

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

### Features

- ◆ 5000w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0v to VBR for unidirectional and 5.0ns for bidirectional types.
- ◆ High temperature soldering guaranteed:  
265°C/10S/9.5mm lead length at 5 lbs tension



### Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

|                                                                                   | SYMBOLS                           | VALUE        | UNITS |
|-----------------------------------------------------------------------------------|-----------------------------------|--------------|-------|
| Peak power dissipation                                                            | PPM                               | Minimum 5000 | Watts |
| Peak pulse reverse current                                                        | I <sub>PPM</sub>                  | See Table 1  | Amps  |
| Steady state power dissipation (Note 2)                                           | P <sub>M(AV)</sub>                | 8.0          | Watts |
| Peak forward surge current                                                        | I <sub>FSM</sub>                  | 400          | Amps  |
| Maximum instantaneous forward voltage at 100A<br>for unidirectional only (Note 3) | V <sub>F</sub>                    | 3.5/5.0      | Volts |
| Operating junction and storage temperature range                                  | T <sub>STG</sub> , T <sub>J</sub> | -55 to + 175 | °C    |

Note:

1. 10/1000μs waveform non-repetitive current pulse, per Fig.3 and derated above T<sub>a</sub>=25°C per Fig.2
2. T<sub>L</sub>=75°C, lead lengths 9.5mm, Mounted on copper pad area of (20x20mm) Fig.5
3. V<sub>F</sub> < 3.5V for devices of V<sub>BR</sub> ≤ 200V and V<sub>F</sub> < 5.0V for devices of V<sub>BR</sub> ≥ 201V.

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Reverse Stand off Voltage V <sub>R</sub> (Volts) | Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub> |        | Test Current I <sub>T</sub> (mA) | Maximum Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub> (V) | Maximum Peak Pulse Current I <sub>PP</sub> (A) | Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA) |
|-------------------|------------------|--------------------------------------------------|------------------------------------------------------------|--------|----------------------------------|---------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------|
|                   |                  |                                                  | 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          | 33.0                                             | 36.70                                                      | 40.60  | 5                                | 53.3                                                          | 95.7                                           | 2                                                            |
| 5KP36A            | 5KP36CA          | 36.0                                             | 40.00                                                      | 44.20  | 5                                | 58.1                                                          | 87.8                                           | 2                                                            |
| 5KP40A            | 5KP40CA          | 40.0                                             | 44.40                                                      | 49.10  | 5                                | 64.5                                                          | 79.1                                           | 2                                                            |
| 5KP43A            | 5KP43CA          | 43.0                                             | 47.80                                                      | 52.80  | 5                                | 69.4                                                          | 73.5                                           | 2                                                            |
| 5KP45A            | 5KP45CA          | 45.0                                             | 50.00                                                      | 55.30  | 5                                | 72.7                                                          | 70.2                                           | 2                                                            |
| 5KP48A            | 5KP48CA          | 48.0                                             | 53.30                                                      | 58.90  | 5                                | 77.4                                                          | 65.9                                           | 2                                                            |
| 5KP51A            | 5KP51CA          | 51.0                                             | 56.70                                                      | 62.70  | 5                                | 82.4                                                          | 61.9                                           | 2                                                            |
| 5KP54A            | 5KP54CA          | 54.0                                             | 60.00                                                      | 66.30  | 5                                | 87.1                                                          | 58.6                                           | 2                                                            |
| 5KP58A            | 5KP58CA          | 58.0                                             | 64.40                                                      | 71.20  | 5                                | 93.6                                                          | 54.5                                           | 2                                                            |
| 5KP60A            | 5KP60CA          | 60.0                                             | 66.70                                                      | 73.70  | 5                                | 96.8                                                          | 52.7                                           | 2                                                            |
| 5KP64A            | 5KP64CA          | 64.0                                             | 71.10                                                      | 78.60  | 5                                | 103.0                                                         | 49.5                                           | 2                                                            |
| 5KP70A            | 5KP70CA          | 70.0                                             | 77.80                                                      | 86.00  | 5                                | 113.0                                                         | 45.1                                           | 2                                                            |
| 5KP75A            | 5KP75CA          | 75.0                                             | 83.30                                                      | 92.10  | 5                                | 121.0                                                         | 42.1                                           | 2                                                            |
| 5KP78A            | 5KP78CA          | 78.0                                             | 86.70                                                      | 95.80  | 5                                | 126.0                                                         | 40.5                                           | 2                                                            |
| 5KP85A            | 5KP85CA          | 85.0                                             | 94.40                                                      | 104.00 | 5                                | 137.0                                                         | 37.2                                           | 2                                                            |
| 5KP90A            | 5KP90CA          | 90.0                                             | 100.00                                                     | 111.00 | 5                                | 146.0                                                         | 34.9                                           | 2                                                            |
| 5KP100A           | 5KP100CA         | 100.0                                            | 110.00                                                     | 123.00 | 5                                | 162.0                                                         | 31.5                                           | 2                                                            |
| 5KP110A           | 5KP110CA         | 110.0                                            | 122.00                                                     | 135.00 | 5                                | 177.0                                                         | 28.8                                           | 2                                                            |
| 5KP120A           | 5KP120CA         | 120.0                                            | 133.00                                                     | 147.00 | 5                                | 193.0                                                         | 26.4                                           | 2                                                            |
| 5KP130A           | 5KP130CA         | 130.0                                            | 144.00                                                     | 159.00 | 5                                | 209.0                                                         | 24.4                                           | 2                                                            |
| 5KP150A           | 5KP150CA         | 150.0                                            | 167.00                                                     | 185.00 | 5                                | 243.0                                                         | 21.0                                           | 2                                                            |
| 5KP160A           | 5KP160CA         | 160.0                                            | 178.00                                                     | 197.00 | 5                                | 259.0                                                         | 19.7                                           | 2                                                            |
| 5KP170A           | 5KP170CA         | 170.0                                            | 189.00                                                     | 209.00 | 5                                | 275.0                                                         | 18.5                                           | 2                                                            |
| 5KP180A           | 5KP180CA         | 180.0                                            | 200.00                                                     | 221.00 | 5                                | 292.0                                                         | 17.5                                           | 2                                                            |
| 5KP190A           | 5KP190CA         | 190.0                                            | 211.00                                                     | 233.00 | 5                                | 310.0                                                         | 16.5                                           | 2                                                            |
| 5KP200A           | 5KP200CA         | 200.0                                            | 222.00                                                     | 246.00 | 5                                | 329.2                                                         | 15.5                                           | 2                                                            |
| 5KP210A           | 5KP210CA         | 210.0                                            | 233.00                                                     | 258.00 | 5                                | 349.5                                                         | 14.6                                           | 2                                                            |
| 5KP220A           | 5KP220CA         | 220.0                                            | 244.00                                                     | 270.00 | 5                                | 371.1                                                         | 13.7                                           | 2                                                            |
| 5KP250A           | 5KP250CA         | 250.0                                            | 277.00                                                     | 306.00 | 5                                | 425.0                                                         | 12.0                                           | 2                                                            |

