



# 3KP SREIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE** 5.0 to 220 Volts **PEAK PULSE POWER** 3000 Watts

**P-600**

Unit: inch(mm)

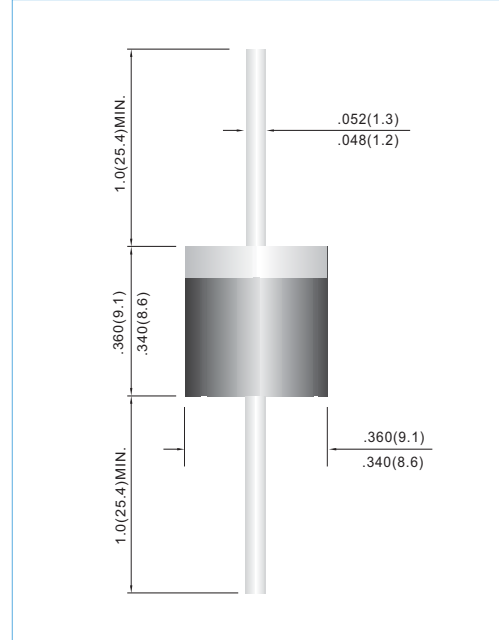
**Recognized File # E210467**

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated chip junction in P-600 package
- 3000W Peak Pulse Power capability at on 10/1000µs waveform
- Excellent clamping capability
- Low zener impedance
- Repetition rate(Duty Cycle):.05%
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1µA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds/.375" (9.5mm) lead length/5lbs., (2.3kg) tension
- In compliance with EU RoHS 2002/95/EC directives

### MECHANICAL DATA

- Case: JEDEC P600 molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except Bipolar
- Mounting Position: Any
- Weight: 1.75 ounce, 0.067 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 3KP5.0 thru types 3KP220  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

| Rating                                                                                                        | Symbol         | Value       | Units            |
|---------------------------------------------------------------------------------------------------------------|----------------|-------------|------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_p=1\text{ms}$ (Note 1)                                  | $P_{PK}$       | 3000        | Watts            |
| Steady State Power dissipation at $T_J = 75^\circ\text{C}$<br>Lead Lengths .375", (95mm) (Note 2)             | $P_D$          | 8.0         | Watts            |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave<br>Superimposed on Rated Load (JECED Method) (Note 3) | $I_{FSM}$      | 400         | Amps             |
| Operating Junction and Storage Temperature Range                                                              | $T_J, T_{STG}$ | -55 to +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 Leaf area of 0.79in<sup>2</sup>(20mm<sup>2</sup>).
- 3.8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.



