



# P4KE SERIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

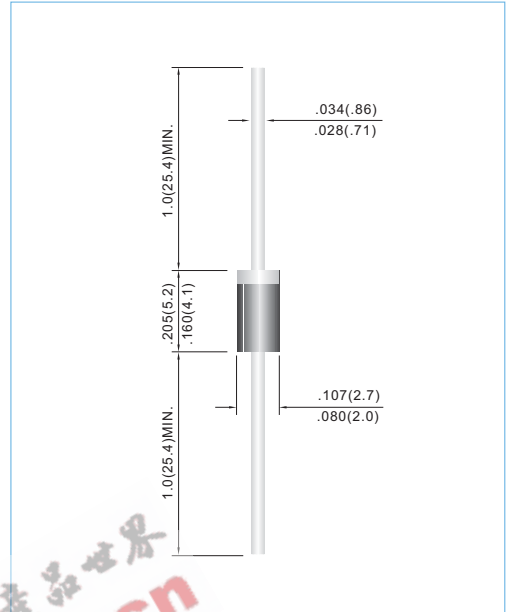
|                |                         |              |                  |              |                |
|----------------|-------------------------|--------------|------------------|--------------|----------------|
| <b>VOLTAGE</b> | <b>5.5 to 376 Volts</b> | <b>POWER</b> | <b>400 Watts</b> | <b>DO-41</b> | Unit: inch(mm) |
|----------------|-------------------------|--------------|------------------|--------------|----------------|

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical  $I_R$  less than 1μA above 10V
- In compliance with EU RoHS 2002/95/EC directives

### MECHANICAL DATA

- Case: JEDEC DO-41 Molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except Bipolar
- Mounting Position: Any
- Weight: 0.012 ounce, 0.336 gram



### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types  
Electrical characteristics apply in both directions.