For bidirectional type having V<sub>R</sub> of 10 volts and less, the I<sub>R</sub> limit is double.  
For parts without A, the V<sub>BR</sub> is + 10% and V<sub>C</sub> is 5% higher than with A parts

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

Figure 1 -TVS Transients Clamping Waveform



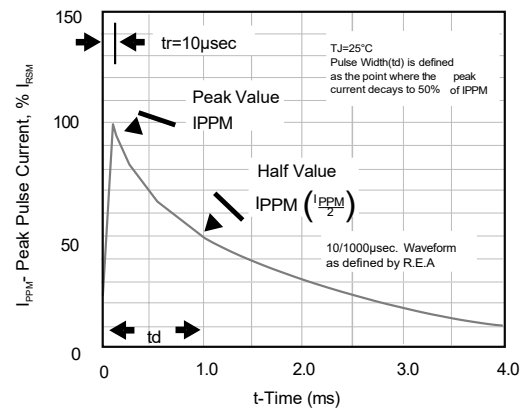
Figure 2 - Peak Pulse Power Rating Curve



Figure 3 - Pulse Derating Curve



Figure 4 - Pulse Waveform



The curve above is for reference only.

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

Figure 5 - Typical Junction Capacitance



Figure 6 - Steady State Power Derating Curve

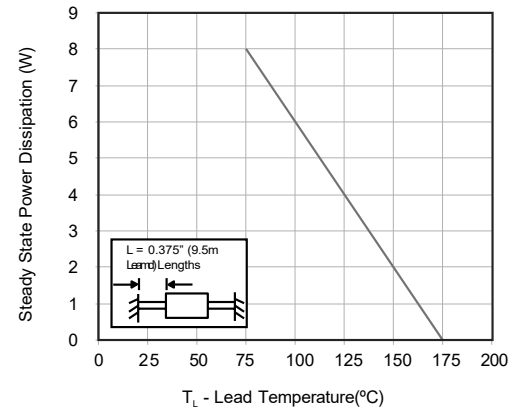


Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current



The curve above is for reference only.