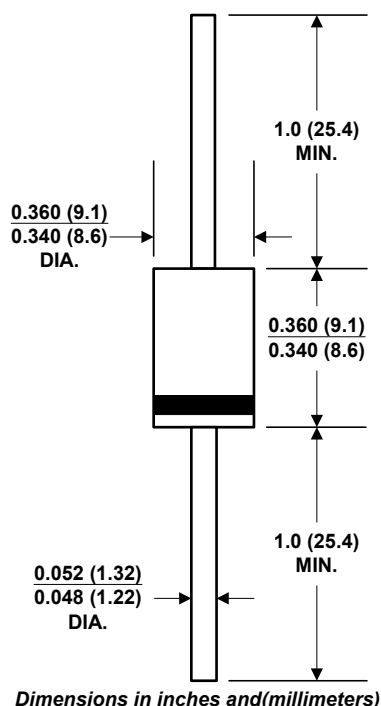


## 5KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR STAND-OFF VOLTAGE - 5.0 TO 250 Volts 5000 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
- ⊙ Glass passivated chip junction
- ⊙ 5000W 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 BV
- ⊙ Typical IR less than 2  $\mu\text{A}$  for  $V_{BR} \geq 12\text{V}$
- ⊙ 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 5KP5.0 thru types 5KP250 (e.g. 5KP5.0C , 5KP250CA)  
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>5000 | 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)         | $P_M (AV)$     | 8               | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3) | $I_{FSM}$      | 400             | Amps  |
| Operating junction and Storage Temperature Range                                                            | $T_J, T_{STG}$ | -55 to<br>+ 175 | °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 0.8×0.8" (20×20mm) per Fig. 5.

3. 8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

## 5KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR STAND-OFF VOLTAGE - 5.0 TO 250 Volts 5000 Watt Peak Pulse Power

