | 5.0                                                   | 27.6                                                                       | 21.7                                                                |
| P6SMBJ18        | LS                     | BS                    | 18.0                                           | 20.00                 | 1           | 5.0                                                   | 32.2                                                                       | 18.6                                                                |
| P6SMBJ18A       | LT                     | BT                    | 18.0                                           | 20.00                 | 1           | 5.0                                                   | 29.2                                                                       | 20.5                                                                |
| P6SMBJ20        | LU                     | BU                    | 20.0                                           | 22.20                 | 1           | 5.0                                                   | 35.8                                                                       | 16.7                                                                |
| P6SMBJ20A       | LV                     | BV                    | 20.0                                           | 22.20                 | 1           | 5.0                                                   | 32.4                                                                       | 18.5                                                                |
| P6SMBJ22        | LW                     | BW                    | 22.0                                           | 24.40                 | 1           | 5.0                                                   | 39.4                                                                       | 15.2                                                                |
| P6SMBJ22A       | LX                     | BX                    | 22.0                                           | 24.40                 | 1           | 5.0                                                   | 35.5                                                                       | 16.9                                                                |
| P6SMBJ24        | LY                     | BY                    | 24.0                                           | 26.70                 | 1           | 5.0                                                   | 43.0                                                                       | 14.0                                                                |
| P6SMBJ24A       | LZ                     | BZ                    | 24.0                                           | 26.70                 | 1           | 5.0                                                   | 38.9                                                                       | 15.4                                                                |
| P6SMBJ26        | MD                     | CD                    | 26.0                                           | 28.90                 | 1           | 5.0                                                   | 46.6                                                                       | 12.4                                                                |
| P6SMBJ26A       | ME                     | CE                    | 26.0                                           | 28.90                 | 1           | 5.0                                                   | 42.1                                                                       | 14.2                                                                |
| P6SMBJ28        | MF                     | CF                    | 28.0                                           | 31.10                 | 1           | 5.0                                                   | 50.0                                                                       | 12.0                                                                |
| P6SMBJ28A       | MG                     | CG                    | 28.0                                           | 31.10                 | 1           | 5.0                                                   | 45.4                                                                       | 13.2                                                                |
| P6SMBJ30        | MH                     | CH                    | 30.0                                           | 33.30                 | 1           | 5.0                                                   | 53.5                                                                       | 11.2                                                                |
| P6SMBJ30A       | MK                     | CK                    | 30.0                                           | 33.30                 | 1           | 5.0                                                   | 46.6                                                                       | 12.4                                                                |
| P6SMBJ33        | ML                     | CL                    | 33.0                                           | 36.70                 | 1           | 5.0                                                   | 59.0                                                                       | 10.2                                                                |
| P6SMBJ33A       | MM                     | CM                    | 33.0                                           | 36.70                 | 1           | 5.0                                                   | 53.3                                                                       | 11.3                                                                |
| P6SMBJ36        | MN                     | CN                    | 36.0                                           | 40.00                 | 1           | 5.0                                                   | 64.3                                                                       | 9.3                                                                 |
| P6SMBJ36A       | MP                     | CP                    | 36.0                                           | 40.00                 | 1           | 5.0                                                   | 58.1                                                                       | 10.3                                                                |
| P6SMBJ40        | MQ                     | CQ                    | 40.0                                           | 44.40                 | 1           | 5.0                                                   | 71.4                                                                       | 8.4                                                                 |
| P6SMBJ40A       | MR                     | CR                    | 40.0                                           | 44.40                 | 1           | 5.0                                                   | 64.5                                                                       | 9.3                                                                 |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 600 Watt Specifications - P6SMBJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage     |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|-----------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr<br>Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| P6SMBJ43        | MS                     | CS                    | 43.0                                           | 47.80                 | 1           | 5.0                                                   | 76.7                                                                       | 7.8                                                                 |
| P6SMBJ43A       | MT                     | CT                    | 43.0                                           | 47.80                 | 1           | 5.0                                                   | 69.4                                                                       | 8.6                                                                 |
| P6SMBJ45        | MU                     | CU                    | 45.0                                           | 50.00                 | 1           | 5.0                                                   | 80.3                                                                       | 7.5                                                                 |
| P6SMBJ45A       | MV                     | CV                    | 45.0                                           | 50.00                 | 1           | 5.0                                                   | 72.7                                                                       | 8.3                                                                 |
| P6SMBJ48        | MW                     | CW                    | 48.0                                           | 53.30                 | 1           | 5.0                                                   | 85.5                                                                       | 7.0                                                                 |
| P6SMBJ48A       | MX                     | CX                    | 48.0                                           | 53.30                 | 1           | 5.0                                                   | 77.4                                                                       | 7.7                                                                 |
| P6SMBJ51        | MY                     | CY                    | 51.0                                           | 56.70                 | 1           | 5.0                                                   | 91.1                                                                       | 6.6                                                                 |
| P6SMBJ51A       | MZ                     | CZ                    | 51.0                                           | 56.70                 | 1           | 5.0                                                   | 82.4                                                                       | 7.3                                                                 |
| P6SMBJ54        | ND                     | DD                    | 54.0                                           | 60.00                 | 1           | 5.0                                                   | 96.3                                                                       | 6.2                                                                 |
| P6SMBJ54A       | NE                     | DE                    | 54.0                                           | 60.00                 | 1           | 5.0                                                   | 87.1                                                                       | 6.9                                                                 |
| P6SMBJ58        | NF                     | DF                    | 58.0                                           | 64.40                 | 1           | 5.0                                                   | 103.0                                                                      | 5.8                                                                 |
| P6SMBJ58A       | NG                     | DG                    | 58.0                                           | 64.40                 | 1           | 5.0                                                   | 93.6                                                                       | 6.4                                                                 |
| P6SMBJ60        | NH                     | DH                    | 60.0                                           | 66.70                 | 1           | 5.0                                                   | 107.0                                                                      | 5.6                                                                 |
| P6SMBJ60A       | NK                     | DK                    | 60.0                                           | 66.70                 | 1           | 5.0                                                   | 96.8                                                                       | 6.2                                                                 |
| P6SMBJ64        | NL                     | DL                    | 64.0                                           | 71.10                 | 1           | 5.0                                                   | 114.0                                                                      | 5.3                                                                 |
| P6SMBJ64A       | NM                     | DM                    | 64.0                                           | 71.10                 | 1           | 5.0                                                   | 103.0                                                                      | 5.8                                                                 |
| P6SMBJ70        | NN                     | DN                    | 70.0                                           | 77.80                 | 1           | 5.0                                                   | 125.0                                                                      | 4.8                                                                 |
| P6SMBJ70A       | NP                     | DP                    | 70.0                                           | 77.80                 | 1           | 5.0                                                   | 113.0                                                                      | 5.3                                                                 |
| P6SMBJ75        | NQ                     | DQ                    | 75.0                                           | 83.30                 | 1           | 5.0                                                   | 134.0                                                                      | 4.5                                                                 |
| P6SMBJ75A       | NR                     | DR                    | 75.0                                           | 83.30                 | 1           | 5.0                                                   | 121.0                                                                      | 4.9                                                                 |
| P6SMBJ78        | NS                     | DS                    | 78.0                                           | 86.70                 | 1           | 5.0                                                   | 139.0                                                                      | 4.3                                                                 |
| P6SMBJ78A       | NT                     | DT                    | 78.0                                           | 86.70                 | 1           | 5.0                                                   | 126.0                                                                      | 4.7                                                                 |
| P6SMBJ85        | NU                     | DU                    | 85.0                                           | 94.40                 | 1           | 5.0                                                   | 151.0                                                                      | 3.9                                                                 |
| P6SMBJ85A       | NV                     | DV                    | 85.0                                           | 94.40                 | 1           | 5.0                                                   | 137.0                                                                      | 4.4                                                                 |
| P6SMBJ90        | NW                     | DW                    | 90.0                                           | 100.00                | 1           | 5.0                                                   | 160.0                                                                      | 3.8                                                                 |
| P6SMBJ90A       | NX                     | DX                    | 90.0                                           | 100.00                | 1           | 5.0                                                   | 146.0                                                                      | 4.1                                                                 |

