

## 5KP SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE** 5.0 to 200 Volts **PEAK PULSE POWER** 5000 Watts

**P-600**

Unit: inch(mm)

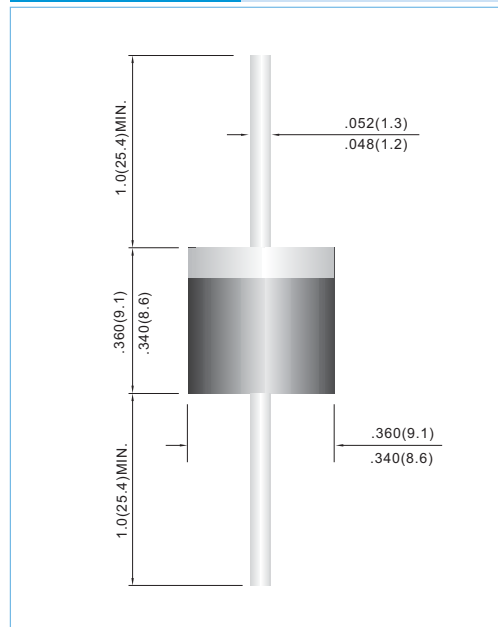
Recognized File # E210467

#### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- 5000W 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
- In compliance with EU RoHS 2002/95/EC directives

#### MECHANICAL DATA

- Case: JEDEC P-600 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, 0.0617 gram



#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 5KP5.0 thru types 5KP200  
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)                                | $P_{PK}$       | 5000        | Watts              |
| Steady State Power dissipation at $T_L = 75^{\circ}\text{C}$<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 (JEDEC 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.