| Rating  | Symbol         | Value       | Units            |
|---|----------------|-------------|------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_p=1\text{ms}$ (Note 1)                              | $P_{PK}$       | 400         | Watts            |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", (9.5mm) (Note 2)             | $P_D$          | 1.0         | Watts            |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 3) | $I_{PPM}$      | 40          | Amps             |
| Operating Junction and Storage Temperature Range  | $T_J, T_{STG}$ | -65 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 1.57 in<sup>2</sup> (40mm<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             | uA                                | uA   | V                                | A    | UNI          | BI        |
| <b>400W Transient Voltage Suppressor</b> |           |                  |                                  |      |                |                                   |      |                                  |      |              |           |
| P4KE6.8                                  | P4KE6.8C  | 5.5              | 6.12                             | 7.48 | 10             | 1000                              | 2000 | 10.8                             | 38   | P4KE6.8      | P4KE6.8C  |
| P4KE6.8A                                 | P4KE6.8CA | 5.8              | 6.45                             | 7.14 | 10             | 1000                              | 2000 | 10.5                             | 40   | P4KE6.8A     | P4KE6.8CA |
| P4KE7.5                                  | P4KE7.5C  | 6.05             | 6.75                             | 8.25 | 10             | 500                               | 1000 | 11.7                             | 36   | P4KE7.5      | P4KE7.5C  |
| P4KE7.5A                                 | P4KE7.5CA | 6.4              | 7.13                             | 7.88 | 10             | 500                               | 1000 | 11.3                             | 37   | P4KE7.5A     | P4KE7.5CA |
| P4KE8.2                                  | P4KE8.2C  | 6.63             | 7.38                             | 9.02 | 10             | 200                               | 400  | 12.5                             | 33   | P4KE8.2      | P4KE8.2C  |
| P4KE8.2A                                 | P4KE8.2CA | 7.02             | 7.79                             | 8.61 | 10             | 200                               | 400  | 12.1                             | 35   | P4KE8.2A     | P4KE8.2CA |
| P4KE9.1                                  | P4KE9.1C  | 7.37             | 8.19                             | 10   | 1              | 50                                | 100  | 13.8                             | 30   | P4KE9.1      | P4KE9.1C  |
| P4KE9.1A                                 | P4KE9.1CA | 7.78             | 8.65                             | 9.5  | 1              | 50                                | 100  | 13.4                             | 31   | P4KE9.1A     | P4KE9.1CA |
| P4KE10                                   | P4KE10C   | 8.1              | 9                                | 11   | 1              | 10                                | 20   | 15                               | 28   | P4KE10       | P4KE10C   |
| P4KE10A                                  | P4KE10CA  | 8.55             | 9.5                              | 10.5 | 1              | 10                                | 20   | 14.5                             | 29   | P4KE10A      | P4KE10CA  |
| P4KE11                                   | P4KE11C   | 8.9              | 9.9                              | 12.1 | 1              | 5                                 | 10   | 16.2                             | 26   | P4KE11       | P4KE11C   |
| P4KE11A                                  | P4KE11CA  | 9.4              | 10.5                             | 11.6 | 1              | 5                                 | 10   | 15.6                             | 27   | P4KE11A      | P4KE11CA  |
| P4KE12                                   | P4KE12C   | 9.72             | 10.8                             | 13.2 | 1              | 5                                 | 5    | 17.3                             | 24   | P4KE12       | P4KE12C   |
| P4KE12A                                  | P4KE12CA  | 10.2             | 11.4                             | 12.6 | 1              | 5                                 | 5    | 16.7                             | 25   | P4KE12A      | P4KE12CA  |
| P4KE13                                   | P4KE13C   | 10.5             | 11.7                             | 14.3 | 1              | 5                                 | 5    | 19                               | 22   | P4KE13       | P4KE13C   |
| P4KE13A                                  | P4KE13CA  | 11.1             | 12.4                             | 13.7 | 1              | 5                                 | 5    | 18.2                             | 23   | P4KE13A      | P4KE13CA  |
| P4KE15                                   | P4KE15C   | 12.1             | 13.5                             | 16.5 | 1              | 5                                 | 5    | 22                               | 19   | P4KE15       | P4KE15C   |
| P4KE15A                                  | P4KE15CA  | 12.8             | 14.3                             | 15.8 | 1              | 5                                 | 5    | 21.2                             | 20   | P4KE15A      | P4KE15CA  |
| P4KE16                                   | P4KE16C   | 12.9             | 14.4                             | 17.6 | 1              | 5                                 | 5    | 23.5                             | 18   | P4KE16       | P4KE16C   |