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| Part Number                               |          | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |       |                | I <sub>R</sub> @ V <sub>RWM</sub> |      | V <sub>C</sub> @ I <sub>PP</sub> |       | Marking Code |          |
|-------------------------------------------|----------|------------------|----------------------------------|-------|----------------|-----------------------------------|------|----------------------------------|-------|--------------|----------|
|                                           |          |                  | Min.                             | Max.  | I <sub>T</sub> | UNI-                              | BI-  | V                                | A     | UNI-         | BI-      |
| UNI-                                      | BI-      | V                | V                                | V     | mA             | μA                                | μA   | V                                | A     | UNI-         | BI-      |
| <b>3000W Transient Voltage Suppressor</b> |          |                  |                                  |       |                |                                   |      |                                  |       |              |          |
| 3KP5.0                                    | 3KP5.0C  | 5                | 6.4                              | 7.55  | 10             | 1000                              | 2000 | 9.6                              | 312.5 | 3KP5.0       | 3KP5.0C  |
| 3KP5.0A                                   | 3KP5.0CA | 5                | 6.4                              | 7.25  | 10             | 1000                              | 2000 | 9.2                              | 326   | 3KP5.0A      | 3KP5.0CA |
| 3KP6.0                                    | 3KP6.0C  | 6                | 6.67                             | 8.45  | 10             | 1000                              | 2000 | 11.4                             | 263.2 | 3KP6.0       | 3KP6.0C  |
| 3KP6.0A                                   | 3KP6.0CA | 6                | 6.67                             | 7.67  | 10             | 1000                              | 2000 | 10.3                             | 291.3 | 3KP6.0A      | 3KP6.0CA |
| 3KP6.5                                    | 3KP6.5C  | 6.5              | 7.22                             | 9.14  | 10             | 500                               | 1000 | 12.3                             | 243.9 | 3KP6.5       | 3KP6.5C  |
| 3KP6.5A                                   | 3KP6.5CA | 6.5              | 7.22                             | 8.3   | 10             | 500                               | 1000 | 11.2                             | 267.9 | 3KP6.5A      | 3KP6.5CA |
| 3KP7.0                                    | 3KP7.0C  | 7                | 7.78                             | 9.86  | 10             | 200                               | 400  | 13.3                             | 225.6 | 3KP7.0       | 3KP7.0C  |
| 3KP7.0A                                   | 3KP7.0CA | 7                | 7.78                             | 8.95  | 10             | 200                               | 400  | 12                               | 250   | 3KP7.0A      | 3KP7.0CA |
| 3KP7.5                                    | 3KP7.5C  | 7.5              | 8.33                             | 10.67 | 1              | 100                               | 200  | 14.3                             | 209.8 | 3KP7.5       | 3KP7.5C  |
| 3KP7.5A                                   | 3KP7.5CA | 7.5              | 8.33                             | 9.58  | 1              | 100                               | 200  | 12.9                             | 232.6 | 3KP7.5A      | 3KP7.5CA |
| 3KP8.0                                    | 3KP8.0C  | 8                | 8.89                             | 11.3  | 1              | 50                                | 100  | 15                               | 220   | 3KP8.0       | 3KP8.0C  |
| 3KP8.0A                                   | 3KP8.0CA | 8                | 8.89                             | 10.23 | 1              | 50                                | 100  | 13.6                             | 220.6 | 3KP8.0A      | 3KP8.0CA |
| 3KP8.5                                    | 3KP8.5C  | 8.5              | 9.44                             | 11.92 | 1              | 25                                | 50   | 15.9                             | 188.8 | 3KP8.5       | 3KP8.5C  |
| 3KP8.5A                                   | 3KP8.5CA | 8.5              | 9.44                             | 10.82 | 1              | 25                                | 50   | 14.4                             | 208.4 | 3KP8.5A      | 3KP8.5CA |
| 3KP9.0                                    | 3KP9.0C  | 9                | 10                               | 12.6  | 1              | 10                                | 20   | 16.9                             | 177.4 | 3KP9.0       | 3KP9.0C  |
| 3KP9.0A                                   | 3KP9.0CA | 9                | 10                               | 11.5  | 1              | 10                                | 20   | 15.4                             | 194.8 | 3KP9.0A      | 3KP9.0CA |
| 3KP10                                     | 3KP10C   | 10               | 11.1                             | 14.1  | 1              | 5                                 | 5    | 18.8                             | 159.6 | 3KP10        | 3KP10C   |
| 3KP10A                                    | 3KP10CA  | 10               | 11.1                             | 12.8  | 1              | 5                                 | 5    | 17                               | 176.4 | 3KP10A       | 3KP10CA  |
| 3KP11                                     | 3KP11C   | 11               | 12.2                             | 15.4  | 1              | 5                                 | 5    | 20.1                             | 149.2 | 3KP11        | 3KP11C   |
| 3KP11A                                    | 3KP11CA  | 11               | 12.2                             | 14    | 1              | 5                                 | 5    | 18.2                             | 184.8 | 3KP11A       | 3KP11CA  |
| 3KP12                                     | 3KP12C   | 12               | 13.3                             | 16.9  | 1              | 5                                 | 5    | 22                               | 136.4 | 3KP12        | 3KP12C   |
| 3KP12A                                    | 3KP12CA  | 12               | 13.3                             | 15.3  | 1              | 5                                 | 5    | 19.9                             | 150.6 | 3KP12A       | 3KP12CA  |
| 3KP13                                     | 3KP13C   | 13               | 14.4                             | 18.2  | 1              | 5                                 | 5    | 23.8                             | 126   | 3KP13        | 3KP13C   |