## 5KP SERIES

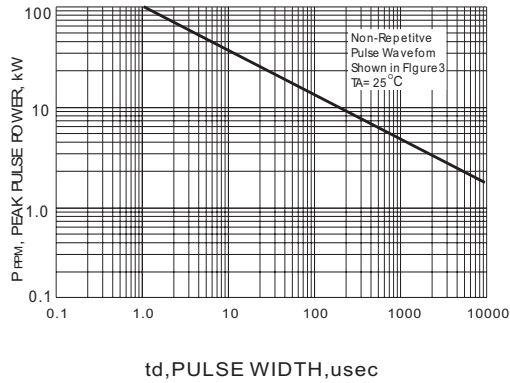
| Part Number                               |          | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |       |                | I <sub>R</sub> @ V <sub>RWM</sub> |       | V <sub>C</sub> @ I <sub>PP</sub> |     | Marking Code |          |
|-------------------------------------------|----------|------------------|----------------------------------|-------|----------------|-----------------------------------|-------|----------------------------------|-----|--------------|----------|
|                                           |          |                  | Min.                             | Max.  | I <sub>T</sub> | UNI-                              | BI-   |                                  |     |              |          |
| UNI-                                      | BI-      | V                | V                                | V     | mA             | μA                                | μA    | V                                | A   | UNI-         | BI-      |
| <b>5000W Transient Voltage Suppressor</b> |          |                  |                                  |       |                |                                   |       |                                  |     |              |          |
| 5KP5.0                                    | 5KP5.0C  | 5                | 6.4                              | 7.55  | 50             | 5000                              | 10000 | 9.6                              | 520 | 5KP5.0       | 5KP5.0C  |
| 5KP5.0A                                   | 5KP5.0CA | 5                | 6.4                              | 7.25  | 50             | 5000                              | 10000 | 9.2                              | 543 | 5KP5.0A      | 5KP5.0CA |
| 5KP6.0                                    | 5KP6.0C  | 6                | 6.67                             | 8.45  | 50             | 5000                              | 10000 | 11.4                             | 439 | 5KP6.0       | 5KP6.0C  |
| 5KP6.0A                                   | 5KP6.0CA | 6                | 6.67                             | 7.67  | 50             | 5000                              | 10000 | 10.3                             | 485 | 5KP6.0A      | 5KP6.0CA |
| 5KP6.5                                    | 5KP6.5C  | 6.5              | 7.22                             | 9.14  | 50             | 2000                              | 4000  | 12.3                             | 407 | 5KP6.5       | 5KP6.5C  |
| 5KP6.5A                                   | 5KP6.5CA | 6.5              | 7.22                             | 8.3   | 50             | 2000                              | 4000  | 11.2                             | 447 | 5KP6.5A      | 5KP6.5CA |
| 5KP7.0                                    | 5KP7.0C  | 7                | 7.78                             | 9.86  | 50             | 1000                              | 2000  | 13.3                             | 378 | 5KP7.0       | 5KP7.0C  |
| 5KP7.0A                                   | 5KP7.0CA | 7                | 7.78                             | 8.95  | 50             | 1000                              | 2000  | 12                               | 417 | 5KP7.0A      | 5KP7.0CA |
| 5KP7.5                                    | 5KP7.5C  | 7.5              | 8.33                             | 10.67 | 5              | 250                               | 500   | 14.3                             | 350 | 5KP7.5       | 5KP7.5C  |
| 5KP7.5A                                   | 5KP7.5CA | 7.5              | 8.33                             | 9.58  | 5              | 250                               | 500   | 12.9                             | 388 | 5KP7.5A      | 5KP7.5CA |
| 5KP8.0                                    | 5KP8.0C  | 8                | 8.89                             | 11.3  | 5              | 150                               | 300   | 15                               | 333 | 5KP8.0       | 5KP8.0C  |
| 5KP8.0A                                   | 5KP8.0CA | 8                | 8.89                             | 10.23 | 5              | 150                               | 300   | 13.6                             | 367 | 5KP8.0A      | 5KP8.0CA |
| 5KP8.5                                    | 5KP8.5C  | 8.5              | 9.44                             | 11.92 | 5              | 50                                | 100   | 15.9                             | 314 | 5KP8.5       | 5KP8.5C  |
| 5KP8.5A                                   | 5KP8.5CA | 8.5              | 9.44                             | 10.82 | 5              | 50                                | 100   | 14.4                             | 347 | 5KP8.5A      | 5KP8.5CA |
| 5KP9.0                                    | 5KP9.0C  | 9                | 10                               | 12.6  | 5              | 20                                | 40    | 16.9                             | 295 | 5KP9.0       | 5KP9.0C  |
| 5KP9.0A                                   | 5KP9.0CA | 9                | 10                               | 11.5  | 5              | 20                                | 40    | 15.4                             | 325 | 5KP9.0A      | 5KP9.0CA |
| 5KP10                                     | 5KP10C   | 10               | 11.1                             | 14.1  | 5              | 10                                | 10    | 18.8                             | 266 | 5KP10        | 5KP10C   |
| 5KP10A                                    | 5KP10CA  | 10               | 11.1                             | 12.8  | 5              | 10                                | 10    | 17                               | 294 | 5KP10A       | 5KP10CA  |
| 5KP11                                     | 5KP11C   | 11               | 12.2                             | 15.4  | 5              | 10                                | 10    | 20.1                             | 249 | 5KP11        | 5KP11C   |
| 5KP11A                                    | 5KP11CA  | 11               | 12.2                             | 14    | 5              | 10                                | 10    | 18.2                             | 274 | 5KP11A       | 5KP11CA  |
| 5KP12                                     | 5KP12C   | 12               | 13.3                             | 16.9  | 5              | 10                                | 10    | 22                               | 227 | 5KP12        | 5KP12C   |
| 5KP12A                                    | 5KP12CA  | 12               | 13.3                             | 15.3  | 5              | 10                                | 10    | 19.9                             | 251 | 5KP12A       | 5KP12CA  |
| 5KP13                                     | 5KP13C   | 13               | 14.4                             | 18.2  | 5              | 10                                | 10    | 23.8                             | 210 | 5KP13        | 5KP13C   |