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**TVS Diodes - Surface Mount - 600 Watt Specifications - P6SMBJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                        |                       |                                     | Vbr<br>Min        | @It  |                                               |                                                                 |                                                        |
|                 |                        |                       | (Volts)                             | (Volts)           | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| P6SMBJ100       | NY                     | DY                    | 100.0                               | 111.00            | 1    | 5.0                                           | 179.0                                                           | 3.4                                                    |
| P6SMBJ100A      | NZ                     | DZ                    | 100.0                               | 111.00            | 1    | 5.0                                           | 162.0                                                           | 3.7                                                    |
| P6SMBJ110       | PD                     | ED                    | 110.0                               | 122.00            | 1    | 5.0                                           | 196.0                                                           | 3.0                                                    |
| P6SMBJ110A      | PE                     | EE                    | 110.0                               | 122.00            | 1    | 5.0                                           | 177.0                                                           | 3.4                                                    |
| P6SMBJ120       | PF                     | EF                    | 120.0                               | 133.00            | 1    | 5.0                                           | 214.0                                                           | 2.8                                                    |
| P6SMBJ120A      | PG                     | EG                    | 120.0                               | 133.00            | 1    | 5.0                                           | 193.0                                                           | 3.1                                                    |
| P6SMBJ130       | PH                     | EH                    | 130.0                               | 144.00            | 1    | 5.0                                           | 231.0                                                           | 2.6                                                    |
| P6SMBJ130A      | PK                     | EK                    | 130.0                               | 144.00            | 1    | 5.0                                           | 209.0                                                           | 2.9                                                    |
| P6SMBJ150       | PL                     | EL                    | 150.0                               | 167.00            | 1    | 5.0                                           | 268.0                                                           | 2.2                                                    |
| P6SMBJ150A      | PM                     | EM                    | 150.0                               | 167.00            | 1    | 5.0                                           | 243.0                                                           | 2.5                                                    |
| P6SMBJ160       | PN                     | EN                    | 160.0                               | 178.00            | 1    | 5.0                                           | 287.0                                                           | 2.1                                                    |
| P6SMBJ160A      | PP                     | EP                    | 160.0                               | 178.00            | 1    | 5.0                                           | 259.0                                                           | 2.3                                                    |
| P6SMBJ170       | PQ                     | EQ                    | 170.0                               | 189.00            | 1    | 5.0                                           | 304.0                                                           | 2.0                                                    |
| P6SMBJ170A      | PR                     | ER                    | 170.0                               | 189.00            | 1    | 5.0                                           | 275.0                                                           | 2.2                                                    |

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# = See General Information for Impulse Current Waveform.

## TVS Diodes - Surface Mount - 600 Watt - P6SMBJ Series Features

### P6SMBJ Series Features

- 600 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and bidirectional
- Glass passivated junction
- Low clamping factor
- Each device 100% surge tested

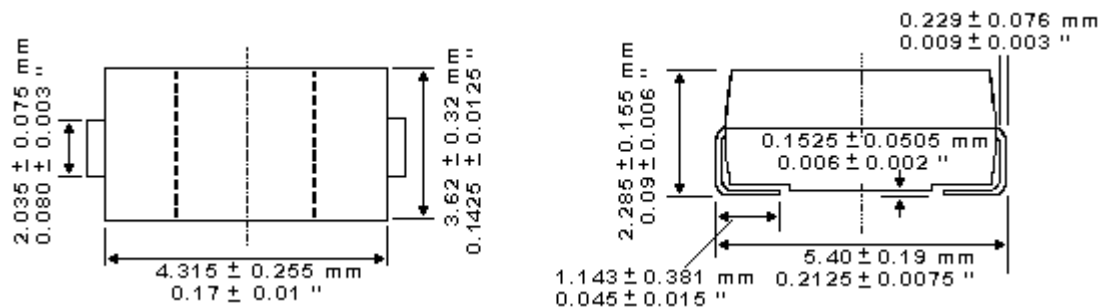
### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 600W
- Steady state power dissipation at 25°C ..... 5W
- Operating and storage temperatures..... -55°C to + 150°C

### Mechanical Characteristics

- DO214AA package
- UL94V-0 Thermoset Epoxy
- Solder plated terminals
- Solderable per MIL-STD-750 Method 2026

### Mechanical Dimensions



**TVS Diodes - Surface Mount - 1500 Watt Specifications - 1.5SMCJ Series Electrical Characteristics**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| 1.5SMCJ5.0      | GDD                    | BDD                   | 5.0                                            | 6.40               | 10          | 1000                                                  | 9.6                                                                        | 156.2                                                               |
| 1.5SMCJ5.0A     | GDE                    | BDE                   | 5.0                                            | 6.40               | 10          | 1000                                                  | 9.2                                                                        | 163.0                                                               |
| 1.5SMCJ6.0      | GDF                    | BDF                   | 6.0                                            | 6.67               | 10          | 1000                                                  | 11.4                                                                       | 131.6                                                               |
| 1.5SMCJ6.0A     | GDG                    | BDG                   | 6.0                                            | 6.67               | 10          | 1000                                                  | 10.3                                                                       | 145.6                                                               |
| 1.5SMCJ6.5      | GDH                    | BDH                   | 6.5                                            | 7.22               | 10          | 500                                                   | 12.3                                                                       | 122.0                                                               |
| 1.5SMCJ6.5A     | GDK                    | BDK                   | 6.5                                            | 7.22               | 10          | 500                                                   | 11.2                                                                       | 133.9                                                               |
| 1.5SMCJ7.0      | GDL                    | BDL                   | 7.0                                            | 7.78               | 10          | 200                                                   | 13.3                                                                       | 112.8                                                               |
| 1.5SMCJ7.0A     | GDM                    | BDM                   | 7.0                                            | 7.78               | 10          | 200                                                   | 12.0                                                                       | 125.0                                                               |
| 1.5SMCJ7.5      | GDN                    | BDN                   | 7.5                                            | 8.33               | 1           | 100                                                   | 14.3                                                                       | 104.9                                                               |
| 1.5SMCJ7.5A     | GDP                    | BDP                   | 7.5                                            | 8.33               | 1           | 100                                                   | 12.9                                                                       | 116.3                                                               |
| 1.5SMCJ8.0      | GDQ                    | BDQ                   | 8.0                                            | 8.89               | 1           | 50                                                    | 15.0                                                                       | 100.0                                                               |
| 1.5SMCJ8.0A     | GDR                    | BDR                   | 8.0                                            | 8.89               | 1           | 50                                                    | 13.6                                                                       | 110.3                                                               |
| 1.5SMCJ8.5      | GDS                    | BDS                   | 8.5                                            | 9.44               | 1           | 25                                                    | 15.9                                                                       | 94.3                                                                |
| 1.5SMCJ8.5A     | GDT                    | BDT                   | 8.5                                            | 9.44               | 1           | 20                                                    | 14.4                                                                       | 104.2                                                               |
| 1.5SMCJ9.0      | GDU                    | BDU                   | 9.0                                            | 10.00              | 1           | 10                                                    | 16.9                                                                       | 88.7                                                                |
| 1.5SMCJ9.0A     | GDV                    | BDV                   | 9.0                                            | 10.00              | 1           | 10                                                    | 15.4                                                                       | 97.4                                                                |
| 1.5SMCJ10       | GDW                    | BDW                   | 10.0                                           | 11.10              | 1           | 5                                                     | 18.8                                                                       | 79.8                                                                |
| 1.5SMCJ10A      | GDX                    | BDX                   | 10.0                                           | 11.10              | 1           | 5                                                     | 17.0                                                                       | 88.2                                                                |
| 1.5SMCJ11       | GDY                    | BDY                   | 11.0                                           | 12.20              | 1           | 5                                                     | 20.1                                                                       | 74.6                                                                |
| 1.5SMCJ11A      | GDZ                    | BDZ                   | 11.0                                           | 12.20              | 1           | 5                                                     | 18.2                                                                       | 82.4                                                                |
| 1.5SMCJ12       | GED                    | BED                   | 12.0                                           | 13.30              | 1           | 5                                                     | 22.0                                                                       | 68.2                                                                |
| 1.5SMCJ12A      | GEE                    | BEE                   | 12.0                                           | 13.30              | 1           | 5                                                     | 19.9                                                                       | 75.3                                                                |
| 1.5SMCJ13       | GEF                    | BEF                   | 13.0                                           | 14.40              | 1           | 5                                                     | 23.8                                                                       | 63.0                                                                |
| 1.5SMCJ13A      | GEG                    | BEG                   | 13.0                                           | 14.40              | 1           | 5                                                     | 21.5                                                                       | 69.7                                                                |
| 1.5SMCJ14       | GEH                    | BEH                   | 14.0                                           | 15.60              | 1           | 5                                                     | 25.8                                                                       | 58.1                                                                |
| 1.5SMCJ14A      | GEK                    | BEK                   | 14.0                                           | 15.60              | 1           | 5                                                     | 23.2                                                                       | 64.7                                                                |