| 3KP13A                                    | 3KP13CA  | 13               | 14.4                             | 16.5  | 1              | 5                                 | 5    | 21.5                             | 139.4 | 3KP13A       | 3KP13CA  |
| 3KP14                                     | 3KP14C   | 14               | 15.6                             | 19.8  | 1              | 5                                 | 5    | 25.8                             | 116.2 | 3KP14        | 3KP14C   |
| 3KP14A                                    | 3KP14CA  | 14               | 15.6                             | 17.9  | 1              | 5                                 | 5    | 23.2                             | 129.4 | 3KP14A       | 3KP14CA  |
| 3KP15                                     | 3KP15C   | 15               | 16.7                             | 21.1  | 1              | 5                                 | 5    | 26.9                             | 111.6 | 3KP15        | 3KP15C   |
| 3KP15A                                    | 3KP15CA  | 15               | 16.7                             | 19.2  | 1              | 5                                 | 5    | 24.4                             | 123   | 3KP15A       | 3KP15CA  |
| 3KP16                                     | 3KP16C   | 16               | 17.8                             | 22.6  | 1              | 5                                 | 5    | 28.8                             | 104.2 | 3KP16        | 3KP16C   |
| 3KP16A                                    | 3KP16CA  | 16               | 17.8                             | 20.5  | 1              | 5                                 | 5    | 26                               | 115.4 | 3KP16A       | 3KP16CA  |
| 3KPJ17                                    | 3KPJ17C  | 17               | 18.9                             | 23.9  | 1              | 5                                 | 5    | 30.5                             | 98.4  | 3KPJ17       | 3KPJ17C  |
| 3KP17A                                    | 3KP17CA  | 17               | 18.9                             | 21.7  | 1              | 5                                 | 5    | 27.6                             | 106.6 | 3KP17A       | 3KP17CA  |
| 3KP18                                     | 3KP18C   | 18               | 20                               | 25.3  | 1              | 5                                 | 5    | 32.2                             | 93.2  | 3KP18        | 3KP18C   |
| 3KP18A                                    | 3KP18CA  | 18               | 20                               | 23.3  | 1              | 5                                 | 5    | 29.2                             | 102.8 | 3KP18A       | 3KP18CA  |
| 3KP20                                     | 3KP20C   | 20               | 22.2                             | 28.1  | 1              | 5                                 | 5    | 35.8                             | 83.8  | 3KP20        | 3KP20C   |
| 3KP20A                                    | 3KP20CA  | 20               | 22.2                             | 25.5  | 1              | 5                                 | 5    | 32.4                             | 92.6  | 3KP20A       | 3KP20CA  |
| 3KP22                                     | 3KP22C   | 22               | 24.4                             | 30.9  | 1              | 5                                 | 5    | 39.4                             | 76.2  | 3KP22        | 3KP22C   |
| 3KP22A                                    | 3KP22CA  | 22               | 24.4                             | 28    | 1              | 5                                 | 5    | 35.5                             | 84.4  | 3KP22A       | 3KP22CA  |
| 3KP24                                     | 3KP24C   | 24               | 26.7                             | 33.8  | 1              | 5                                 | 5    | 43                               | 69.8  | 3KP24        | 3KP24C   |
| 3KP24A                                    | 3KP24CA  | 24               | 26.7                             | 30.7  | 1              | 5                                 | 5    | 38.9                             | 77.2  | 3KP24A       | 3KP24CA  |
| 3KP26                                     | 3KP26C   | 26               | 28.9                             | 36.6  | 1              | 5                                 | 5    | 46.6                             | 64.4  | 3KP26        | 3KP26C   |
| 3KP26A                                    | 3KP26CA  | 26               | 28.9                             | 33.2  | 1              | 5                                 | 5    | 42.1                             | 71.2  | 3KP26A       | 3KP26CA  |
| 3KP28                                     | 3KP28C   | 28               | 31.1                             | 39.4  | 1              | 5                                 | 5    | 50                               | 60    | 3KP28        | 3KP28C   |
| 3KP28A                                    | 3KP28CA  | 28               | 31.1                             | 35.8  | 1              | 5                                 | 5    | 45.4                             | 66    | 3KP28A       | 3KP28CA  |
| 3KP30                                     | 3KP30C   | 30               | 33.3                             | 42.2  | 1              | 5                                 | 5    | 53.5                             | 56    | 3KP30        | 3KP30C   |
| 3KP30A                                    | 3KP30CA  | 30               | 33.3                             | 38.3  | 1              | 5                                 | 5    | 48.4                             | 62    | 3KP30A       | 3KP30CA  |
| 3KP33                                     | 3KP33C   | 33               | 36.7                             | 46.5  | 1              | 5                                 | 5    | 59                               | 50.4  | 3KP33        | 3KP33C   |
| 3KP33A                                    | 3KP33CA  | 33               | 36.7                             | 42.2  | 1              | 5                                 | 5    | 53.3                             | 56.2  | 3KP33A       | 3KP33CA  |
| 3KP36                                     | 3KP36C   | 36               | 40                               | 50.7  | 1              | 5                                 | 5    | 64.3                             | 46.6  | 3KP36        | 3KP36C   |
| 3KP36A                                    | 3KP36CA  | 36               | 40                               | 46    | 1              | 5                                 | 5    | 58.1                             | 51.6  | 3KP36A       | 3KP36CA  |
| 3KP40                                     | 3KP40C   | 40               | 44.4                             | 56.3  | 1              | 5                                 | 5    | 71.4                             | 42    | 3KP40        | 3KP40C   |
| 3KP40A                                    | 3KP40CA  | 40               | 44.4                             | 51.1  | 1              | 5                                 | 5    | 64.5                             | 46.4  | 3KP40A       | 3KP40CA  |