| 5KP13A                                    | 5KP13CA  | 13               | 14.4                             | 16.5  | 5              | 10                                | 10    | 21.5                             | 232 | 5KP13A       | 5KP13CA  |
| 5KP14                                     | 5KP14C   | 14               | 15.6                             | 19.8  | 5              | 10                                | 10    | 25.8                             | 194 | 5KP14        | 5KP14C   |
| 5KP14A                                    | 5KP14CA  | 14               | 15.6                             | 17.9  | 5              | 10                                | 10    | 23.2                             | 215 | 5KP14A       | 5KP14CA  |
| 5KP15                                     | 5KP15C   | 15               | 16.7                             | 21.1  | 5              | 10                                | 10    | 26.9                             | 188 | 5KP15        | 5KP15C   |
| 5KP15A                                    | 5KP15CA  | 15               | 16.7                             | 19.2  | 5              | 10                                | 10    | 24.4                             | 206 | 5KP15A       | 5KP15CA  |
| 5KP16                                     | 5KP16C   | 16               | 17.8                             | 22.6  | 5              | 10                                | 10    | 28.8                             | 176 | 5KP16        | 5KP16C   |
| 5KP16A                                    | 5KP16CA  | 16               | 17.8                             | 20.5  | 5              | 10                                | 10    | 26                               | 192 | 5KP16A       | 5KP16CA  |
| 5KPJ17                                    | 5KPJ17C  | 17               | 18.9                             | 23.9  | 5              | 10                                | 10    | 30.5                             | 164 | 5KPJ17       | 5KPJ17C  |
| 5KP17A                                    | 5KP17CA  | 17               | 18.9                             | 21.7  | 5              | 10                                | 10    | 27.6                             | 181 | 5KP17A       | 5KP17CA  |
| 5KP18                                     | 5KP18C   | 18               | 20                               | 25.3  | 5              | 10                                | 10    | 32.2                             | 155 | 5KP18        | 5KP18C   |
| 5KP18A                                    | 5KP18CA  | 18               | 20                               | 23.3  | 5              | 10                                | 10    | 29.2                             | 172 | 5KP18A       | 5KP18CA  |
| 5KP20                                     | 5KP20C   | 20               | 22.2                             | 28.1  | 5              | 10                                | 10    | 35.8                             | 139 | 5KP20        | 5KP20C   |
| 5KP20A                                    | 5KP20CA  | 20               | 22.2                             | 25.5  | 5              | 10                                | 10    | 32.4                             | 154 | 5KP20A       | 5KP20CA  |
| 5KP22                                     | 5KP22C   | 22               | 24.4                             | 30.9  | 5              | 10                                | 10    | 39.4                             | 127 | 5KP22        | 5KP22C   |
| 5KP22A                                    | 5KP22CA  | 22               | 24.4                             | 28    | 5              | 10                                | 10    | 35.5                             | 141 | 5KP22A       | 5KP22CA  |
| 5KP24                                     | 5KP24C   | 24               | 26.7                             | 33.8  | 5              | 10                                | 10    | 43                               | 116 | 5KP24        | 5KP24C   |
| 5KP24A                                    | 5KP24CA  | 24               | 26.7                             | 30.7  | 5              | 10                                | 10    | 38.9                             | 128 | 5KP24A       | 5KP24CA  |
| 5KP26                                     | 5KP26C   | 26               | 28.9                             | 36.6  | 5              | 10                                | 10    | 46.6                             | 107 | 5KP26        | 5KP26C   |
| 5KP26A                                    | 5KP26CA  | 26               | 28.9                             | 33.2  | 5              | 10                                | 10    | 42.1                             | 119 | 5KP26A       | 5KP26CA  |
| 5KP28                                     | 5KP28C   | 28               | 31.1                             | 39.4  | 5              | 10                                | 10    | 50                               | 99  | 5KP28        | 5KP28C   |
| 5KP28A                                    | 5KP28CA  | 28               | 31.1                             | 35.8  | 5              | 10                                | 10    | 45.4                             | 110 | 5KP28A       | 5KP28CA  |
| 5KP30                                     | 5KP30C   | 30               | 33.3                             | 42.2  | 5              | 10                                | 10    | 53.5                             | 93  | 5KP30        | 5KP30C   |
| 5KP30A                                    | 5KP30CA  | 30               | 33.3                             | 38.3  | 5              | 10                                | 10    | 48.4                             | 103 | 5KP30A       | 5KP30CA  |
| 5KP33                                     | 5KP33C   | 33               | 36.7                             | 46.5  | 5              | 10                                | 10    | 59                               | 85  | 5KP33        | 5KP33C   |
| 5KP33A                                    | 5KP33CA  | 33               | 36.7                             | 42.2  | 5              | 10                                | 10    | 53.3                             | 94  | 5KP33A       | 5KP33CA  |
| 5KP36                                     | 5KP36C   | 36               | 40                               | 50.7  | 5              | 10                                | 10    | 64.3                             | 78  | 5KP36        | 5KP36C   |
| 5KP36A                                    | 5KP36CA  | 36               | 40                               | 46    | 5              | 10                                | 10    | 58.1                             | 85  | 5KP36A       | 5KP36CA  |
| 5KP40                                     | 5KP40C   | 40               | 44.4                             | 56.3  | 5              | 10                                | 10    | 71.4                             | 70  | 5KP40        | 5KP40C   |
| 5KP40A                                    | 5KP40CA  | 40               | 44.4                             | 51.1  | 5              | 10                                | 10    | 64.5                             | 78  | 5KP40A       | 5KP40CA  |



