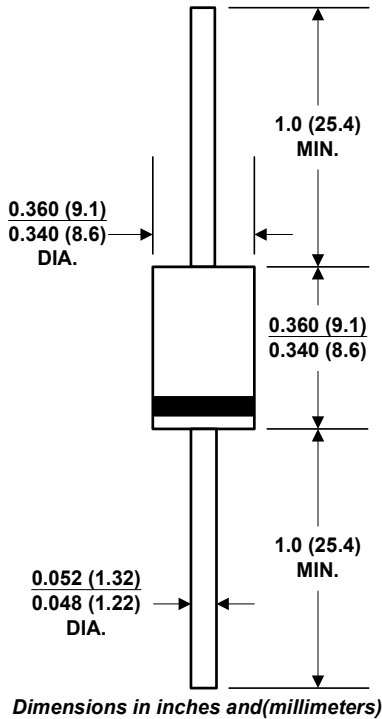


## 3KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR STAND-OFF VOLTAGE - 5.0 TO 220 Volts 3000 Watt Peak Pulse Power

#### Case Style P600



#### FEATURES

- ⊙ Halogen-Free
- ⊙ RoHS compliant
- ⊙ Typical maximum temperature coefficient  $\Delta V_{BR}=0.1\% \times V_{BR} @ 25^{\circ}\text{C} \times \Delta T$
- ⊙ Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- ⊙ Glass passivated junction
- ⊙ 3000W Peak Pulse Power capability on 10/1000  $\mu\text{s}$  waveform
- ⊙ Excellent clamping capability
- ⊙ Repetition rate (duty cycle):0.05%
- ⊙ Low incremental surge resistance
- ⊙ Fast response time: typically less than 1.0ps from 0 Volts to  $V_{BR}$
- ⊙ Typical IR less than 2  $\mu\text{A}$  above 12V
- ⊙ High temperature soldering guaranteed: 260°C/40 seconds/.375" , (9.5mm) lead length, 5lbs., (2.3kg) tension
- ⊙ Matte Tin Lead-free plated

#### MECHANICAL DATA

**Case:** Molded plastic over glass passivated junction

**Terminal:** Solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denotes positive end (cathode) except Bipolar

**Mounting Position :** Any

**Weight:** 0.07ounce, 2.1gram

#### DEVICES FOR BIPOLAR APPLICATION

For Bidirectional use C or CA Suffix for types 3KP5.0 thru types 3KP220 (e.g. 3KP5.0C , 3KP220CA)  
Electrical characteristics apply in both directions

#### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| RATING                                                                                                    | SYMBOL         | VALUE           | UNITS              |
|-----------------------------------------------------------------------------------------------------------|----------------|-----------------|--------------------|
| Peak Pulse Power Dissipation on 10/1000 $\mu\text{s}$ waveform (Note 1,FIG.1)                             | $P_{PPM}$      | Minimum<br>3000 | Watts              |
| Peak Pulse Current of on 10/1000 $\mu\text{s}$ waveform (Note 1,FIG.3)                                    | $I_{PPM}$      | SEE<br>TABLE 1  | Amps               |
| Steady State Power Dissipation at $T_L = 75^{\circ}\text{C}?$ , Lead lengths.375", (9.5mm) (Note 2)       | $P_{M(AV)}$    | 7               | Watts              |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note 3) | $I_{FSM}$      | 300             | Amps               |
| Operating junction and Storage Temperature Range                                                          | $T_J, T_{STG}$ | -55 to<br>+ 175 | $^{\circ}\text{C}$ |

#### Notes :

- 1.Non-repetitive current pulse , per Fig. 3 and derated above  $T_{A?} = 25^{\circ}\text{C}?$  per Fig. 2 .
- 2.Mounted on Copper Pad area of 1.6×1.6" (40×40mm) per Fig. 5.
- 3.8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