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# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 1500 Watt Specifications - 1.5SMCJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                        |                       |                                     | Vbr Min           | @It  |                                               |                                                                 |                                                        |
|                 |                        |                       | (Volts)                             | (Volts)           | (mA) | (µA)                                          | (Volts)                                                         | (Amperes)                                              |
| 1.5SMCJ15       | GEL                    | BEL                   | 15.0                                | 16.70             | 1    | 5                                             | 26.9                                                            | 55.8                                                   |
| 1.5SMCJ15A      | GEM                    | BEM                   | 15.0                                | 16.70             | 1    | 5                                             | 24.4                                                            | 61.5                                                   |
| 1.5SMCJ16       | GEN                    | BEN                   | 16.0                                | 17.80             | 1    | 5                                             | 28.8                                                            | 52.1                                                   |
| 1.5SMCJ16A      | GEP                    | BEP                   | 16.0                                | 17.80             | 1    | 5                                             | 26.0                                                            | 57.7                                                   |
| 1.5SMCJ17       | GEQ                    | BEQ                   | 17.0                                | 18.90             | 1    | 5                                             | 30.5                                                            | 49.2                                                   |
| 1.5SMCJ17A      | GER                    | BER                   | 17.0                                | 18.90             | 1    | 5                                             | 27.6                                                            | 53.3                                                   |
| 1.5SMCJ18       | GES                    | BES                   | 18.0                                | 20.00             | 1    | 5                                             | 32.2                                                            | 46.6                                                   |
| 1.5SMCJ18A      | GET                    | BET                   | 18.0                                | 20.00             | 1    | 5                                             | 29.2                                                            | 51.4                                                   |
| 1.5SMCJ20       | GEU                    | BEU                   | 20.0                                | 22.20             | 1    | 5                                             | 35.8                                                            | 41.9                                                   |
| 1.5SMCJ20A      | GEV                    | BEV                   | 20.0                                | 22.20             | 1    | 5                                             | 32.4                                                            | 46.3                                                   |
| 1.5SMCJ22       | GEW                    | BEW                   | 22.0                                | 24.40             | 1    | 5                                             | 39.4                                                            | 38.1                                                   |
| 1.5SMCJ22A      | GEX                    | BEX                   | 22.0                                | 24.40             | 1    | 5                                             | 35.5                                                            | 42.2                                                   |
| 1.5SMCJ24       | GEY                    | BEY                   | 24.0                                | 26.70             | 1    | 5                                             | 43.0                                                            | 34.9                                                   |
| 1.5SMCJ24A      | GEZ                    | BEZ                   | 24.0                                | 26.70             | 1    | 5                                             | 38.9                                                            | 38.6                                                   |
| 1.5SMCJ26       | GFD                    | BFD                   | 26.0                                | 28.90             | 1    | 5                                             | 46.6                                                            | 32.2                                                   |
| 1.5SMCJ26A      | GFE                    | BFE                   | 26.0                                | 28.90             | 1    | 5                                             | 42.1                                                            | 35.6                                                   |
| 1.5SMCJ28       | GFF                    | BFF                   | 28.0                                | 31.10             | 1    | 5                                             | 50.0                                                            | 30.0                                                   |
| 1.5SMCJ28A      | GFG                    | BFG                   | 28.0                                | 31.10             | 1    | 5                                             | 45.4                                                            | 33.0                                                   |
| 1.5SMCJ30       | GFH                    | BFH                   | 30.0                                | 33.30             | 1    | 5                                             | 53.5                                                            | 28.0                                                   |
| 1.5SMCJ30A      | GFK                    | BFK                   | 30.0                                | 33.30             | 1    | 5                                             | 48.4                                                            | 31.0                                                   |
| 1.5SMCJ33       | GFL                    | BFL                   | 33.0                                | 36.70             | 1    | 5                                             | 59.0                                                            | 25.2                                                   |
| 1.5SMCJ33A      | GFM                    | BFM                   | 33.0                                | 36.70             | 1    | 5                                             | 53.3                                                            | 28.1                                                   |
| 1.5SMCJ36       | GFN                    | BFN                   | 36.0                                | 40.00             | 1    | 5                                             | 64.3                                                            | 23.3                                                   |
| 1.5SMCJ36A      | GFP                    | BFP                   | 36.0                                | 40.00             | 1    | 5                                             | 58.1                                                            | 25.8                                                   |
| 1.5SMCJ40       | GFQ                    | BFQ                   | 40.0                                | 44.40             | 1    | 5                                             | 71.4                                                            | 21.0                                                   |
| 1.5SMCJ40A      | GFR                    | BFR                   | 40.0                                | 44.40             | 1    | 5                                             | 64.5                                                            | 23.2                                                   |

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**TVS Diodes - Surface Mount - 1500 Watt Specifications - 1.5SMCJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
|                 |                        |                       |                                                |                    |             |                                                       |                                                                            |                                                                     |
| 1.5SMCJ43       | GFS                    | BFS                   | 43.0                                           | 47.80              | 1           | 5                                                     | 76.7                                                                       | 19.6                                                                |
| 1.5SMCJ43A      | GFT                    | BFT                   | 43.0                                           | 47.80              | 1           | 5                                                     | 69.4                                                                       | 21.6                                                                |
| 1.5SMCJ45       | GFU                    | BFU                   | 45.0                                           | 50.00              | 1           | 5                                                     | 80.3                                                                       | 18.7                                                                |
| 1.5SMCJ45A      | GFV                    | BFV                   | 45.0                                           | 50.00              | 1           | 5                                                     | 72.7                                                                       | 20.6                                                                |
| 1.5SMCJ48       | GFW                    | BFW                   | 48.0                                           | 53.30              | 1           | 5                                                     | 85.5                                                                       | 17.5                                                                |
| 1.5SMCJ48A      | GFX                    | BFX                   | 48.0                                           | 53.30              | 1           | 5                                                     | 77.4                                                                       | 19.4                                                                |
| 1.5SMCJ51       | GFY                    | BFY                   | 51.0                                           | 56.70              | 1           | 5                                                     | 91.1                                                                       | 18.5                                                                |
| 1.5SMCJ51A      | GFZ                    | BFZ                   | 51.0                                           | 56.70              | 1           | 5                                                     | 82.4                                                                       | 18.2                                                                |
| 1.5SMCJ54       | GGD                    | BGD                   | 54.0                                           | 60.00              | 1           | 5                                                     | 96.3                                                                       | 15.6                                                                |
| 1.5SMCJ54A      | GGE                    | BGE                   | 54.0                                           | 60.00              | 1           | 5                                                     | 87.1                                                                       | 17.2                                                                |
| 1.5SMCJ58       | GGF                    | BGF                   | 58.0                                           | 64.40              | 1           | 5                                                     | 103.0                                                                      | 14.6                                                                |
| 1.5SMCJ58A      | GGG                    | BGG                   | 58.0                                           | 64.40              | 1           | 5                                                     | 93.6                                                                       | 16.0                                                                |
| 1.5SMCJ60       | GGH                    | BGH                   | 60.0                                           | 66.70              | 1           | 5                                                     | 107.0                                                                      | 14.0                                                                |
| 1.5SMCJ60A      | GGK                    | BGK                   | 60.0                                           | 66.70              | 1           | 5                                                     | 96.8                                                                       | 15.5                                                                |
| 1.5SMCJ64       | GGL                    | BGL                   | 64.0                                           | 71.10              | 1           | 5                                                     | 114.0                                                                      | 13.2                                                                |
| 1.5SMCJ64A      | GGM                    | BGM                   | 64.0                                           | 71.10              | 1           | 5                                                     | 103.0                                                                      | 14.6                                                                |
| 1.5SMCJ70       | GGN                    | BGN                   | 70.0                                           | 77.80              | 1           | 5                                                     | 125.0                                                                      | 12.0                                                                |
| 1.5SMCJ70A      | GGP                    | BGP                   | 70.0                                           | 77.80              | 1           | 5                                                     | 113.0                                                                      | 13.3                                                                |
| 1.5SMCJ75       | GGQ                    | BGQ                   | 75.0                                           | 83.30              | 1           | 5                                                     | 134.0                                                                      | 11.2                                                                |
| 1.5SMCJ75A      | GGR                    | BGR                   | 75.0                                           | 83.30              | 1           | 5                                                     | 121.0                                                                      | 12.4                                                                |
| 1.5SMCJ78       | GGs                    | BGs                   | 78.0                                           | 86.70              | 1           | 5                                                     | 139.0                                                                      | 10.8                                                                |
| 1.5SMCJ78A      | GGT                    | BGT                   | 78.0                                           | 86.70              | 1           | 5                                                     | 126.0                                                                      | 11.4                                                                |
| 1.5SMCJ85       | GGU                    | BGU                   | 85.0                                           | 94.40              | 1           | 5                                                     | 151.0                                                                      | 9.9                                                                 |
| 1.5SMCJ85A      | GGV                    | BGV                   | 85.0                                           | 94.40              | 1           | 5                                                     | 137.0                                                                      | 10.4                                                                |
| 1.5SMCJ90       | GGW                    | BGW                   | 90.0                                           | 100.00             | 1           | 5                                                     | 160.0                                                                      | 9.4                                                                 |
| 1.5SMCJ90A      | GGX                    | BGX                   | 90.0                                           | 100.00             | 1           | 5                                                     | 146.0                                                                      | 10.3                                                                |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm &lt;= 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 1500 Watt Specifications - 1.5SMCJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(µA) | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| 1.5SMCJ100      | GGY                    | BGY                   | 100.0                                          | 111.00             | 1           | 5                                                     | 179.0                                                                      | 8.4                                                                 |
| 1.5SMCJ100A     | GGZ                    | BGZ                   | 100.0                                          | 111.0              | 1           | 5                                                     | 162.0                                                                      | 9.3                                                                 |
| 1.5SMCJ110      | GHD                    | BHD                   | 110.0                                          | 122.0              | 1           | 5                                                     | 196.0                                                                      | 7.7                                                                 |
| 1.5SMCJ110A     | GHE                    | BHE                   | 110.0                                          | 122.0              | 1           | 5                                                     | 177.0                                                                      | 8.4                                                                 |
| 1.5SMCJ120      | GHF                    | BHF                   | 120.0                                          | 133.0              | 1           | 5                                                     | 214.0                                                                      | 7.0                                                                 |
| 1.5SMCJ120A     | GHG                    | BHG                   | 120.0                                          | 133.0              | 1           | 5                                                     | 193.0                                                                      | 7.9                                                                 |
| 1.5SMCJ130      | GHH                    | BHH                   | 130.0                                          | 144.00             | 1           | 5                                                     | 231.0                                                                      | 6.5                                                                 |
| 1.5SMCJ130A     | GHK                    | BHK                   | 130.0                                          | 144.00             | 1           | 5                                                     | 209.0                                                                      | 7.2                                                                 |
| 1.5SMCJ150      | GHL                    | BHL                   | 150.0                                          | 167.00             | 1           | 5                                                     | 268.0                                                                      | 5.6                                                                 |
| 1.5SMCJ150A     | GHM                    | BHM                   | 150.0                                          | 167.00             | 1           | 5                                                     | 243.0                                                                      | 6.2                                                                 |
| 1.5SMCJ160      | GHN                    | BHN                   | 160.0                                          | 178.00             | 1           | 5                                                     | 287.0                                                                      | 5.2                                                                 |
| 1.5SMCJ160A     | GHP                    | BHP                   | 160.0                                          | 178.00             | 1           | 5                                                     | 259.0                                                                      | 5.8                                                                 |
| 1.5SMCJ170      | GHQ                    | BHQ                   | 170.0                                          | 189.00             | 1           | 5                                                     | 304.0                                                                      | 4.9                                                                 |
| 1.5SMCJ170A     | GHR                    | BHR                   | 170.0                                          | 189.00             | 1           | 5                                                     | 275.0                                                                      | 5.5                                                                 |