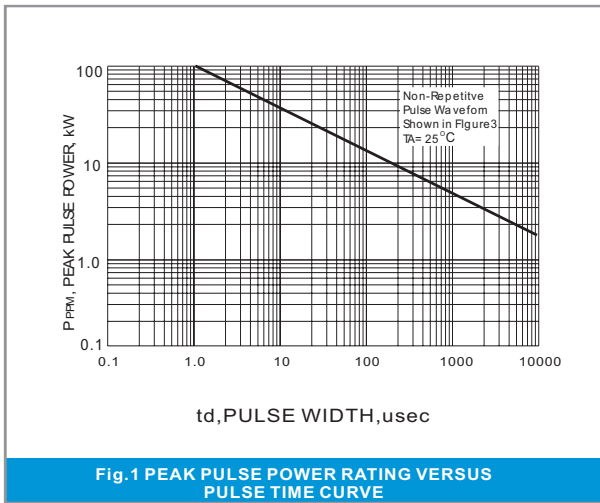


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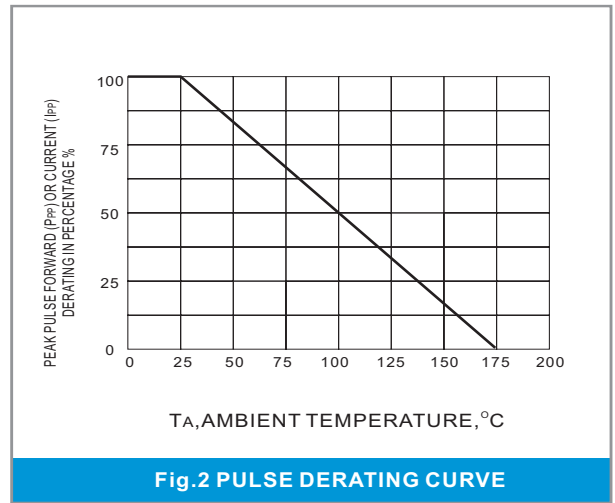
| Part Number                               |          | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |       |                | I <sub>R</sub> @ V <sub>RWM</sub> |     | V <sub>C</sub> @ I <sub>PP</sub> |      | Marking Code |          |
|-------------------------------------------|----------|------------------|----------------------------------|-------|----------------|-----------------------------------|-----|----------------------------------|------|--------------|----------|
| UNI-                                      | BI-      |                  | Min.                             | Max.  | I <sub>T</sub> | UNI-                              | BI- | V                                | A    | UNI-         | BI-      |
|                                           |          | V                | V                                | V     | mA             | μA                                | μA  |                                  |      |              |          |
| <b>3000W Transient Voltage Suppressor</b> |          |                  |                                  |       |                |                                   |     |                                  |      |              |          |
| 3KP43                                     | 3KP43C   | 43.00            | 47.8                             | 60.5  | 1              | 5                                 | 5   | 76.7                             | 39.2 | 3KP43        | 3KP43C   |
| 3KP43A                                    | 3KP43CA  | 43               | 47.8                             | 54.9  | 1              | 5                                 | 5   | 69.4                             | 43.2 | 3KP43A       | 3KP43CA  |
| 3KP45                                     | 3KP45C   | 45               | 50                               | 63.3  | 1              | 5                                 | 5   | 80.3                             | 37.4 | 3KP45        | 3KP45C   |
| 3KP45A                                    | 3KP45CA  | 45               | 50                               | 57.5  | 1              | 5                                 | 5   | 72.7                             | 41.2 | 3KP45A       | 3KP45CA  |
| 3KP48                                     | 3KP48C   | 48               | 53.3                             | 67.5  | 1              | 5                                 | 5   | 85.5                             | 35   | 3KP48        | 3KP48C   |
| 3KP48A                                    | 3KP48CA  | 48               | 53.3                             | 61.3  | 1              | 5                                 | 5   | 77.4                             | 38.8 | 3KP48A       | 3KP48CA  |
| 3KP51                                     | 3KP51C   | 51               | 56.7                             | 71.8  | 1              | 5                                 | 5   | 91.1                             | 37   | 3KP51        | 3KP51C   |
| 3KP51A                                    | 3KP51CA  | 51               | 56.7                             | 65.2  | 1              | 5                                 | 5   | 82.4                             | 36.4 | 3KP51A       | 3KP51CA  |
| 3KP54                                     | 3KP54C   | 54               | 60                               | 76    | 1              | 5                                 | 5   | 96.3                             | 31.2 | 3KP54        | 3KP54C   |
| 3KP54A                                    | 3KP54CA  | 54               | 60                               | 69    | 1              | 5                                 | 5   | 87.1                             | 34.4 | 3KP54A       | 3KP54CA  |
| 3KP58                                     | 3KP58C   | 58               | 64.4                             | 81.6  | 1              | 5                                 | 5   | 103                              | 29.2 | 3KP58        | 3KP58C   |
| 3KP58A                                    | 3KP58CA  | 58               | 64.4                             | 74.1  | 1              | 5                                 | 5   | 93.6                             | 32   | 3KP58A       | 3KP58CA  |
| 3KP60                                     | 3KP60C   | 60               | 66.7                             | 84.5  | 1              | 5                                 | 5   | 107                              | 28   | 3KP60        | 3KP60C   |
| 3KP60A                                    | 3KP60CA  | 60               | 66.7                             | 76.7  | 1              | 5                                 | 5   | 96.8                             | 31   | 3KP60A       | 3KP60CA  |
| 3KP64                                     | 3KP64C   | 64               | 71.1                             | 90.1  | 1              | 5                                 | 5   | 114                              | 26.4 | 3KP64        | 3KP64C   |
| 3KP64A                                    | 3KP64CA  | 64               | 71.1                             | 81.8  | 1              | 5                                 | 5   | 103                              | 29.2 | 3KP64A       | 3KP64CA  |
| 3KP70                                     | 3KP70C   | 70               | 77.8                             | 98.6  | 1              | 5                                 | 5   | 125                              | 24   | 3KP70        | 3KP70C   |
| 3KP70A                                    | 3KP70CA  | 70               | 77.8                             | 89.5  | 1              | 5                                 | 5   | 113                              | 26.6 | 3KP70A       | 3KP70CA  |
| 3KP75                                     | 3KP75C   | 75               | 83.3                             | 105.7 | 1              | 5                                 | 5   | 134                              | 22.4 | 3KP75        | 3KP75C   |
| 3KP75A                                    | 3KP75CA  | 75               | 83.3                             | 95.8  | 1              | 5                                 | 5   | 121                              | 24.8 | 3KP75A       | 3KP75CA  |
| 3KP78                                     | 3KP78C   | 78               | 86.7                             | 109.8 | 1              | 5                                 | 5   | 139                              | 21.6 | 3KP78        | 3KP78C   |
| 3KP78A                                    | 3KP78CA  | 78               | 86.7                             | 99.7  | 1              | 5                                 | 5   | 126                              | 22.8 | 3KP78A       | 3KP78CA  |