### 3KP SERIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

### STAND-OFF VOLTAGE - 5.0 TO 220 Volts

### 3000 Watt Peak Pulse Power

| 3KP<br>PART NUMBER |          | REVERSE<br>STAND-<br>OFF<br>VOLTAGE<br>$V_{RWM}(V)$ | BREAKDOWN<br>VOLTAGE<br>$V_{BR}(V) @ I_T$ |        | TEST<br>CURRENT<br>$I_T (mA)$ | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>$@ I_{pp} V_c(V)$ | PEAK<br>PULSE<br>CURRENT<br>$I_{pp} (A)$ | REVERSE<br>LEAKAGE<br>@ $V_{RWM}$<br>$I_R (\mu A)$ |
|--------------------|----------|-----------------------------------------------------|-------------------------------------------|--------|-------------------------------|-----------------------------------------------------|------------------------------------------|----------------------------------------------------|
| UNI-POLAR          | BI-POLAR |                                                     | MIN                                       | MAX    |                               |                                                     |                                          |                                                    |
| 3KP5.0A            | 3KP5.0CA | 5.0                                                 | 6.40                                      | 7.00   | 50                            | 9.2                                                 | 326.1                                    | 5000                                               |
| 3KP6.0A            | 3KP6.0CA | 6.0                                                 | 6.67                                      | 7.37   | 50                            | 10.3                                                | 291.3                                    | 5000                                               |
| 3KP6.5A            | 3KP6.5CA | 6.5                                                 | 7.22                                      | 7.98   | 50                            | 11.2                                                | 267.9                                    | 2000                                               |
| 3KP7.0A            | 3KP7.0CA | 7.0                                                 | 7.78                                      | 8.60   | 50                            | 12.0                                                | 250.0                                    | 1000                                               |
| 3KP7.5A            | 3KP7.5CA | 7.5                                                 | 8.33                                      | 9.21   | 5                             | 12.9                                                | 232.6                                    | 250                                                |
| 3KP8.0A            | 3KP8.0CA | 8.0                                                 | 8.89                                      | 9.83   | 5                             | 13.6                                                | 220.6                                    | 150                                                |
| 3KP8.5A            | 3KP8.5CA | 8.5                                                 | 9.44                                      | 10.40  | 5                             | 14.4                                                | 208.3                                    | 50                                                 |
| 3KP9.0A            | 3KP9.0CA | 9.0                                                 | 10.00                                     | 11.10  | 5                             | 15.4                                                | 194.8                                    | 20                                                 |
| 3KP10A             | 3KP10CA  | 10.0                                                | 11.10                                     | 12.30  | 5                             | 17.0                                                | 176.5                                    | 15                                                 |
| 3KP11A             | 3KP11CA  | 11.0                                                | 12.20                                     | 13.50  | 5                             | 18.2                                                | 164.8                                    | 2                                                  |
| 3KP12A             | 3KP12CA  | 12.0                                                | 13.30                                     | 14.70  | 5                             | 19.9                                                | 150.8                                    | 2                                                  |
| 3KP13A             | 3KP13CA  | 13.0                                                | 14.40                                     | 15.90  | 5                             | 21.5                                                | 139.5                                    | 2                                                  |
| 3KP14A             | 3KP14CA  | 14.0                                                | 15.60                                     | 17.20  | 5                             | 23.2                                                | 129.3                                    | 2                                                  |
| 3KP15A             | 3KP15CA  | 15.0                                                | 16.70                                     | 18.50  | 5                             | 24.4                                                | 123.0                                    | 2                                                  |
| 3KP16A             | 3KP16CA  | 16.0                                                | 17.80                                     | 19.70  | 5                             | 26.0                                                | 115.4                                    | 2                                                  |
| 3KP17A             | 3KP17CA  | 17.0                                                | 18.90                                     | 20.90  | 5                             | 27.6                                                | 108.7                                    | 2                                                  |
| 3KP18A             | 3KP18CA  | 18.0                                                | 20.00                                     | 22.10  | 5                             | 29.2                                                | 102.7                                    | 2                                                  |
| 3KP20A             | 3KP20CA  | 20.0                                                | 22.20                                     | 24.50  | 5                             | 32.4                                                | 92.6                                     | 2                                                  |
| 3KP22A             | 3KP22CA  | 22.0                                                | 24.40                                     | 26.90  | 5                             | 35.5                                                | 84.5                                     | 2                                                  |
| 3KP24A             | 3KP24CA  | 24.0                                                | 26.70                                     | 29.50  | 5                             | 38.9                                                | 77.1                                     | 2                                                  |
| 3KP26A             | 3KP26CA  | 26.0                                                | 28.90                                     | 31.90  | 5                             | 42.1                                                | 71.3                                     | 2                                                  |
| 3KP28A             | 3KP28CA  | 28.0                                                | 31.10                                     | 34.40  | 5                             | 45.4                                                | 66.1                                     | 2                                                  |
| 3KP30A             | 3KP30CA  | 30.0                                                | 33.30                                     | 36.80  | 5                             | 48.4                                                | 62.0                                     | 2                                                  |
| 3KP33A             | 3KP33CA  | 33.0                                                | 36.70                                     | 40.60  | 5                             | 53.3                                                | 56.3                                     | 2                                                  |