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# = See General Information for Impulse Current Waveform.

## TVS Diodes - Surface Mount - 1500 Watt - 1.5SMCJ Series Features

### 1.5SMCJ Series Features

- 1500 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and bidirectional
- Glass passivated junction
- Low clamping factor
- Each device 100% surge tested

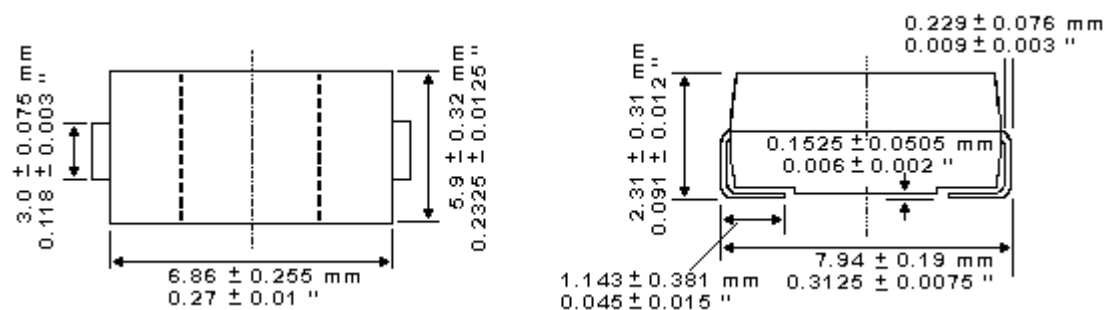
### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 1500W
- Operating and storage temperatures..... -55°C to + 150°C

### Mechanical Characteristics

- DO214AB package
- UL94V-0 Thermoset Epoxy
- Solder plated terminals
- Solderable per MIL-STD-750 Method 2026

### Mechanical Dimensions



**TVS Diodes - Surface Mount - 400 Watt Specifications - P4SMAJ Series Electrical Characteristics**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                        |                       |                                     | Vbr Min           | @It  |                                               |                                                                 |                                                        |
|                 |                        |                       | (Volts)                             | (Volts)           | (mA) | (μA)                                          | (Volts)                                                         | (Amperes)                                              |
| P4SMAJ5.0       | HD                     | TD                    | 5.0                                 | 6.40              | 10   | 800.0                                         | 9.6                                                             | 41.6                                                   |
| P4SMAJ5.0A      | HE                     | TE                    | 5.0                                 | 6.40              | 10   | 800.0                                         | 9.2                                                             | 43.5                                                   |
| P4SMAJ6.0       | HF                     | TF                    | 6.0                                 | 6.67              | 10   | 800.0                                         | 11.4                                                            | 35.1                                                   |
| P4SMAJ6.0A      | HG                     | TG                    | 6.0                                 | 6.67              | 10   | 800.0                                         | 10.3                                                            | 38.8                                                   |
| P4SMAJ6.5       | HH                     | TH                    | 6.5                                 | 7.22              | 10   | 500.0                                         | 12.3                                                            | 32.5                                                   |
| P4SMAJ6.5A      | HK                     | TK                    | 6.5                                 | 7.22              | 10   | 500.0                                         | 11.2                                                            | 35.7                                                   |
| P4SMAJ7.0       | HL                     | TL                    | 7.0                                 | 7.78              | 10   | 200.0                                         | 13.3                                                            | 30.1                                                   |
| P4SMAJ7.0A      | HM                     | TM                    | 7.0                                 | 7.78              | 10   | 200.0                                         | 12.0                                                            | 33.3                                                   |
| P4SMAJ7.5       | HN                     | TN                    | 7.5                                 | 8.33              | 1    | 100.0                                         | 14.3                                                            | 28.0                                                   |
| P4SMAJ7.5A      | HP                     | TP                    | 7.5                                 | 8.33              | 1    | 100.0                                         | 12.9                                                            | 31.0                                                   |
| P4SMAJ8.0       | HQ                     | TQ                    | 8.0                                 | 8.89              | 1    | 50.0                                          | 15.0                                                            | 26.5                                                   |
| P4SMAJ8.0A      | HR                     | TR                    | 8.0                                 | 8.89              | 1    | 50.0                                          | 13.6                                                            | 29.4                                                   |
| P4SMAJ8.5       | HS                     | TS                    | 8.5                                 | 9.44              | 1    | 10.0                                          | 15.9                                                            | 25.1                                                   |
| P4SMAJ8.5A      | HT                     | TT                    | 8.5                                 | 9.44              | 1    | 10.0                                          | 14.4                                                            | 27.7                                                   |
| P4SMAJ9.0       | HU                     | TU                    | 9.0                                 | 10.00             | 1    | 5.0                                           | 16.9                                                            | 23.6                                                   |
| P4SMAJ9.0A      | HV                     | TV                    | 9.0                                 | 10.00             | 1    | 5.0                                           | 15.4                                                            | 26.0                                                   |
| P4SMAJ10        | HW                     | TW                    | 10.0                                | 11.10             | 1    | 5.0                                           | 18.8                                                            | 21.2                                                   |
| P4SMAJ10A       | HGX                    | TX                    | 10.0                                | 11.10             | 1    | 5.0                                           | 17.0                                                            | 23.5                                                   |
| P4SMAJ11        | HY                     | TY                    | 11.0                                | 12.20             | 1    | 5.0                                           | 20.1                                                            | 20.0                                                   |
| P4SMAJ11A       | HZ                     | TZ                    | 11.0                                | 12.20             | 1    | 5.0                                           | 18.2                                                            | 22.0                                                   |
| P4SMAJ12        | ID                     | UD                    | 12.0                                | 13.30             | 1    | 5.0                                           | 22.0                                                            | 18.1                                                   |
| P4SMAJ12A       | IE                     | UE                    | 12.0                                | 13.30             | 1    | 5.0                                           | 19.9                                                            | 20.1                                                   |
| P4SMAJ13        | IF                     | UF                    | 13.0                                | 14.40             | 1    | 5.0                                           | 23.8                                                            | 16.8                                                   |
| P4SMAJ13A       | IG                     | UG                    | 13.0                                | 14.40             | 1    | 5.0                                           | 21.5                                                            | 18.6                                                   |
| P4SMAJ14        | IH                     | UH                    | 14.0                                | 15.60             | 1    | 5.0                                           | 25.8                                                            | 15.5                                                   |
| P4SMAJ14A       | IK                     | UK                    | 14.0                                | 15.60             | 1    | 5.0                                           | 23.2                                                            | 17.2                                                   |