| 3KP85                                     | 3KP85C   | 85               | 94.4                             | 119.2 | 1              | 5                                 | 5   | 151                              | 19.8 | 3KP85        | 3KP85C   |
| 3KP85A                                    | 3KP85CA  | 85               | 94.4                             | 108.2 | 1              | 5                                 | 5   | 137                              | 20.8 | 3KP85A       | 3KP85CA  |
| 3KP90                                     | 3KP90C   | 90               | 100                              | 126.5 | 1              | 5                                 | 5   | 160                              | 18.8 | 3KP90        | 3KP90C   |
| 3KP90A                                    | 3KP90CA  | 90               | 100                              | 115.5 | 1              | 5                                 | 5   | 146                              | 20.6 | 3KP90A       | 3KP90CA  |
| 3KP100                                    | 3KP100C  | 100              | 111                              | 141   | 1              | 5                                 | 5   | 179                              | 16.6 | 3KP100       | 3KP100C  |
| 3KP100A                                   | 3KP100CA | 100              | 111                              | 128   | 1              | 5                                 | 5   | 162                              | 18.6 | 3KP100A      | 3KP100CA |
| 3KP110                                    | 3KP110C  | 110              | 122                              | 154.5 | 1              | 5                                 | 5   | 196                              | 15.4 | 3KP110       | 3KP110C  |
| 3KP110A                                   | 3KP110CA | 110              | 122                              | 140.5 | 1              | 5                                 | 5   | 177                              | 16.8 | 3KP110A      | 3KP110CA |
| 3KP120                                    | 3KP120C  | 120              | 133                              | 169   | 1              | 5                                 | 5   | 214                              | 14   | 3KP120       | 3KP120C  |
| 3KP120A                                   | 3KP120CA | 120              | 133                              | 153   | 1              | 5                                 | 5   | 193                              | 15.6 | 3KP120A      | 3KP120CA |
| 3KP130                                    | 3KP130C  | 130              | 144                              | 182.5 | 1              | 5                                 | 5   | 231                              | 13   | 3KP130       | 3KP130C  |
| 3KP130A                                   | 3KP130CA | 130              | 144                              | 165.5 | 1              | 5                                 | 5   | 209                              | 14.4 | 3KP130A      | 3KP130CA |
| 3KP150                                    | 3KP150C  | 150              | 167                              | 211.5 | 1              | 5                                 | 5   | 268                              | 11.2 | 3KP150       | 3KP150C  |
| 3KP150A                                   | 3KP150CA | 150              | 167                              | 192.5 | 1              | 5                                 | 5   | 243                              | 12.4 | 3KP150A      | 3KP150CA |
| 3KP160                                    | 3KP160C  | 160              | 178                              | 226   | 1              | 5                                 | 5   | 287                              | 10.4 | 3KP160       | 3KP160C  |
| 3KP160A                                   | 3KP160CA | 160              | 178                              | 205   | 1              | 5                                 | 5   | 259                              | 11.6 | 3KP160A      | 3KP160CA |
| 3KP170                                    | 3KP170C  | 170              | 189                              | 239.5 | 1              | 5                                 | 5   | 304                              | 9.8  | 3KP170       | 3KP170C  |
| 3KP170A                                   | 3KP170CA | 170              | 189                              | 217.5 | 1              | 5                                 | 5   | 275                              | 11   | 3KP170A      | 3KP170CA |
| 3KP180                                    | 3KP180C  | 180              | 198                              | 253.8 | 1              | 5                                 | 5   | 322                              | 9.3  | 3KP180       | 3KP180C  |
| 3KP180A                                   | 3KP180CA | 180              | 198                              | 230.4 | 1              | 5                                 | 5   | 292                              | 10.3 | 3KP180A      | 3KP180CA |
| 3KP190                                    | 3KP190C  | 190              | 209                              | 267.9 | 1              | 5                                 | 5   | 340                              | 8.8  | 3KP190       | 3KP190C  |
| 3KP190A                                   | 3KP190CA | 190              | 209                              | 243.2 | 1              | 5                                 | 5   | 308                              | 9.7  | 3KP190A      | 3KP190CA |
| 3KP200                                    | 3KP200C  | 200              | 220                              | 282   | 1              | 5                                 | 5   | 358                              | 8.4  | 3KP200       | 3KP200C  |
| 3KP200A                                   | 3KP200CA | 200              | 220                              | 256   | 1              | 5                                 | 5   | 324                              | 9.3  | 3KP200A      | 3KP200CA |
| 3KP210                                    | 3KP210C  | 210              | 231                              | 296.1 | 1              | 5                                 | 5   | 376                              | 7.8  | 3KP210       | 3KP210C  |
| 3KP210A                                   | 3KP210CA | 210              | 231                              | 268.8 | 1              | 5                                 | 5   | 340                              | 8.8  | 3KP210A      | 3KP210CA |
| 3KP220                                    | 3KP220C  | 220              | 242                              | 310.2 | 1              | 5                                 | 5   | 394                              | 7.6  | 3KP220       | 3KP220C  |
| 3KP220A                                   | 3KP220CA | 220              | 242                              | 281.6 | 1              | 5                                 | 5   | 356                              | 8.4  | 3KP220A      | 3KP220CA |