| 3KP36A             | 3KP36CA  | 36.0                                                | 40.00                                     | 44.20  | 5                             | 58.1                                                | 51.6                                     | 2                                                  |
| 3KP40A             | 3KP40CA  | 40.0                                                | 44.40                                     | 49.10  | 5                             | 64.5                                                | 46.5                                     | 2                                                  |
| 3KP43A             | 3KP43CA  | 43.0                                                | 47.80                                     | 52.80  | 5                             | 69.4                                                | 43.2                                     | 2                                                  |
| 3KP45A             | 3KP45CA  | 45.0                                                | 50.00                                     | 55.30  | 5                             | 72.7                                                | 41.3                                     | 2                                                  |
| 3KP48A             | 3KP48CA  | 48.0                                                | 53.30                                     | 58.90  | 5                             | 77.4                                                | 38.8                                     | 2                                                  |
| 3KP51A             | 3KP51CA  | 51.0                                                | 56.70                                     | 62.70  | 5                             | 82.4                                                | 36.4                                     | 2                                                  |
| 3KP54A             | 3KP54CA  | 54.0                                                | 60.00                                     | 66.30  | 5                             | 87.1                                                | 34.4                                     | 2                                                  |
| 3KP58A             | 3KP58CA  | 58.0                                                | 64.40                                     | 71.20  | 5                             | 93.6                                                | 32.1                                     | 2                                                  |
| 3KP60A             | 3KP60CA  | 60.0                                                | 66.70                                     | 73.70  | 5                             | 96.8                                                | 31.0                                     | 2                                                  |
| 3KP64A             | 3KP64CA  | 64.0                                                | 71.10                                     | 78.60  | 5                             | 103.0                                               | 29.1                                     | 2                                                  |
| 3KP70A             | 3KP70CA  | 70.0                                                | 77.80                                     | 86.00  | 5                             | 113.0                                               | 26.5                                     | 2                                                  |
| 3KP75A             | 3KP75CA  | 75.0                                                | 83.30                                     | 92.10  | 5                             | 121.0                                               | 24.8                                     | 2                                                  |
| 3KP78A             | 3KP78CA  | 78.0                                                | 86.70                                     | 95.80  | 5                             | 126.0                                               | 23.8                                     | 2                                                  |
| 3KP85A             | 3KP85CA  | 85.0                                                | 94.40                                     | 104.00 | 5                             | 137.0                                               | 21.9                                     | 2                                                  |
| 3KP90A             | 3KP90CA  | 90.0                                                | 100.00                                    | 111.00 | 5                             | 146.0                                               | 20.5                                     | 2                                                  |
| 3KP100A            | 3KP100CA | 100.0                                               | 111.00                                    | 123.00 | 5                             | 162.0                                               | 18.5                                     | 2                                                  |
| 3KP110A            | 3KP110CA | 110.0                                               | 122.00                                    | 135.00 | 5                             | 177.0                                               | 16.9                                     | 2                                                  |
| 3KP120A            | 3KP120CA | 120.0                                               | 133.00                                    | 147.00 | 5                             | 193.0                                               | 15.5                                     | 2                                                  |
| 3KP130A            | 3KP130CA | 130.0                                               | 144.00                                    | 159.00 | 5                             | 209.0                                               | 14.4                                     | 2                                                  |
| 3KP150A            | 3KP150CA | 150.0                                               | 167.00                                    | 185.00 | 5                             | 243.0                                               | 12.3                                     | 2                                                  |
| 3KP160A            | 3KP160CA | 160.0                                               | 178.00                                    | 197.00 | 5                             | 259.0                                               | 11.6                                     | 2                                                  |
| 3KP170A            | 3KP170CA | 170.0                                               | 189.00                                    | 209.00 | 5                             | 275.0                                               | 10.9                                     | 2                                                  |
| 3KP180A            | 3KP180CA | 180.0                                               | 200.00                                    | 221.00 | 5                             | 289.0                                               | 10.4                                     | 2                                                  |
| 3KP190A            | 3KP190CA | 190.0                                               | 211.00                                    | 233.00 | 5                             | 310.0                                               | 9.7                                      | 2                                                  |
| 3KP200A            | 3KP200CA | 200.0                                               | 222.00                                    | 246.00 | 5                             | 329.2                                               | 9.1                                      | 2                                                  |
| 3KP210A            | 3KP210CA | 210.0                                               | 233.00                                    | 258.00 | 5                             | 349.5                                               | 8.6                                      | 2                                                  |
| 3KP220A            | 3KP220CA | 220.0                                               | 244.00                                    | 270.00 | 5                             | 371.1                                               | 8.1                                      | 2                                                  |