| 5KP<br>PART NUMBER |          | REVERSE<br>STAND- 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>$I_R (\mu A)$ |
|--------------------|----------|--------------------------------------------------|-------------------------------------------|-------|-------------------------------|------------------------------------------------------|------------------------------------------|----------------------------------------------------|
| JNI-POLAR          | BI-POLAR |                                                  | MIN                                       | MAX   |                               |                                                      |                                          |                                                    |
| 5KP5.0A            | 5KP5.0CA | 5.0                                              | 6.40                                      | 7.00  | 50                            | 9.2                                                  | 554.3                                    | 5000                                               |
| 5KP6.0A            | 5KP6.0CA | 6.0                                              | 6.67                                      | 7.37  | 50                            | 10.3                                                 | 495.1                                    | 5000                                               |
| 5KP6.5A            | 5KP6.5CA | 6.5                                              | 7.22                                      | 7.98  | 50                            | 11.2                                                 | 455.4                                    | 2000                                               |
| 5KP7.0A            | 5KP7.0CA | 7.0                                              | 7.78                                      | 8.60  | 50                            | 12.0                                                 | 425.0                                    | 1000                                               |
| 5KP7.5A            | 5KP7.5CA | 7.5                                              | 8.33                                      | 9.21  | 5                             | 12.9                                                 | 395.3                                    | 250                                                |
| 5KP8.0A            | 5KP8.0CA | 8.0                                              | 8.89                                      | 9.83  | 5                             | 13.6                                                 | 375.0                                    | 150                                                |
| 5KP8.5A            | 5KP8.5CA | 8.5                                              | 9.44                                      | 10.40 | 5                             | 14.4                                                 | 354.2                                    | 50                                                 |
| 5KP9.0A            | 5KP9.0CA | 9.0                                              | 10.00                                     | 11.10 | 5                             | 15.4                                                 | 331.2                                    | 20                                                 |
| 5KP10A             | 5KP10CA  | 10.0                                             | 11.10                                     | 12.30 | 5                             | 17.0                                                 | 300.0                                    | 15                                                 |
| 5KP11A             | 5KP11CA  | 11.0                                             | 12.20                                     | 13.50 | 5                             | 18.2                                                 | 280.2                                    | 2                                                  |
| 5KP12A             | 5KP12CA  | 12.0                                             | 13.30                                     | 14.70 | 5                             | 19.9                                                 | 256.3                                    | 2                                                  |
| 5KP13A             | 5KP13CA  | 13.0                                             | 14.40                                     | 15.90 | 5                             | 21.5                                                 | 237.2                                    | 2                                                  |
| 5KP14A             | 5KP14CA  | 14.0                                             | 15.60                                     | 17.20 | 5                             | 23.2                                                 | 219.8                                    | 2                                                  |
| 5KP15A             | 5KP15CA  | 15.0                                             | 16.70                                     | 18.50 | 5                             | 24.4                                                 | 209.0                                    | 2                                                  |
| 5KP16A             | 5KP16CA  | 16.0                                             | 17.80                                     | 19.70 | 5                             | 26.0                                                 | 196.2                                    | 2                                                  |
| 5KP17A             | 5KP17CA  | 17.0                                             | 18.90                                     | 20.90 | 5                             | 27.6                                                 | 184.8                                    | 2                                                  |
| 5KP18A             | 5KP18CA  | 18.0                                             | 20.00                                     | 22.10 | 5                             | 29.2                                                 | 174.7                                    | 2                                                  |
| 5KP20A             | 5KP20CA  | 20.0                                             | 22.20                                     | 24.50 | 5                             | 32.4                                                 | 157.4                                    | 2                                                  |
| 5KP22A             | 5KP22CA  | 22.0                                             | 24.00                                     | 26.90 | 5                             | 35.5                                                 | 143.7                                    | 2                                                  |
| 5KP24A             | 5KP24CA  | 24.0                                             | 26.70                                     | 29.50 | 5                             | 38.9                                                 | 131.1                                    | 2                                                  |
| 5KP26A             | 5KP26CA  | 26.0                                             | 28.90                                     | 31.90 | 5                             | 42.1                                                 | 121.1                                    | 2                                                  |
| 5KP28A             | 5KP28CA  | 28.0                                             | 31.10                                     | 34.40 | 5                             | 45.4                                                 | 112.3                                    | 2                                                  |
| 5KP30A             | 5KP30CA  | 30.0                                             | 33.30                                     | 36.80 | 5                             | 48.4                                                 | 105.4                                    | 2                                                  |
| 5KP33A             | 5KP33CA  | 33                                               | 36.7                                      | 40.6  | 5                             | 53.3                                                 | 95.7                                     | 2                                                  |
| 5KP36A             | 5KP36CA  | 36                                               | 40.0                                      | 44.2  | 5                             | 58.1                                                 | 87.8                                     | 2                                                  |