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# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 400 Watt Specifications - P4SMAJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm | Breakdown Voltage |      | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000 $\mu$ s<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000 $\mu$ s<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|-------------------|------|-----------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------|
|                 |                        |                       |                                     | Vbr Min           | @It  |                                               |                                                                       |                                                              |
|                 |                        |                       | (Volts)                             | (Volts)           | (mA) | ( $\mu$ A)                                    | (Volts)                                                               | (Amperes)                                                    |
| P4SMAJ15        | IL                     | UL                    | 15.0                                | 16.70             | 1    | 5.0                                           | 26.9                                                                  | 14.8                                                         |
| P4SMAJ15A       | IM                     | UM                    | 15.0                                | 16.70             | 1    | 5.0                                           | 24.4                                                                  | 16.4                                                         |
| P4SMAJ16        | IN                     | UN                    | 16.0                                | 17.80             | 1    | 5.0                                           | 28.8                                                                  | 13.8                                                         |
| P4SMAJ16A       | IP                     | UP                    | 16.0                                | 17.80             | 1    | 5.0                                           | 26.0                                                                  | 15.3                                                         |
| P4SMAJ17        | IQ                     | UQ                    | 17.0                                | 18.90             | 1    | 5.0                                           | 30.5                                                                  | 13.1                                                         |
| P4SMAJ17A       | IR                     | UR                    | 17.0                                | 18.90             | 1    | 5.0                                           | 27.6                                                                  | 14.5                                                         |
| P4SMAJ18        | IS                     | US                    | 18.0                                | 20.00             | 1    | 5.0                                           | 32.2                                                                  | 12.4                                                         |
| P4SMAJ18A       | IT                     | UT                    | 18.0                                | 20.00             | 1    | 5.0                                           | 29.2                                                                  | 13.7                                                         |
| P4SMAJ20        | IU                     | UU                    | 20.0                                | 22.20             | 1    | 5.0                                           | 35.8                                                                  | 11.1                                                         |
| P4SMAJ20A       | IV                     | UV                    | 20.0                                | 22.20             | 1    | 5.0                                           | 32.4                                                                  | 12.3                                                         |
| P4SMAJ22        | IW                     | UW                    | 22.0                                | 24.40             | 1    | 5.0                                           | 39.4                                                                  | 10.1                                                         |
| P4SMAJ22A       | IX                     | UX                    | 22.0                                | 24.40             | 1    | 5.0                                           | 35.5                                                                  | 11.2                                                         |
| P4SMAJ24        | IY                     | UY                    | 24.0                                | 26.70             | 1    | 5.0                                           | 43.0                                                                  | 9.3                                                          |
| P4SMAJ24A       | IZ                     | UZ                    | 24.0                                | 26.70             | 1    | 5.0                                           | 38.9                                                                  | 10.3                                                         |
| P4SMAJ26        | JD                     | VD                    | 26.0                                | 28.90             | 1    | 5.0                                           | 46.6                                                                  | 8.6                                                          |
| P4SMAJ26A       | JE                     | VE                    | 26.0                                | 28.90             | 1    | 5.0                                           | 42.1                                                                  | 9.5                                                          |
| P4SMAJ28        | JF                     | VF                    | 28.0                                | 31.10             | 1    | 5.0                                           | 50.0                                                                  | 8.0                                                          |
| P4SMAJ28A       | JG                     | VG                    | 28.0                                | 31.10             | 1    | 5.0                                           | 45.4                                                                  | 8.8                                                          |
| P4SMAJ30        | JH                     | VH                    | 30.0                                | 33.30             | 1    | 5.0                                           | 53.5                                                                  | 7.5                                                          |
| P4SMAJ30A       | JK                     | VK                    | 30.0                                | 33.30             | 1    | 5.0                                           | 48.4                                                                  | 8.3                                                          |
| P4SMAJ33        | JL                     | VL                    | 33.0                                | 36.70             | 1    | 5.0                                           | 59.0                                                                  | 6.8                                                          |
| P4SMAJ33A       | JM                     | VM                    | 33.0                                | 36.70             | 1    | 5.0                                           | 53.3                                                                  | 7.5                                                          |
| P4SMAJ36        | JN                     | VN                    | 36.0                                | 40.00             | 1    | 5.0                                           | 64.3                                                                  | 6.2                                                          |
| P4SMAJ36A       | JP                     | VP                    | 36.0                                | 40.00             | 1    | 5.0                                           | 58.1                                                                  | 6.9                                                          |
| P4SMAJ40        | JQ                     | VQ                    | 40.0                                | 44.40             | 1    | 5.0                                           | 71.4                                                                  | 5.6                                                          |
| P4SMAJ40A       | JR                     | VR                    | 40.0                                | 44.40             | 1    | 5.0                                           | 64.5                                                                  | 6.2                                                          |

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**TVS Diodes - Surface Mount - 400 Watt Specifications - P4SMAJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>( $\mu$ A) | 10/1000 $\mu$ s<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000 $\mu$ s<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr Min<br>(Volts) | @It<br>(mA) |                                                             |                                                                                  |                                                                           |
| P4SMAJ43        | JS                     | VS                    | 43.0                                           | 47.80              | 1           | 5.0                                                         | 76.7                                                                             | 5.2                                                                       |
| P4SMAJ43A       | JT                     | VT                    | 43.0                                           | 47.80              | 1           | 5.0                                                         | 69.4                                                                             | 5.7                                                                       |
| P4SMAJ45        | JU                     | VU                    | 45.0                                           | 50.00              | 1           | 5.0                                                         | 80.3                                                                             | 5.0                                                                       |
| P4SMAJ45A       | JV                     | VV                    | 45.0                                           | 50.00              | 1           | 5.0                                                         | 72.7                                                                             | 5.5                                                                       |
| P4SMAJ48        | JW                     | VW                    | 48.0                                           | 53.30              | 1           | 5.0                                                         | 85.5                                                                             | 4.7                                                                       |
| P4SMAJ48A       | JX                     | VX                    | 48.0                                           | 53.30              | 1           | 5.0                                                         | 77.4                                                                             | 5.2                                                                       |
| P4SMAJ51        | JY                     | VY                    | 51.0                                           | 56.70              | 1           | 5.0                                                         | 91.1                                                                             | 4.4                                                                       |
| P4SMAJ51A       | JZ                     | VZ                    | 51.0                                           | 56.70              | 1           | 5.0                                                         | 82.4                                                                             | 4.9                                                                       |
| P4SMAJ54        | RD                     | WD                    | 54.0                                           | 60.00              | 1           | 5.0                                                         | 96.3                                                                             | 4.2                                                                       |
| P4SMAJ54A       | RE                     | WE                    | 54.0                                           | 60.00              | 1           | 5.0                                                         | 87.1                                                                             | 4.6                                                                       |
| P4SMAJ58        | RF                     | WF                    | 58.0                                           | 64.40              | 1           | 5.0                                                         | 103.0                                                                            | 3.9                                                                       |
| P4SMAJ58A       | RG                     | WG                    | 58.0                                           | 64.40              | 1           | 5.0                                                         | 93.6                                                                             | 4.3                                                                       |
| P4SMAJ60        | RH                     | WH                    | 60.0                                           | 66.70              | 1           | 5.0                                                         | 107.0                                                                            | 3.7                                                                       |
| P4SMAJ60A       | RK                     | WK                    | 60.0                                           | 66.70              | 1           | 5.0                                                         | 96.8                                                                             | 4.1                                                                       |
| P4SMAJ64        | RL                     | WL                    | 64.0                                           | 71.10              | 1           | 5.0                                                         | 114.0                                                                            | 3.5                                                                       |
| P4SMAJ64A       | RM                     | WM                    | 64.0                                           | 71.10              | 1           | 5.0                                                         | 103.0                                                                            | 3.9                                                                       |
| P4SMAJ70        | RN                     | WN                    | 70.0                                           | 77.80              | 1           | 5.0                                                         | 125.0                                                                            | 3.2                                                                       |
| P4SMAJ70A       | RP                     | WP                    | 70.0                                           | 77.80              | 1           | 5.0                                                         | 113.0                                                                            | 3.5                                                                       |
| P4SMAJ75        | RQ                     | WQ                    | 75.0                                           | 83.30              | 1           | 5.0                                                         | 134.0                                                                            | 3.0                                                                       |
| P4SMAJ75A       | RR                     | WR                    | 75.0                                           | 83.30              | 1           | 5.0                                                         | 121.0                                                                            | 3.3                                                                       |
| P4SMAJ78        | RS                     | WS                    | 78.0                                           | 86.70              | 1           | 5.0                                                         | 139.0                                                                            | 2.9                                                                       |
| P4SMAJ78A       | RT                     | WT                    | 78.0                                           | 86.70              | 1           | 5.0                                                         | 126.0                                                                            | 2.2                                                                       |
| P4SMAJ85        | RU                     | WU                    | 85.0                                           | 94.40              | 1           | 5.0                                                         | 151.0                                                                            | 2.6                                                                       |
| P4SMAJ85A       | RV                     | WV                    | 85.0                                           | 94.40              | 1           | 5.0                                                         | 137.0                                                                            | 2.9                                                                       |
| P4SMAJ90        | RW                     | WW                    | 90.0                                           | 100.00             | 1           | 5.0                                                         | 160.0                                                                            | 2.5                                                                       |
| P4SMAJ90A       | RX                     | WX                    | 90.0                                           | 100.00             | 1           | 5.0                                                         | 146.0                                                                            | 2.7                                                                       |