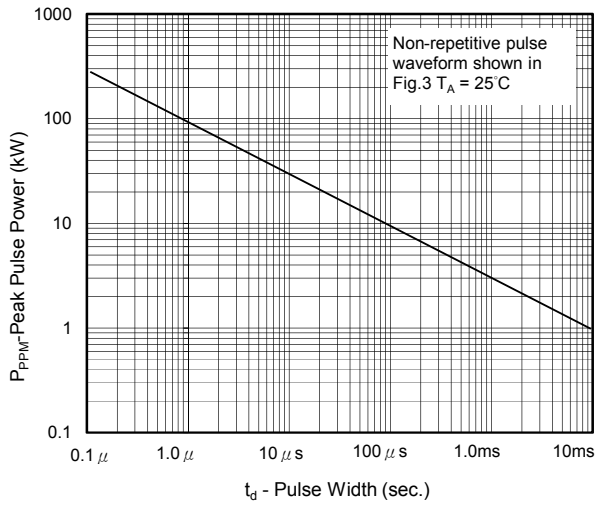
For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.

For parts without A, the  $V_{BR}$  is  $\pm 10\%$ , the  $V_c$  is 10% higher

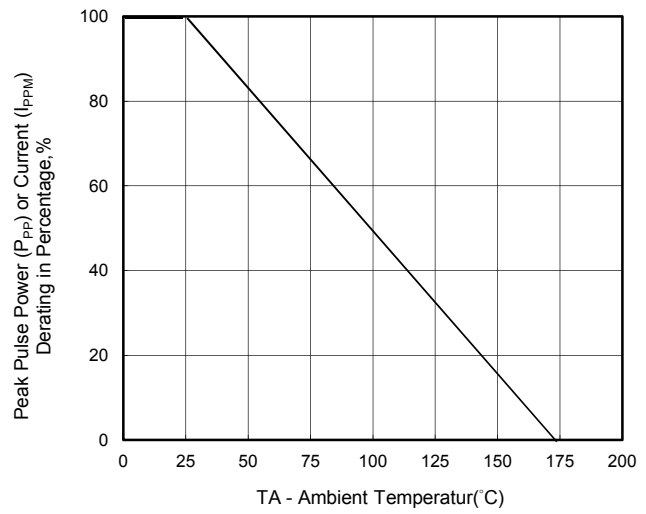
# 3KP SERIES

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

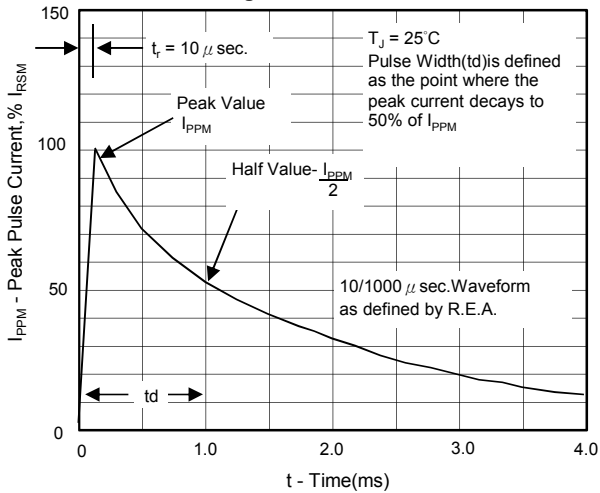
**Fig. 1 - Peak Pulse Power Rating Curve**