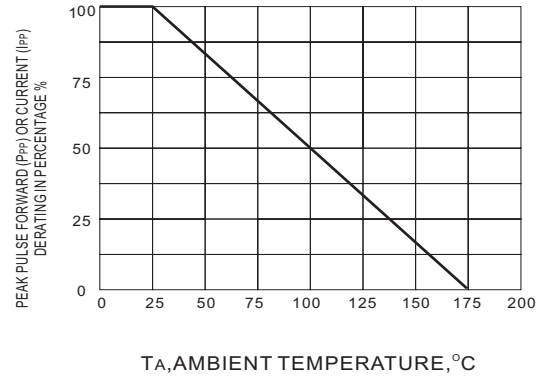
## 5KP SERIES

| 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- |                                  |    |              |          |
| UNI-                                      | BI-      | V                | V                                | V     | mA             | uA                                | uA  | V                                | A  | UNI-         | BI-      |
| <b>5000W Transient Voltage Suppressor</b> |          |                  |                                  |       |                |                                   |     |                                  |    |              |          |
| 5KP43                                     | 5KP43C   | 43               | 47.8                             | 60.5  | 5              | 10                                | 10  | 76.7                             | 65 | 5KP43        | 5KP43C   |
| 5KP43A                                    | 5KP43CA  | 43               | 47.8                             | 54.9  | 5              | 10                                | 10  | 69.4                             | 72 | 5KP43A       | 5KP43CA  |
| 5KP45                                     | 5KP45C   | 45               | 50                               | 63.3  | 5              | 10                                | 10  | 80.3                             | 62 | 5KP45        | 5KP45C   |
| 5KP45A                                    | 5KP45CA  | 45               | 50                               | 57.5  | 5              | 10                                | 10  | 72.7                             | 69 | 5KP45A       | 5KP45CA  |
| 5KP48                                     | 5KP48C   | 48               | 53.3                             | 67.5  | 5              | 10                                | 10  | 85.5                             | 58 | 5KP48        | 5KP48C   |
| 5KP48A                                    | 5KP48CA  | 48               | 53.3                             | 61.3  | 5              | 10                                | 10  | 77.4                             | 65 | 5KP48A       | 5KP48CA  |
| 5KP51                                     | 5KP51C   | 51               | 56.7                             | 71.8  | 5              | 10                                | 10  | 91.1                             | 55 | 5KP51        | 5KP51C   |
| 5KP51A                                    | 5KP51CA  | 51               | 56.7                             | 65.2  | 5              | 10                                | 10  | 82.4                             | 61 | 5KP51A       | 5KP51CA  |
| 5KP54                                     | 5KP54C   | 54               | 60                               | 76    | 5              | 10                                | 10  | 96.3                             | 52 | 5KP54        | 5KP54C   |
| 5KP54A                                    | 5KP54CA  | 54               | 60                               | 69    | 5              | 10                                | 10  | 87.1                             | 57 | 5KP54A       | 5KP54CA  |
| 5KP58                                     | 5KP58C   | 58               | 64.4                             | 81.6  | 5              | 10                                | 10  | 103                              | 49 | 5KP58        | 5KP58C   |
| 5KP58A                                    | 5KP58CA  | 58               | 64.4                             | 74.1  | 5              | 10                                | 10  | 93.6                             | 53 | 5KP58A       | 5KP58CA  |
| 5KP60                                     | 5KP60C   | 60               | 66.7                             | 84.5  | 5              | 10                                | 10  | 107                              | 47 | 5KP60        | 5KP60C   |
| 5KP60A                                    | 5KP60CA  | 60               | 66.7                             | 76.7  | 5              | 10                                | 10  | 96.8                             | 52 | 5KP60A       | 5KP60CA  |
| 5KP64                                     | 5KP64C   | 64               | 71.1                             | 90.1  | 5              | 10                                | 10  | 114                              | 44 | 5KP64        | 5KP64C   |
| 5KP64A                                    | 5KP64CA  | 64               | 71.1                             | 81.8  | 5              | 10                                | 10  | 103                              | 49 | 5KP64A       | 5KP64CA  |
| 5KP70                                     | 5KP70C   | 70               | 77.8                             | 98.6  | 5              | 10                                | 10  | 125                              | 40 | 5KP70        | 5KP70C   |
| 5KP70A                                    | 5KP70CA  | 70               | 77.8                             | 89.5  | 5              | 10                                | 10  | 113                              | 44 | 5KP70A       | 5KP70CA  |
| 5KP75                                     | 5KP75C   | 75               | 83.3                             | 105.7 | 5              | 10                                | 10  | 134                              | 37 | 5KP75        | 5KP75C   |
| 5KP75A                                    | 5KP75CA  | 75               | 83.3                             | 95.8  | 5              | 10                                | 10  | 121                              | 41 | 5KP75A       | 5KP75CA  |
| 5KP78                                     | 5KP78C   | 78               | 86.7                             | 109.8 | 5              | 10                                | 10  | 139                              | 36 | 5KP78        | 5KP78C   |
| 5KP78A                                    | 5KP78CA  | 78               | 86.7                             | 99.7  | 5              | 10                                | 10  | 126                              | 40 | 5KP78A       | 5KP78CA  |