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# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 400 Watt Specifications - P4SMAJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Rated<br>Standoff<br>Voltage<br>Vwm<br>(Volts) | Breakdown Voltage  |             | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id<br>(μA) | 10/1000μs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max<br>(Volts) | 10/1000μs<br>Rated Peak<br>Impulse<br>Current<br>Ippm#<br>(Amperes) |
|-----------------|------------------------|-----------------------|------------------------------------------------|--------------------|-------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|
|                 |                        |                       |                                                | Vbr Min<br>(Volts) | @It<br>(mA) |                                                       |                                                                            |                                                                     |
| P4SMAJ100       | RY                     | WY                    | 100.0                                          | 111.00             | 1           | 5.0                                                   | 179.0                                                                      | 2.2                                                                 |
| P4SMAJ100A      | RZ                     | WZ                    | 100.0                                          | 111.00             | 1           | 5.0                                                   | 162.0                                                                      | 2.5                                                                 |
| P4SMAJ110       | SD                     | XD                    | 110.0                                          | 122.00             | 1           | 5.0                                                   | 196.0                                                                      | 2.0                                                                 |
| P4SMAJ110A      | SE                     | XE                    | 110.0                                          | 122.00             | 1           | 5.0                                                   | 177.0                                                                      | 2.3                                                                 |
| P4SMAJ120       | SF                     | XF                    | 120.0                                          | 133.00             | 1           | 5.0                                                   | 214.0                                                                      | 1.9                                                                 |
| P4SMAJ120A      | SG                     | XG                    | 120.0                                          | 133.00             | 1           | 5.0                                                   | 193.0                                                                      | 2.0                                                                 |
| P4SMAJ130       | SH                     | XH                    | 130.0                                          | 144.00             | 1           | 5.0                                                   | 231.0                                                                      | 1.7                                                                 |
| P4SMAJ130A      | SK                     | XK                    | 130.0                                          | 144.00             | 1           | 5.0                                                   | 209.0                                                                      | 1.9                                                                 |
| P4SMAJ150       | SL                     | XL                    | 150.0                                          | 167.00             | 1           | 5.0                                                   | 268.0                                                                      | 1.5                                                                 |
| P4SMAJ150A      | SM                     | XM                    | 150.0                                          | 167.00             | 1           | 5.0                                                   | 243.0                                                                      | 1.6                                                                 |
| P4SMAJ160       | SN                     | XN                    | 160.0                                          | 178.00             | 1           | 5.0                                                   | 287.0                                                                      | 1.4                                                                 |
| P4SMAJ160A      | SP                     | XP                    | 160.0                                          | 178.00             | 1           | 5.0                                                   | 259.0                                                                      | 1.5                                                                 |
| P4SMAJ170       | SQ                     | XQ                    | 170.0                                          | 189.00             | 1           | 5.0                                                   | 304.0                                                                      | 1.3                                                                 |
| P4SMAJ170A      | SR                     | XR                    | 170.0                                          | 189.00             | 1           | 5.0                                                   | 275.0                                                                      | 1.4                                                                 |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - Surface Mount - 400 Watt - P4SMAJ Series Features

### P4SMAJ Series Features

- 400 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and bidirectional
- Glass passivated junction
- Low clamping factor
- Each device 100% surge tested

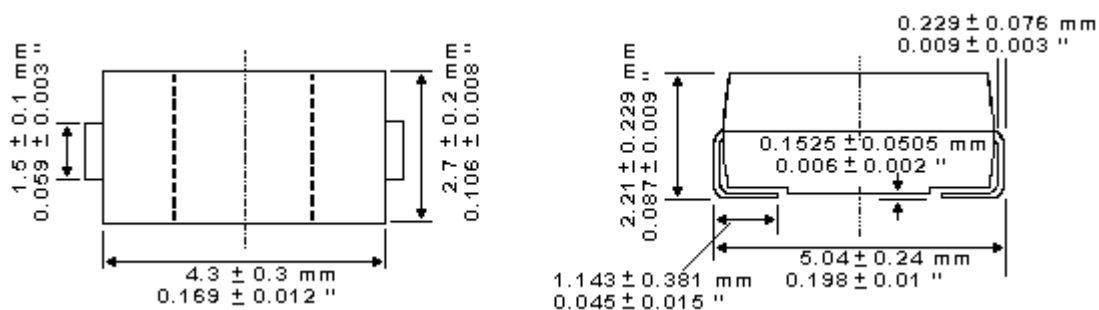
### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 400W
- Operating and storage temperatures..... -55°C to + 150°C

### Mechanical Characteristics

- DO214AC package
- UL94V-0 Thermoset Epoxy
- Solder plated terminals
- Solderable per MIL-STD-750 Method 2026

### Mechanical Dimensions



**TVS Diodes - Surface Mount - 3000 Watt Specifications - 3.0SMCJ Series Electrical Characteristics**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Breakdown Voltage                   |         | @It | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000μs                                          | 10/1000μs |
|-----------------|------------------------|-----------------------|-------------------------------------|---------|-----|-----------------------------------------------|----------------------------------------------------|-----------|
|                 |                        |                       | Rated<br>Standoff<br>Voltage<br>Vwm | Vbr Min |     |                                               | Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max |           |
|                 |                        |                       | (Volts)                             | (Volts) |     |                                               | (mA)                                               |           |
| 3.0SMCJ5.0      | HDD                    | IDD                   | 5.0                                 | 6.40    | 10  | 1000.0                                        | 9.6                                                | 312.5     |
| 3.0SMCJ5.0A     | HDE                    | IDE                   | 5.0                                 | 6.40    | 10  | 1000.0                                        | 9.2                                                | 326.0     |
| 3.0SMCJ6.0      | HDF                    | IDF                   | 6.0                                 | 6.67    | 10  | 1000.0                                        | 11.4                                               | 263.2     |
| 3.0SMCJ6.0A     | HDG                    | IDG                   | 6.0                                 | 6.67    | 10  | 1000.0                                        | 10.3                                               | 291.3     |
| 3.0SMCJ6.5      | HDH                    | IDH                   | 6.5                                 | 7.22    | 10  | 500.0                                         | 12.3                                               | 243.9     |
| 3.0SMCJ6.5A     | HDK                    | IDK                   | 6.5                                 | 7.22    | 10  | 500.0                                         | 11.2                                               | 267.9     |
| 3.0SMCJ7.0      | HDL                    | IDL                   | 7.0                                 | 7.78    | 10  | 200.0                                         | 13.3                                               | 225.6     |
| 3.0SMCJ7.0A     | HDM                    | IDM                   | 7.0                                 | 7.78    | 10  | 200.0                                         | 12.0                                               | 250.0     |
| 3.0SMCJ7.5      | HDN                    | IDN                   | 7.5                                 | 8.33    | 1   | 100.0                                         | 14.3                                               | 209.8     |
| 3.0SMCJ7.5A     | HDP                    | IDP                   | 7.5                                 | 8.33    | 1   | 100.0                                         | 12.9                                               | 232.6     |
| 3.0SMCJ8.0      | HDQ                    | IDQ                   | 8.0                                 | 8.89    | 1   | 50.0                                          | 15.0                                               | 200.0     |
| 3.0SMCJ8.0A     | HDR                    | IDR                   | 8.0                                 | 8.89    | 1   | 50.0                                          | 13.6                                               | 220.6     |
| 3.0SMCJ8.5      | HDS                    | IDS                   | 8.5                                 | 9.44    | 1   | 25.0                                          | 15.9                                               | 188.8     |
| 3.0SMCJ8.5A     | HDT                    | IDT                   | 8.5                                 | 9.44    | 1   | 25.0                                          | 14.4                                               | 208.4     |
| 3.0SMCJ9.0      | HDU                    | IDU                   | 9.0                                 | 10.00   | 1   | 10.0                                          | 16.9                                               | 177.4     |
| 3.0SMCJ9.0A     | HDV                    | IDV                   | 9.0                                 | 10.00   | 1   | 10.0                                          | 15.4                                               | 194.8     |
| 3.0SMCJ10       | HDW                    | IDW                   | 10.0                                | 11.10   | 1   | 5.0                                           | 18.8                                               | 159.6     |
| 3.0SMCJ10A      | HDX                    | IDX                   | 10.0                                | 11.10   | 1   | 5.0                                           | 17.0                                               | 176.4     |
| 3.0SMCJ11       | HDY                    | IDY                   | 11.0                                | 12.20   | 1   | 5.0                                           | 20.1                                               | 149.2     |
| 3.0SMCJ11A      | HDZ                    | IDZ                   | 11.0                                | 12.20   | 1   | 5.0                                           | 18.2                                               | 184.8     |
| 3.0SMCJ12       | HED                    | IED                   | 12.0                                | 13.30   | 1   | 5.0                                           | 22.0                                               | 136.4     |
| 3.0SMCJ12A      | HEE                    | IEE                   | 12.0                                | 13.30   | 1   | 5.0                                           | 19.9                                               | 150.6     |
| 3.0SMCJ13       | HEF                    | IEF                   | 13.0                                | 14.40   | 1   | 5.0                                           | 23.8                                               | 126.0     |
| 3.0SMCJ13A      | HEG                    | IEG                   | 13.0                                | 14.40   | 1   | 5.0                                           | 21.5                                               | 139.4     |
| 3.0SMCJ14       | HEH                    | IEH                   | 14.0                                | 15.60   | 1   | 5.0                                           | 25.8                                               | 116.2     |
| 3.0SMCJ14A      | HEK                    | IEK                   | 14.0                                | 15.60   | 1   | 5.0                                           | 23.2                                               | 129.4     |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm &lt;= 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