| 5KP40A             | 5KP40CA  | 40                                               | 44.4                                      | 49.1  | 5                             | 64.5                                                 | 79.1                                     | 2                                                  |
| 5KP43A             | 5KP43CA  | 43                                               | 47.8                                      | 52.8  | 5                             | 69.4                                                 | 73.5                                     | 2                                                  |
| 5KP45A             | 5KP45CA  | 45                                               | 50.0                                      | 55.3  | 5                             | 72.7                                                 | 70.2                                     | 2                                                  |
| 5KP48A             | 5KP48CA  | 48                                               | 53.3                                      | 58.9  | 5                             | 77.4                                                 | 65.9                                     | 2                                                  |
| 5KP51A             | 5KP51CA  | 51                                               | 56.7                                      | 62.7  | 5                             | 82.4                                                 | 61.9                                     | 2                                                  |
| 5KP54A             | 5KP54CA  | 54                                               | 60.0                                      | 66.3  | 5                             | 87.1                                                 | 58.6                                     | 2                                                  |
| 5KP58A             | 5KP58CA  | 58                                               | 64.4                                      | 71.2  | 5                             | 93.6                                                 | 54.5                                     | 2                                                  |
| 5KP60A             | 5KP60CA  | 60                                               | 66.7                                      | 73.7  | 5                             | 96.8                                                 | 52.7                                     | 2                                                  |
| 5KP64A             | 5KP64CA  | 64                                               | 71.1                                      | 78.6  | 5                             | 103.0                                                | 49.5                                     | 2                                                  |
| 5KP70A             | 5KP70CA  | 70                                               | 77.8                                      | 86.0  | 5                             | 113.0                                                | 45.1                                     | 2                                                  |
| 5KP75A             | 5KP75CA  | 75                                               | 83.3                                      | 92.1  | 5                             | 121.0                                                | 42.1                                     | 2                                                  |
| 5KP78A             | 5KP78CA  | 78                                               | 86.7                                      | 95.8  | 5                             | 126.0                                                | 40.5                                     | 2                                                  |
| 5KP85A             | 5KP85CA  | 85                                               | 94.4                                      | 104.0 | 5                             | 137.0                                                | 37.2                                     | 2                                                  |
| 5KP90A             | 5KP90CA  | 90                                               | 100.0                                     | 111.0 | 5                             | 146.0                                                | 34.9                                     | 2                                                  |
| 5KP100A            | 5KP100CA | 100                                              | 110.0                                     | 123.0 | 5                             | 162.0                                                | 31.5                                     | 2                                                  |
| 5KP110A            | 5KP110CA | 110                                              | 122.0                                     | 135.0 | 5                             | 177.0                                                | 28.8                                     | 2                                                  |
| 5KP120A            | 5KP120CA | 120                                              | 133.0                                     | 147.0 | 5                             | 193.0                                                | 26.4                                     | 2                                                  |
| 5KP130A            | 5KP130CA | 130                                              | 144.0                                     | 159.0 | 5                             | 209.0                                                | 24.4                                     | 2                                                  |
| 5KP150A            | 5KP150CA | 150                                              | 167.0                                     | 185.0 | 5                             | 243.0                                                | 21.0                                     | 2                                                  |
| 5KP160A            | 5KP160CA | 160                                              | 178.0                                     | 197.0 | 5                             | 259.0                                                | 19.7                                     | 2                                                  |
| 5KP170A            | 5KP170CA | 170                                              | 189.0                                     | 209.0 | 5                             | 275.0                                                | 18.5                                     | 2                                                  |
| 5KP180A            | 5KP180CA | 180                                              | 200.0                                     | 221.0 | 5                             | 292.0                                                | 17.5                                     | 2                                                  |
| 5KP190A            | 5KP190CA | 190                                              | 211.0                                     | 233.0 | 5                             | 310.0                                                | 16.5                                     | 2                                                  |
| 5KP200A            | 5KP200CA | 200                                              | 222.0                                     | 246.0 | 5                             | 329.2                                                | 15.5                                     | 2                                                  |
| 5KP210A            | 5KP210CA | 210                                              | 233.0                                     | 258.0 | 5                             | 349.5                                                | 14.6                                     | 2                                                  |
| 5KP220A            | 5KP220CA | 220                                              | 244.0                                     | 270.0 | 5                             | 371.1                                                | 13.7                                     | 2                                                  |
| 5KP250A            | 5KP250CA | 250                                              | 277.0                                     | 306.0 | 5                             | 425.0                                                | 12.0                                     | 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