| 5KP85                                     | 5KP85C   | 85               | 94.4                             | 119.2 | 5              | 10                                | 10  | 151                              | 33 | 5KP85        | 5KP85C   |
| 5KP85A                                    | 5KP85CA  | 85               | 94.4                             | 108.2 | 5              | 10                                | 10  | 137                              | 36 | 5KP85A       | 5KP85CA  |
| 5KP90                                     | 5KP90C   | 90               | 100                              | 126.5 | 5              | 10                                | 10  | 160                              | 31 | 5KP90        | 5KP90C   |
| 5KP90A                                    | 5KP90CA  | 90               | 100                              | 115.5 | 5              | 10                                | 10  | 146                              | 34 | 5KP90A       | 5KP90CA  |
| 5KP100                                    | 5KP100C  | 100              | 111                              | 141   | 5              | 10                                | 10  | 179                              | 28 | 5KP100       | 5KP100C  |
| 5KP100A                                   | 5KP100CA | 100              | 111                              | 128   | 5              | 10                                | 10  | 162                              | 31 | 5KP100A      | 5KP100CA |
| 5KP110                                    | 5KP110C  | 110              | 122                              | 154.5 | 5              | 10                                | 10  | 196                              | 26 | 5KP110       | 5KP110C  |
| 5KP110A                                   | 5KP110CA | 110              | 122                              | 140.5 | 5              | 10                                | 10  | 177                              | 28 | 5KP110A      | 5KP110CA |
| 5KP120                                    | 5KP120C  | 120              | 133                              | 169   | 5              | 10                                | 10  | 214                              | 23 | 5KP120       | 5KP120C  |
| 5KP120A                                   | 5KP120CA | 120              | 133                              | 153   | 5              | 10                                | 10  | 193                              | 20 | 5KP120A      | 5KP120CA |
| 5KP130                                    | 5KP130C  | 130              | 144                              | 182.5 | 5              | 10                                | 10  | 231                              | 22 | 5KP130       | 5KP130C  |
| 5KP130A                                   | 5KP130CA | 130              | 144                              | 165.5 | 5              | 10                                | 10  | 209                              | 24 | 5KP130A      | 5KP130CA |
| 5KP150                                    | 5KP150C  | 150              | 167                              | 211.5 | 5              | 10                                | 10  | 268                              | 19 | 5KP150       | 5KP150C  |
| 5KP150A                                   | 5KP150CA | 150              | 167                              | 192.5 | 5              | 10                                | 10  | 243                              | 21 | 5KP150A      | 5KP150CA |
| 5KP160                                    | 5KP160C  | 160              | 178                              | 226   | 5              | 10                                | 10  | 287                              | 17 | 5KP160       | 5KP160C  |
| 5KP160A                                   | 5KP160CA | 160              | 178                              | 205   | 5              | 10                                | 10  | 259                              | 19 | 5KP160A      | 5KP160CA |
| 5KP170                                    | 5KP170C  | 170              | 189                              | 239.5 | 5              | 10                                | 10  | 304                              | 16 | 5KP170       | 5KP170C  |
| 5KP170A                                   | 5KP170CA | 170              | 189                              | 217.5 | 5              | 10                                | 10  | 275                              | 18 | 5KP170A      | 5KP170CA |
| 5KP180                                    | 5KP180C  | 180              | 198                              | 253.8 | 1              | 5                                 | 5   | 322                              | 16 | 5KP180       | 5KP180C  |
| 5KP180A                                   | 5KP180CA | 180              | 198                              | 230.4 | 1              | 5                                 | 5   | 292                              | 17 | 5KP180A      | 5KP180CA |
| 5KP190                                    | 5KP190C  | 190              | 209                              | 267.9 | 1              | 5                                 | 5   | 340                              | 15 | 5KP190       | 5KP190C  |
| 5KP190A                                   | 5KP190CA | 190              | 209                              | 243.2 | 1              | 5                                 | 5   | 308                              | 16 | 5KP190A      | 5KP190CA |
| 5KP200                                    | 5KP200C  | 200              | 220                              | 282   | 1              | 5                                 | 5   | 358                              | 14 | 5KP200       | 5KP200C  |
| 5KP200A                                   | 5KP200CA | 200              | 220                              | 256   | 1              | 5                                 | 5   | 324                              | 15 | 5KP200A      | 5KP200CA |