# TVS Diodes - Surface Mount - 3000 Watt Specifications - 3.0SMCJ Series Electrical Characteristics - (Continued)

| Part Number* | Uni Part Marking | Bi Part Marking | Breakdown Voltage          |         | @It  | Maximum Stand By Current @Vwm+ Id | 10/1000µs Maximum Clamping Voltage @Ippm# Vc Max | 10/1000µs Rated Peak Impulse Current Ippm# |
|--------------|------------------|-----------------|----------------------------|---------|------|-----------------------------------|--------------------------------------------------|--------------------------------------------|
|              |                  |                 | Rated Standoff Voltage Vwm | Vbr Min |      |                                   |                                                  |                                            |
|              |                  |                 | (Volts)                    | (Volts) | (mA) | (µA)                              | (Volts)                                          | (Amperes)                                  |
| 3.0SMCJ15    | HEL              | IEL             | 15.0                       | 16.70   | 1    | 5.0                               | 26.9                                             | 111.6                                      |
| 3.0SMCJ15A   | HEM              | IEM             | 15.0                       | 16.70   | 1    | 5.0                               | 24.4                                             | 123.0                                      |
| 3.0SMCJ16    | HEN              | IEN             | 16.0                       | 17.80   | 1    | 5.0                               | 28.8                                             | 104.2                                      |
| 3.0SMCJ16A   | HEP              | IEP             | 16.0                       | 17.80   | 1    | 5.0                               | 26.0                                             | 115.4                                      |
| 3.0SMCJ17    | HEQ              | IEQ             | 17.0                       | 18.90   | 1    | 5.0                               | 30.5                                             | 98.4                                       |
| 3.0SMCJ17A   | HER              | IER             | 17.0                       | 18.90   | 1    | 5.0                               | 27.6                                             | 106.6                                      |
| 3.0SMCJ18    | HES              | IES             | 18.0                       | 20.00   | 1    | 5.0                               | 32.2                                             | 93.2                                       |
| 3.0SMCJ18A   | HET              | IET             | 18.0                       | 20.00   | 1    | 5.0                               | 29.2                                             | 102.8                                      |
| 3.0SMCJ20    | HEU              | IEU             | 20.0                       | 22.20   | 1    | 5.0                               | 35.8                                             | 83.8                                       |
| 3.0SMCJ20A   | HEV              | IEV             | 20.0                       | 22.20   | 1    | 5.0                               | 32.4                                             | 92.6                                       |
| 3.0SMCJ22    | HEW              | IEW             | 22.0                       | 24.40   | 1    | 5.0                               | 39.4                                             | 76.2                                       |
| 3.0SMCJ22A   | HEX              | IEX             | 22.0                       | 24.40   | 1    | 5.0                               | 35.5                                             | 84.4                                       |
| 3.0SMCJ24    | HEY              | IEY             | 24.0                       | 26.70   | 1    | 5.0                               | 43.0                                             | 69.8                                       |
| 3.0SMCJ24A   | HEZ              | IEZ             | 24.0                       | 26.70   | 1    | 5.0                               | 38.9                                             | 77.2                                       |
| 3.0SMCJ26    | HFD              | IFD             | 26.0                       | 28.90   | 1    | 5.0                               | 46.6                                             | 64.4                                       |
| 3.0SMCJ26A   | HFE              | IFE             | 26.0                       | 28.90   | 1    | 5.0                               | 42.1                                             | 71.2                                       |
| 3.0SMCJ28    | HFF              | IFF             | 28.0                       | 31.10   | 1    | 5.0                               | 50.0                                             | 60.0                                       |
| 3.0SMCJ28A   | HFG              | IFG             | 28.0                       | 31.10   | 1    | 5.0                               | 45.4                                             | 66.0                                       |
| 3.0SMCJ30    | HFH              | IFH             | 30.0                       | 33.30   | 1    | 5.0                               | 53.5                                             | 56.0                                       |
| 3.0SMCJ30A   | HFK              | IFK             | 30.0                       | 33.30   | 1    | 5.0                               | 46.6                                             | 62.0                                       |
| 3.0SMCJ33    | HFL              | IFL             | 33.0                       | 36.70   | 1    | 5.0                               | 59.0                                             | 50.4                                       |
| 3.0SMCJ33A   | HFM              | IFM             | 33.0                       | 36.70   | 1    | 5.0                               | 53.3                                             | 56.2                                       |
| 3.0SMCJ36    | HFN              | IFN             | 36.0                       | 40.00   | 1    | 5.0                               | 64.3                                             | 46.6                                       |
| 3.0SMCJ36A   | HFP              | IFP             | 36.0                       | 40.00   | 1    | 5.0                               | 58.1                                             | 51.6                                       |
| 3.0SMCJ40    | HFQ              | IFQ             | 40.0                       | 44.40   | 1    | 5.0                               | 71.4                                             | 42.0                                       |
| 3.0SMCJ40A   | HFR              | IFR             | 40.0                       | 44.40   | 1    | 5.0                               | 64.5                                             | 46.4                                       |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm <= 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

# TVS Diodes - Surface Mount - 3000 Watt Specifications - 3.0SMCJ Series Electrical Characteristics - (Continued)

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Breakdown Voltage                   |         | @It | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000µs                                          | 10/1000µs                                 |
|-----------------|------------------------|-----------------------|-------------------------------------|---------|-----|-----------------------------------------------|----------------------------------------------------|-------------------------------------------|
|                 |                        |                       | Rated<br>Standoff<br>Voltage<br>Vwm | Vbr Min |     |                                               | Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | Rated Peak<br>Impulse<br>Current<br>Ippm# |
|                 |                        |                       | (Volts)                             | (Volts) |     |                                               | (mA)                                               | (µA)                                      |
| 3.0SMCJ43       | HFS                    | IFS                   | 43.0                                | 47.80   | 1   | 5.0                                           | 76.7                                               | 39.2                                      |
| 3.0SMCJ43A      | HFT                    | IFT                   | 43.0                                | 47.80   | 1   | 5.0                                           | 69.4                                               | 43.2                                      |
| 3.0SMCJ45       | HFU                    | IFU                   | 45.0                                | 50.00   | 1   | 5.0                                           | 80.3                                               | 37.4                                      |
| 3.0SMCJ45A      | HFV                    | IFV                   | 45.0                                | 50.00   | 1   | 5.0                                           | 72.7                                               | 41.2                                      |
| 3.0SMCJ48       | HFW                    | IFW                   | 48.0                                | 53.30   | 1   | 5.0                                           | 85.5                                               | 35.0                                      |
| 3.0SMCJ48A      | HFX                    | IFX                   | 48.0                                | 53.30   | 1   | 5.0                                           | 77.4                                               | 38.8                                      |
| 3.0SMCJ51       | HFY                    | IFY                   | 51.0                                | 56.70   | 1   | 5.0                                           | 91.1                                               | 37.0                                      |
| 3.0SMCJ51A      | HFZ                    | IFZ                   | 51.0                                | 56.70   | 1   | 5.0                                           | 82.4                                               | 36.4                                      |
| 3.0SMCJ54       | HGD                    | IGD                   | 54.0                                | 60.00   | 1   | 5.0                                           | 96.3                                               | 31.2                                      |
| 3.0SMCJ54A      | HGE                    | IGE                   | 54.0                                | 60.00   | 1   | 5.0                                           | 87.1                                               | 34.4                                      |
| 3.0SMCJ58       | HGF                    | IGF                   | 58.0                                | 64.40   | 1   | 5.0                                           | 103.0                                              | 39.2                                      |
| 3.0SMCJ58A      | HGG                    | IGG                   | 58.0                                | 64.40   | 1   | 5.0                                           | 93.6                                               | 32.0                                      |
| 3.0SMCJ60       | HGH                    | IGH                   | 60.0                                | 66.70   | 1   | 5.0                                           | 107.0                                              | 28.0                                      |
| 3.0SMCJ60A      | HGK                    | IGK                   | 60.0                                | 66.70   | 1   | 5.0                                           | 96.8                                               | 31.0                                      |
| 3.0SMCJ64       | HGL                    | IGL                   | 64.0                                | 71.10   | 1   | 5.0                                           | 114.0                                              | 26.4                                      |
| 3.0SMCJ64A      | HGM                    | IGM                   | 64.0                                | 71.10   | 1   | 5.0                                           | 103.0                                              | 29.2                                      |
| 3.0SMCJ70       | HGN                    | IGN                   | 70.0                                | 77.80   | 1   | 5.0                                           | 125.0                                              | 24.0                                      |
| 3.0SMCJ70A      | HGP                    | IGP                   | 70.0                                | 77.80   | 1   | 5.0                                           | 113.0                                              | 26.6                                      |
| 3.0SMCJ75       | HGQ                    | IGQ                   | 75.0                                | 83.30   | 1   | 5.0                                           | 134.0                                              | 22.4                                      |
| 3.0SMCJ75A      | HGR                    | IGR                   | 75.0                                | 83.30   | 1   | 5.0                                           | 121.0                                              | 24.8                                      |
| 3.0SMCJ78       | HGS                    | IGS                   | 78.0                                | 86.70   | 1   | 5.0                                           | 139.0                                              | 21.6                                      |
| 3.0SMCJ78A      | HGT                    | IGT                   | 78.0                                | 86.70   | 1   | 5.0                                           | 126.0                                              | 22.8                                      |
| 3.0SMCJ85       | HGU                    | IGU                   | 85.0                                | 94.40   | 1   | 5.0                                           | 151.0                                              | 19.8                                      |
| 3.0SMCJ85A      | HGV                    | IGV                   | 85.0                                | 94.40   | 1   | 5.0                                           | 137.0                                              | 20.8                                      |
| 3.0SMCJ90       | HGW                    | IGW                   | 90.0                                | 100.00  | 1   | 5.0                                           | 160.0                                              | 18.8                                      |
| 3.0SMCJ90A      | HGX                    | IGX                   | 90.0                                | 100.00  | 1   | 5.0                                           | 146.0                                              | 20.6                                      |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm <= 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