| P4KE16A                                  | P4KE16CA  | 13.6             | 15.2                             | 16.8 | 1              | 5                                 | 5    | 22.5                             | 19   | P4KE16A      | P4KE16CA  |
| P4KE18                                   | P4KE18C   | 14.5             | 16.2                             | 19.8 | 1              | 5                                 | 5    | 26.5                             | 16   | P4KE18       | P4KE18C   |
| P4KE18A                                  | P4KE18CA  | 15.3             | 17.1                             | 18.9 | 1              | 5                                 | 5    | 25.2                             | 17   | P4KE18A      | P4KE18CA  |
| P4KE20                                   | P4KE20C   | 16.2             | 18                               | 22   | 1              | 5                                 | 5    | 29.1                             | 14   | P4KE20       | P4KE20C   |
| P4KE20A                                  | P4KE20CA  | 17.1             | 19                               | 21   | 1              | 5                                 | 5    | 27.7                             | 15   | P4KE20A      | P4KE20CA  |
| P4KE22                                   | P4KE22C   | 17.8             | 19.8                             | 24.2 | 1              | 5                                 | 5    | 31.9                             | 13   | P4KE22       | P4KE22C   |
| P4KE22A                                  | P4KE22CA  | 18.8             | 20.9                             | 23.1 | 1              | 5                                 | 5    | 30.6                             | 14   | P4KE22A      | P4KE22CA  |
| P4KE24                                   | P4KE24C   | 19.4             | 21.6                             | 26.4 | 1              | 5                                 | 5    | 34.7                             | 12   | P4KE24       | P4KE24C   |
| P4KE24A                                  | P4KE24CA  | 20.5             | 22.8                             | 25.2 | 1              | 5                                 | 5    | 33.2                             | 13   | P4KE24A      | P4KE24CA  |
| P4KE27                                   | P4KE27C   | 21.8             | 24.3                             | 29.7 | 1              | 5                                 | 5    | 39.1                             | 11   | P4KE27       | P4KE27C   |
| P4KE27A                                  | P4KE27CA  | 23.1             | 25.7                             | 28.4 | 1              | 5                                 | 5    | 37.5                             | 11.2 | P4KE27A      | P4KE27CA  |
| P4KE30                                   | P4KE30C   | 24.3             | 27                               | 33   | 1              | 5                                 | 5    | 43.5                             | 10   | P4KE30       | P4KE30C   |
| P4KE30A                                  | P4KE30CA  | 25.6             | 28.5                             | 31.5 | 1              | 5                                 | 5    | 41.4                             | 10   | P4KE30A      | P4KE30CA  |
| P4KE33                                   | P4KE33C   | 26.8             | 29.7                             | 36.3 | 1              | 5                                 | 5    | 47.7                             | 9    | P4KE33       | P4KE33C   |
| P4KE33A                                  | P4KE33CA  | 28.2             | 31.4                             | 34.7 | 1              | 5                                 | 5    | 45.7                             | 9    | P4KE33A      | P4KE33CA  |
| P4KE36                                   | P4KE36C   | 29.1             | 32.4                             | 39.6 | 1              | 5                                 | 5    | 52                               | 8    | P4KE36       | P4KE36C   |
| P4KE36A                                  | P4KE36CA  | 30.8             | 34.2                             | 37.8 | 1              | 5                                 | 5    | 49.9                             | 8.4  | P4KE36A      | P4KE36CA  |
| P4KE39                                   | P4KE39C   | 31.6             | 35.1                             | 42.9 | 1              | 5                                 | 5    | 56.4                             | 7.4  | P4KE39       | P4KE39C   |
| P4KE39A                                  | P4KE39CA  | 33.3             | 37.1                             | 41   | 1              | 5                                 | 5    | 53.9                             | 7.8  | P4KE39A      | P4KE39CA  |
| P4KE43                                   | P4KE43C   | 34.8             | 38.7                             | 47.3 | 1              | 5                                 | 5    | 61.9                             | 6.8  | P4KE43       | P4KE43C   |
| P4KE43A                                  | P4KE43CA  | 36.8             | 40.9                             | 45.2 | 1              | 5                                 | 5    | 59.3                             | 7.1  | P4KE43A      | P4KE43CA  |
| P4KE47                                   | P4KE47C   | 38.1             | 42.3                             | 51.7 | 1              | 5                                 | 5    | 67.8                             | 6.2  | P4KE47       | P4KE47C   |
| P4KE47A                                  | P4KE47CA  | 40.2             | 44.7                             | 49.4 | 1              | 5                                 | 5    | 64.8                             | 5    | P4KE47A      | P4KE47CA  |