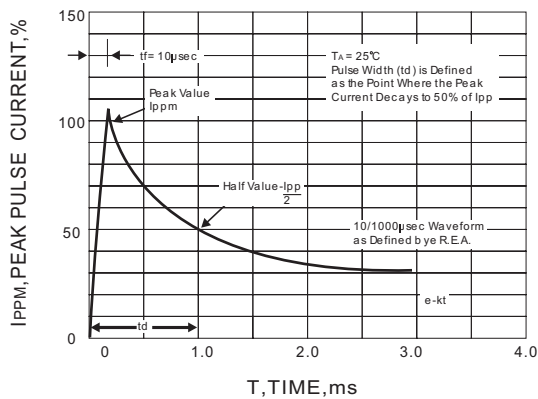
## 5KP SERIES



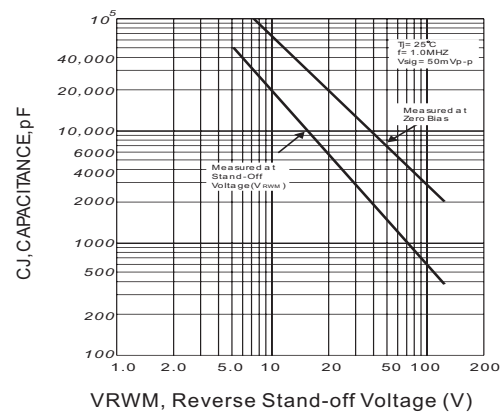
**Fig.1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE**



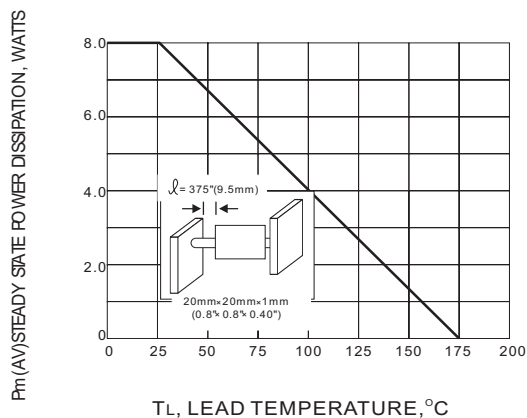
**Fig.2 PULSE DERATING CURVE**



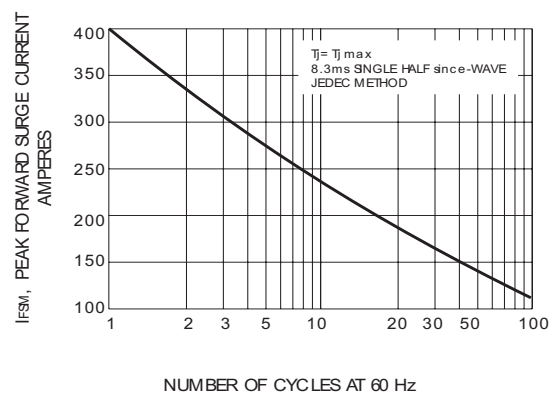
**Fig.3 PULSE WAVEFORM**



**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>