**TVS Diodes - Surface Mount - 3000 Watt Specifications - 3.0SMCJ Series Electrical Characteristics - (Continued)**

| Part<br>Number* | Uni<br>Part<br>Marking | Bi<br>Part<br>Marking | Breakdown Voltage                   |         | @It  | Maximum<br>Stand By<br>Current<br>@Vwm+<br>Id | 10/1000µs<br>Maximum<br>Clamping<br>Voltage<br>@Ippm#<br>Vc Max | 10/1000µs<br>Rated Peak<br>Impulse<br>Current<br>Ippm# |
|-----------------|------------------------|-----------------------|-------------------------------------|---------|------|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|
|                 |                        |                       | Rated<br>Standoff<br>Voltage<br>Vwm | Vbr Min |      |                                               |                                                                 |                                                        |
|                 |                        |                       | (Volts)                             | (Volts) | (mA) | (µA)                                          | (Volts)                                                         | (Amperes)                                              |
| 3.0SMCJ100      | HGY                    | IGY                   | 100.0                               | 111.00  | 1    | 5.0                                           | 179.0                                                           | 16.6                                                   |
| 3.0SMCJ100A     | HGZ                    | IGZ                   | 100.0                               | 111.00  | 1    | 5.0                                           | 162.0                                                           | 18.6                                                   |
| 3.0SMCJ110      | HHD                    | IHD                   | 110.0                               | 122.00  | 1    | 5.0                                           | 196.0                                                           | 15.4                                                   |
| 3.0SMCJ110A     | HHE                    | IHE                   | 110.0                               | 122.00  | 1    | 5.0                                           | 177.0                                                           | 16.8                                                   |
| 3.0SMCJ120      | HHF                    | IHF                   | 120.0                               | 133.00  | 1    | 5.0                                           | 214.0                                                           | 14.0                                                   |
| 3.0SMCJ120A     | HHG                    | IHG                   | 120.0                               | 133.00  | 1    | 5.0                                           | 193.0                                                           | 15.6                                                   |
| 3.0SMCJ130      | HHH                    | IHH                   | 130.0                               | 144.00  | 1    | 5.0                                           | 231.0                                                           | 13.0                                                   |
| 3.0SMCJ130A     | HHK                    | IHK                   | 130.0                               | 144.00  | 1    | 5.0                                           | 209.0                                                           | 14.4                                                   |
| 3.0SMCJ150      | HHL                    | IHL                   | 150.0                               | 167.00  | 1    | 5.0                                           | 268.0                                                           | 11.2                                                   |
| 3.0SMCJ150A     | HHM                    | IHM                   | 150.0                               | 167.00  | 1    | 5.0                                           | 243.0                                                           | 12.4                                                   |
| 3.0SMCJ160      | HHN                    | IHN                   | 160.0                               | 178.00  | 1    | 5.0                                           | 287.0                                                           | 10.4                                                   |
| 3.0SMCJ160A     | HHP                    | IHP                   | 160.0                               | 178.00  | 1    | 5.0                                           | 259.0                                                           | 11.6                                                   |
| 3.0SMCJ170      | HHQ                    | IHQ                   | 170.0                               | 189.00  | 1    | 5.0                                           | 304.0                                                           | 9.8                                                    |
| 3.0SMCJ170A     | HHR                    | IHR                   | 170.0                               | 189.00  | 1    | 5.0                                           | 275.0                                                           | 11.0                                                   |

\* = Add "C" or "CA" suffix for bidirectional device types.

+ = For Bidirectional Types Having Vwm ≤ 10V, their Id limit is doubled.

# = See General Information for Impulse Current Waveform.

## TVS Diodes - Surface Mount - 3000 Watt - 3.0SMCJ Series Features

### 3.0SMCJ Series Features

- 3000 watt peak pulse power dissipation
- Available in voltages from 5.0V to 170V
- Unidirectional and bidirectional
- Glass passivated junction
- Low clamping factor
- Each device 100% surge tested

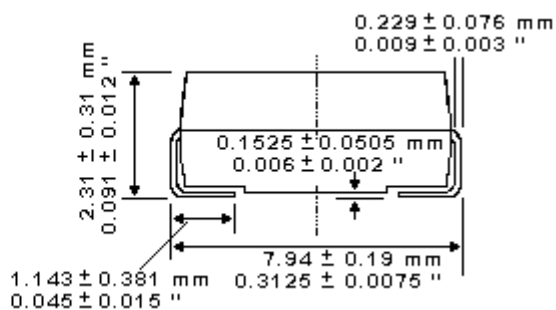
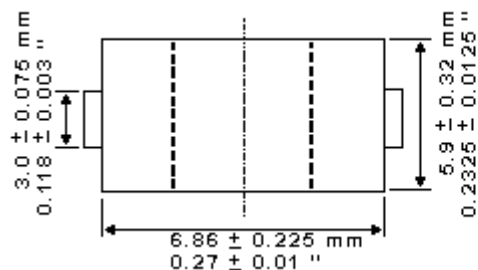
### Absolute Maximum Ratings

- Peak pulse power dissipation (Pppm) at 25°C..... 3000W
- Operating and storage temperatures..... -55°C to + 150°C

### Mechanical Characteristics

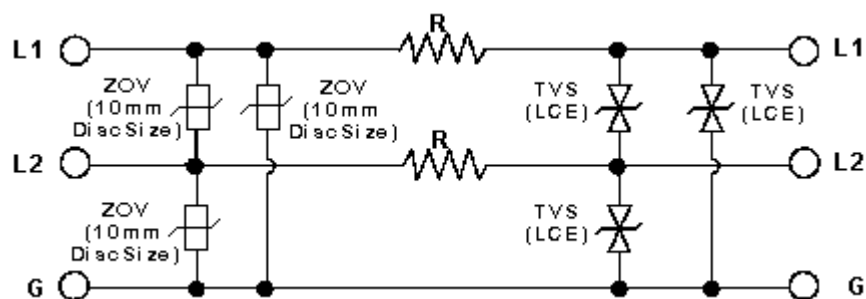
- DO214AB package
- UL94V-0 Thermoset Epoxy
- Solder plated terminals
- Solderable per MIL-STD-750 Method 2026

### Mechanical Dimensions

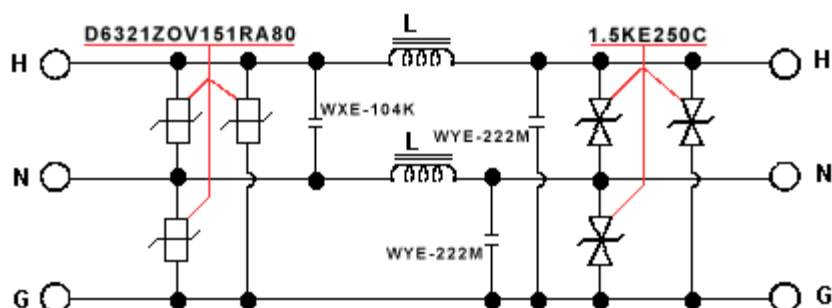


## TVS Diodes - Circuit Examples

### Data Line Protection

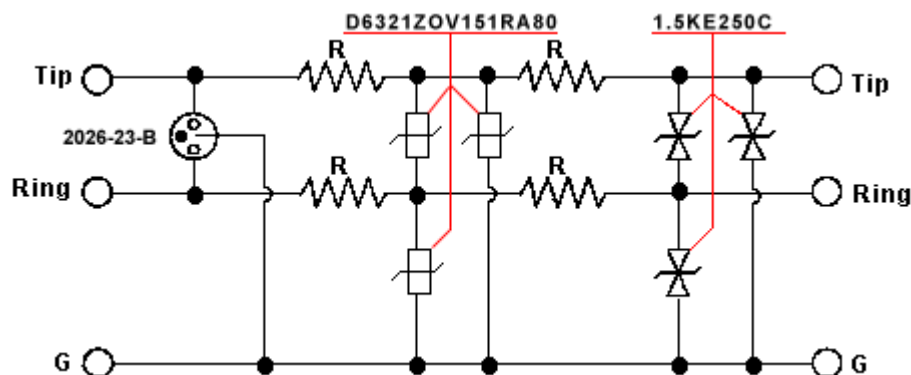


### AC Line Protection



- WXE = World Products RFI Suppressor "X Type" (Across-the-Line)
- WYE = World Products RFI Suppressor "Y Type" (Line-to-Ground)

### Telecom Circuit Protection



- 2026 = Joslyn Gas Discharge Tubes represented exclusively by World Products.