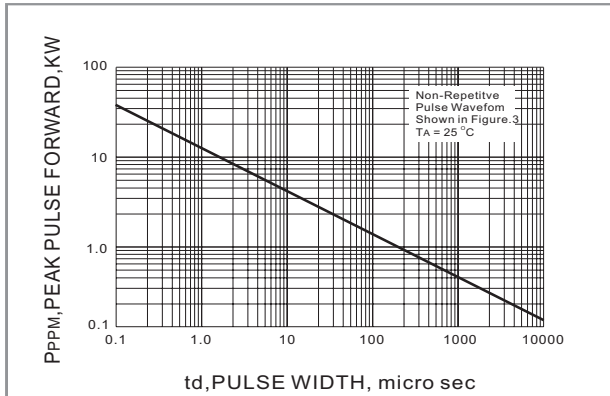


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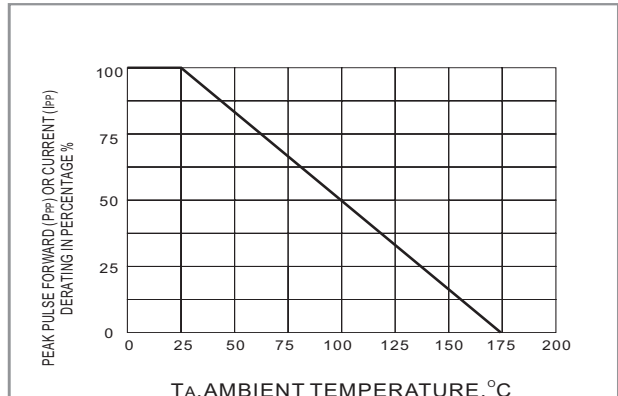
| Part Number                              |           | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |      |                | I <sub>R</sub> @ V <sub>RWM</sub> |     | V <sub>C</sub> @ I <sub>PP</sub> |     | Marking code |           |
|--|-----------|------------------|----------------------------------|------|----------------|-----------------------------------|-----|----------------------------------|-----|--------------|-----------|
|  |           |                  | Min.                             | Max. | I <sub>T</sub> | UNI-                              | BI- | V                                | A   | UNI          | BI        |
| UNI                                      | BI        | V                | V                                | V    | mA             | uA                                | uA  | V                                | A   | UNI          | BI        |
| <b>400W Transient Voltage Suppressor</b> |           |                  |                                  |      |                |                                   |     |                                  |     |              |           |
| P4KE51                                   | P4KE51C   | 41.3             | 45.9                             | 56.1 | 1              | 5                                 | 5   | 73.5                             | 5.7 | P4KE51       | P4KE51C   |
| P4KE51A                                  | P4KE51CA  | 43.6             | 48.5                             | 53.6 | 1              | 5                                 | 5   | 70.1                             | 6   | P4KE51A      | P4KE51CA  |
| P4KE56                                   | P4KE56C   | 45.6             | 50.4                             | 61.6 | 1              | 5                                 | 5   | 80.5                             | 5.2 | P4KE56       | P4KE56C   |
| P4KE56A                                  | P4KE56CA  | 47.8             | 53.2                             | 58.8 | 1              | 5                                 | 5   | 77                               | 5.5 | P4KE56A      | P4KE56CA  |
| P4KE62                                   | P4KE62C   | 50.2             | 55.8                             | 68.2 | 1              | 5                                 | 5   | 89                               | 4.7 | P4KE62       | P4KE62C   |
| P4KE62A                                  | P4KE62CA  | 53               | 58.9                             | 65.1 | 1              | 5                                 | 5   | 85                               | 5   | P4KE62A      | P4KE62CA  |
| P4KE68                                   | P4KE68C   | 55.1             | 61.2                             | 74.8 | 1              | 5                                 | 5   | 98                               | 4.3 | P4KE68       | P4KE68C   |
| P4KE68A                                  | P4KE68CA  | 58.1             | 64.6                             | 71.4 | 1              | 5                                 | 5   | 92                               | 4.6 | P4KE68A      | P4KE68CA  |
| P4KE75                                   | P4KE75C   | 60.7             | 67.5                             | 82.5 | 1              | 5                                 | 5   | 108                              | 3.9 | P4KE75       | P4KE75C   |
| P4KE75A                                  | P4KE75CA  | 64.1             | 71.3                             | 78.8 | 1              | 5                                 | 5   | 103                              | 4.1 | P4KE75A      | P4KE75CA  |
| P4KE82                                   | P4KE82C   | 66.4             | 73.8                             | 90.2 | 1              | 5                                 | 5   | 118                              | 3.6 | P4KE82       | P4KE82C   |
| P4KE82A                                  | P4KE82CA  | 70.1             | 77.9                             | 86.1 | 1              | 5                                 | 5   | 113                              | 3.7 | P4KE82A      | P4KE82CA  |
| P4KE91                                   | P4KE91C   | 73.7             | 81.9                             | 100  | 1              | 5                                 | 5   | 131                              | 3.2 | P4KE91       | P4KE91C   |
| P4KE91A                                  | P4KE91CA  | 77.8             | 86.5                             | 95.5 | 1              | 5                                 | 5   | 125                              | 3.4 | P4KE91A      | P4KE91CA  |
| P4KE100                                  | P4KE100C  | 81               | 90                               | 110  | 1              | 5                                 | 5   | 144                              | 2.9 | P4KE100      | P4KE100C  |
| P4KE100A                                 | P4KE100CA | 85.5             | 95                               | 105  | 1              | 5                                 | 5   | 137                              | 3.1 | P4KE100A     | P4KE100CA |
| P4KE110                                  | P4KE110C  | 89.2             | 99                               | 121  | 1              | 5                                 | 5   | 158                              | 2.7 | P4KE110      | P4KE110C  |
| P4KE110A                                 | P4KE110CA | 94               | 105                              | 116  | 1              | 5                                 | 5   | 152                              | 2.8 | P4KE110A     | P4KE110CA |
| P4KE120                                  | P4KE120C  | 97.2             | 108                              | 132  | 1              | 5                                 | 5   | 173                              | 2.4 | P4KE120      | P4KE120C  |
| P4KE120A                                 | P4KE120CA | 102              | 114                              | 126  | 1              | 5                                 | 5   | 165                              | 2.5 | P4KE120A     | P4KE120CA |