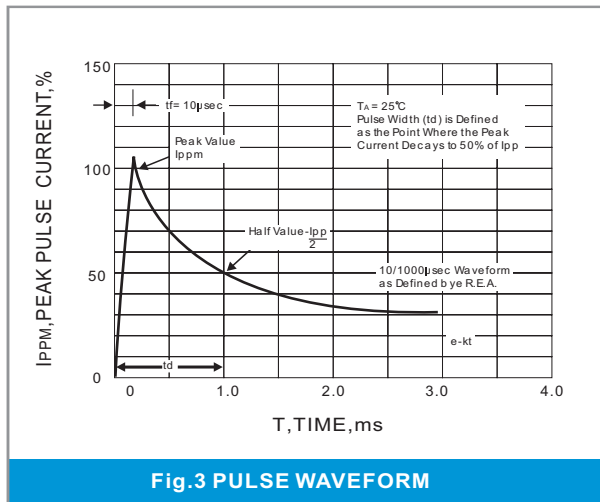
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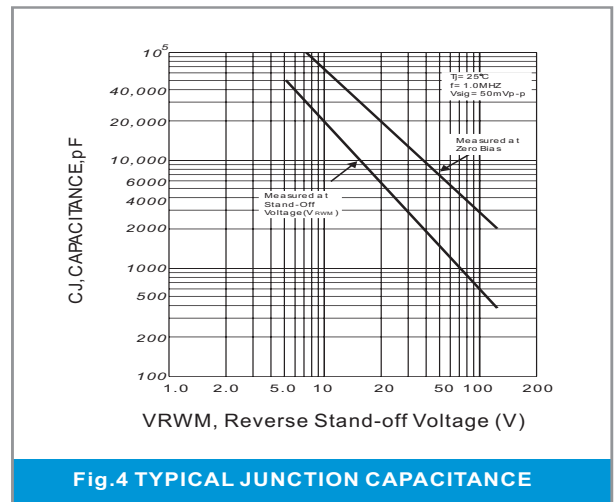
**Fig.1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE**