# 5KP SERIES

## RATINGS AND CHARACTERISTIC CURVES

### Ratings and

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

Fig. 1 - Peak Pulse Power Rating Curve

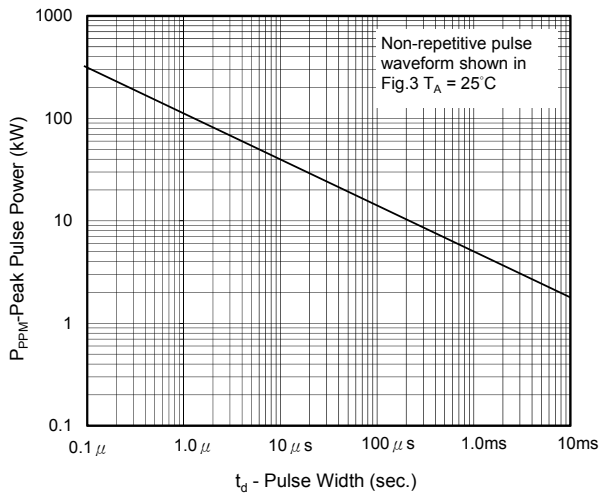


Fig.2 - Pulse Derating Curve

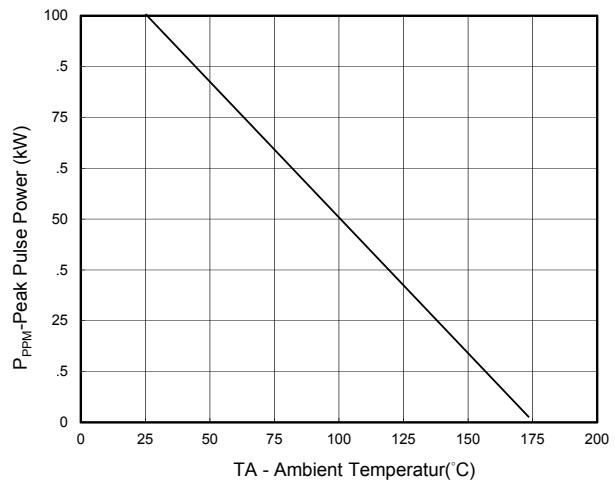


Fig.3 - Pulse Waveform

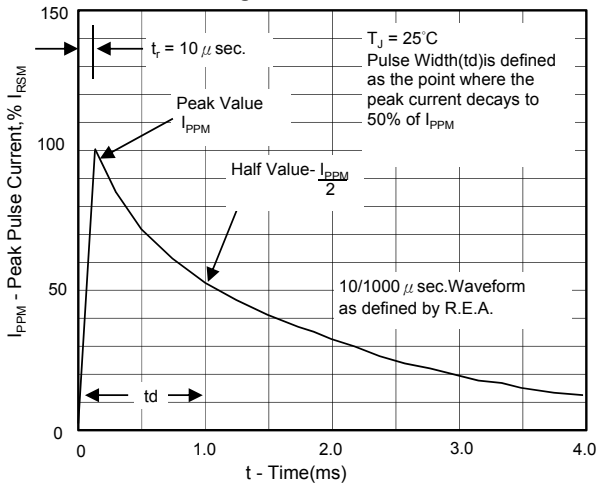


Fig. 4 - Typical Junction Capacitance

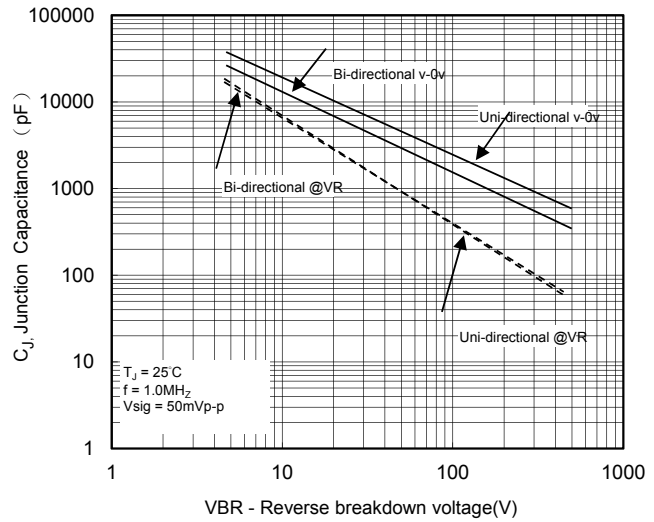


Fig. 5 - Steady State Power Derating Curve

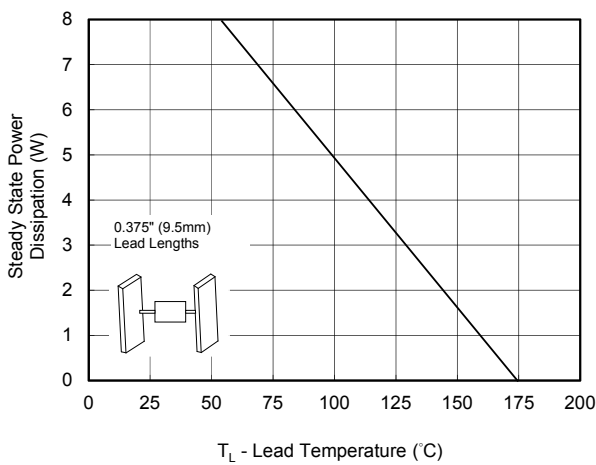
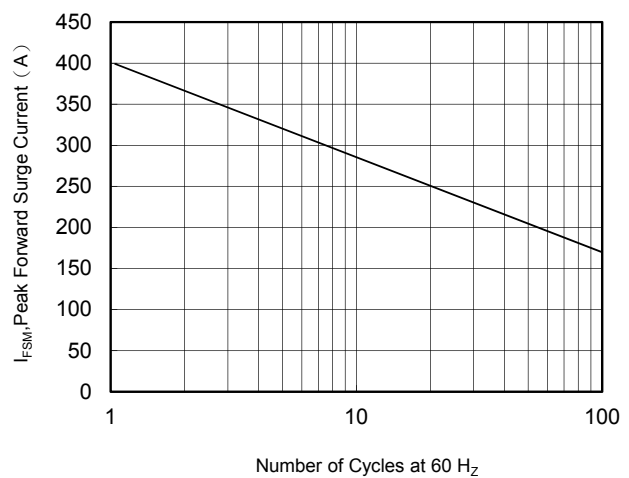


Fig.6 - Maximum Non-repetitive Forward Surge current



## 5KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

#### Part Numbering System

**5KP xxx XX**

**TYPE CODE:**

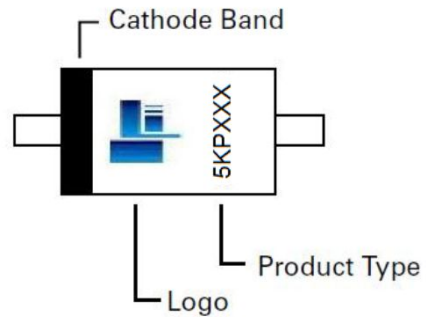
- A** Uni-Directional (5% Voltage Tolerance)
- CA** Bi-Directional

**VOLTAGE CODE**

(Refer to the Electrical Characteristics table)

**SERIES CODE**

#### Part Marking System



#### Packaging

| Part number | Component Package | Quantity | Packaging Option | Packaging Specification            |
|-------------|-------------------|----------|------------------|------------------------------------|
| 5KPxxxXX    | P-600             | 750      | Tape & Reel      | EIA STD RS-296E                    |
| 5KPxxxXX    | P-600             | 300      | Tape & Box       | Lucky Forests Packing Spec. DM-024 |
| 5KPxxxXX    | P-600             | 200      | Bulk             | Lucky Forests Packing Spec. DM-024 |