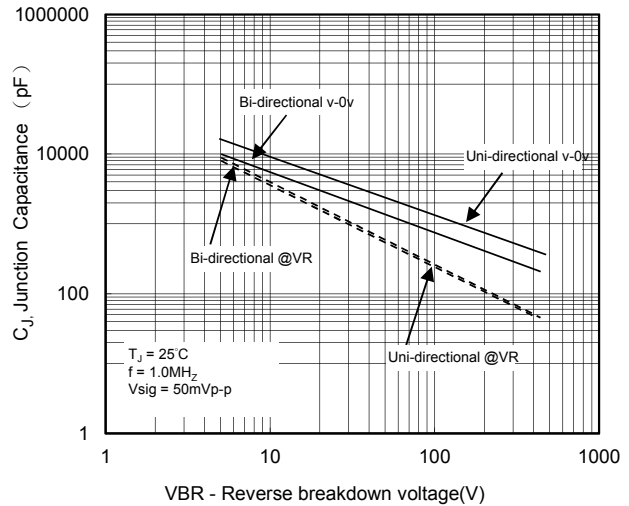
**Fig.2 - Pulse Derating Curve**



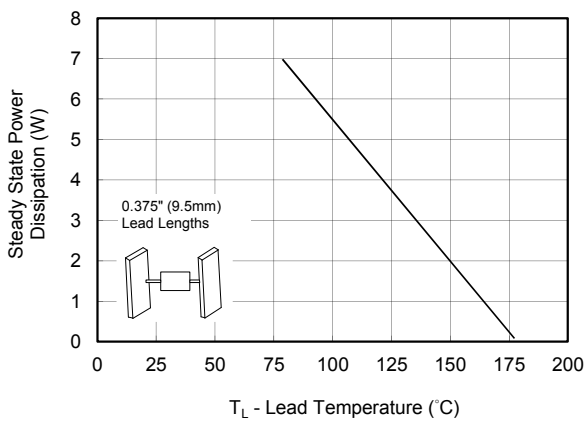
**Fig.3 - Pulse Waveform**



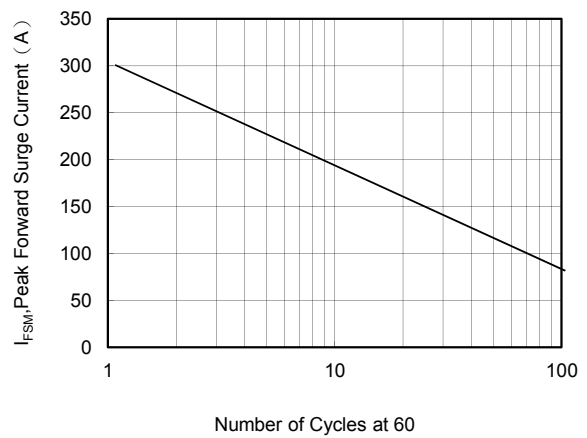
**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 - Steady State Power Derating Curve**



**Fig.6 - Maximum Non-repetitive Forward**



## 3KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

#### Part Numbering System

**3KP xxx XX**

**TYPE CODE:**

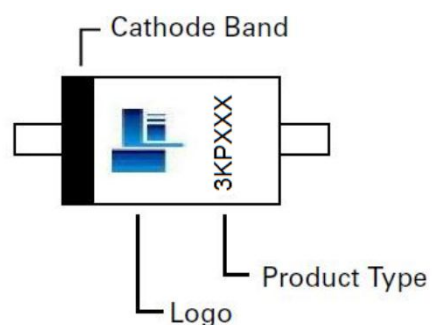
- A** Uni-Directional (5% Voltage Tolerance)
- CA** Bi-Directional

**VOLTAGE CODE**

(Refer to the Electrical Characteristics table)

**SERIES CODE**

#### Part Marking System



#### Packaging

| Part number | Component Package | Quantity | Packaging Option | Packaging Specification            |
|-------------|-------------------|----------|------------------|------------------------------------|
| 3KPxxxXX    | P-600             | 750      | Tape & Reel      | EIA STD RS-296E                    |
| 3KPxxxXX    | P-600             | 300      | Tape & Box       | Lucky Forests Packing Spec. DM-024 |
| 3KPxxxXX    | P-600             | 200      | Bulk             | Lucky Forests Packing Spec. DM-024 |