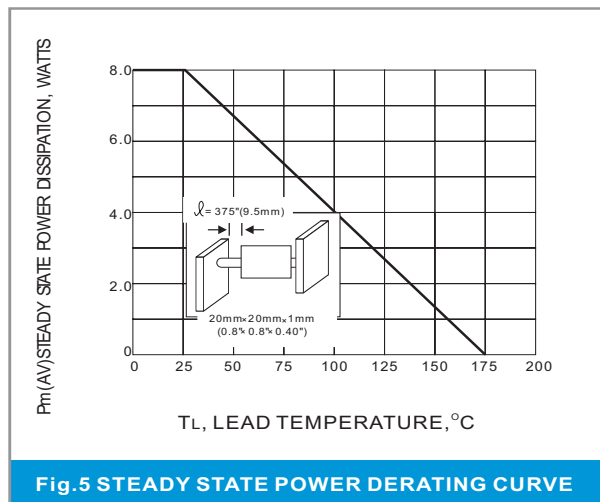
**Fig.2 PULSE DERATING CURVE**



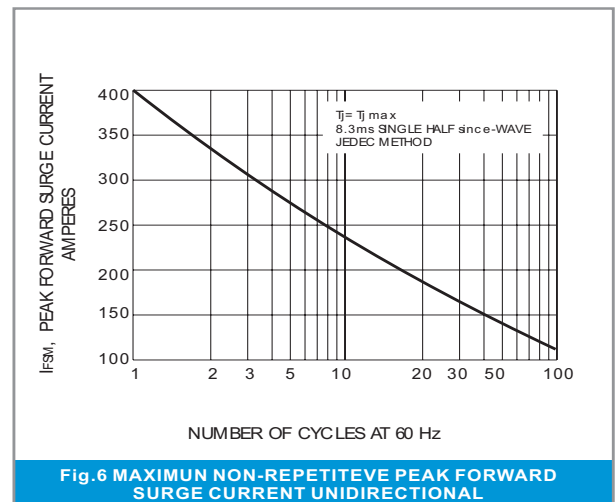
**Fig.3 PULSE WAVEFORM**



**Fig.4 TYPICAL JUNCTION CAPACITANCE**



**Fig.5 STEADY STATE POWER DERATING CURVE**



**Fig.6 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL**

PLEASE REFER THE TVS APPLICATION NOTE IN PANJIT WEBSITE

<http://www.panjit.com/protection-transient-voltage-suppressors.html>