| P4KE130                                  | P4KE130C  | 105              | 117                              | 143  | 1              | 5                                 | 5   | 187                              | 2.2 | P4KE130      | P4KE130C  |
| P4KE130A                                 | P4KE130CA | 111              | 124                              | 137  | 1              | 5                                 | 5   | 179                              | 2.3 | P4KE130A     | P4KE130CA |
| P4KE150                                  | P4KE150C  | 121              | 135                              | 165  | 1              | 5                                 | 5   | 215                              | 2   | P4KE150      | P4KE150C  |
| P4KE150A                                 | P4KE150CA | 128              | 143                              | 158  | 1              | 5                                 | 5   | 207                              | 2   | P4KE150A     | P4KE150CA |
| P4KE160                                  | P4KE160C  | 130              | 144                              | 176  | 1              | 5                                 | 5   | 230                              | 1.8 | P4KE160      | P4KE160C  |
| P4KE160A                                 | P4KE160CA | 136              | 152                              | 168  | 1              | 5                                 | 5   | 219                              | 1.9 | P4KE160A     | P4KE160CA |
| P4KE170                                  | P4KE170C  | 138              | 153                              | 187  | 1              | 5                                 | 5   | 244                              | 1.7 | P4KE170      | P4KE170C  |
| P4KE170A                                 | P4KE170CA | 145              | 162                              | 179  | 1              | 5                                 | 5   | 234                              | 1.8 | P4KE170A     | P4KE170CA |
| P4KE180                                  | P4KE180C  | 146              | 162                              | 198  | 1              | 5                                 | 5   | 258                              | 1.6 | P4KE180      | P4KE180C  |
| P4KE180A                                 | P4KE180CA | 154              | 171                              | 189  | 1              | 5                                 | 5   | 246                              | 1.7 | P4KE180A     | P4KE180CA |
| P4KE200                                  | P4KE200C  | 162              | 180                              | 220  | 1              | 5                                 | 5   | 287                              | 1.5 | P4KE200      | P4KE200C  |
| P4KE200A                                 | P4KE200CA | 171              | 190                              | 210  | 1              | 5                                 | 5   | 274                              | 1.5 | P4KE200A     | P4KE200CA |
| P4KE220                                  | P4KE220C  | 175              | 198                              | 242  | 1              | 5                                 | 5   | 344                              | 1.2 | P4KE220      | P4KE220C  |
| P4KE220A                                 | P4KE220CA | 185              | 209                              | 231  | 1              | 5                                 | 5   | 328                              | 1.2 | P4KE220A     | P4KE220CA |
| P4KE250                                  | P4KE250C  | 202              | 225                              | 275  | 1              | 5                                 | 5   | 360                              | 1.1 | P4KE250      | P4KE250C  |
| P4KE250A                                 | P4KE250CA | 214              | 237                              | 263  | 1              | 5                                 | 5   | 344                              | 1.2 | P4KE250A     | P4KE250CA |
| P4KE300                                  | P4KE300C  | 243              | 270                              | 330  | 1              | 5                                 | 5   | 430                              | 0.9 | P4KE300      | P4KE300C  |
| P4KE300A                                 | P4KE300CA | 256              | 285                              | 315  | 1              | 5                                 | 5   | 414                              | 1   | P4KE300A     | P4KE300CA |
| P4KE350                                  | P4KE350C  | 284              | 315                              | 385  | 1              | 5                                 | 5   | 504                              | 0.8 | P4KE350      | P4KE350C  |
| P4KE350A                                 | P4KE350CA | 300              | 332                              | 368  | 1              | 5                                 | 5   | 482                              | 0.8 | P4KE350A     | P4KE350CA |
| P4KE400                                  | P4KE400C  | 324              | 360                              | 440  | 1              | 5                                 | 5   | 574                              | 0.7 | P4KE400      | P4KE400C  |
| P4KE400A                                 | P4KE400CA | 342              | 380                              | 420  | 1              | 5                                 | 5   | 548                              | 0.7 | P4KE400A     | P4KE400CA |
| P4KE440                                  | P4KE440C  | 356              | 396                              | 484  | 1              | 5                                 | 5   | 631                              | 0.7 | P4KE440      | P4KE440C  |
| P4KE440A                                 | P4KE440CA | 376              | 418                              | 462  | 1              | 5                                 | 5   | 600                              | 0.7 | P4KE440A     | P4KE440CA |



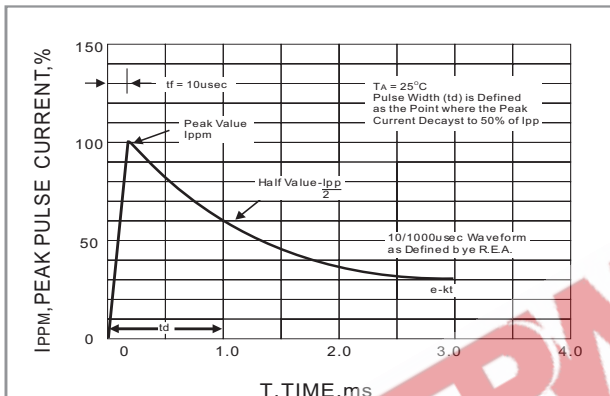
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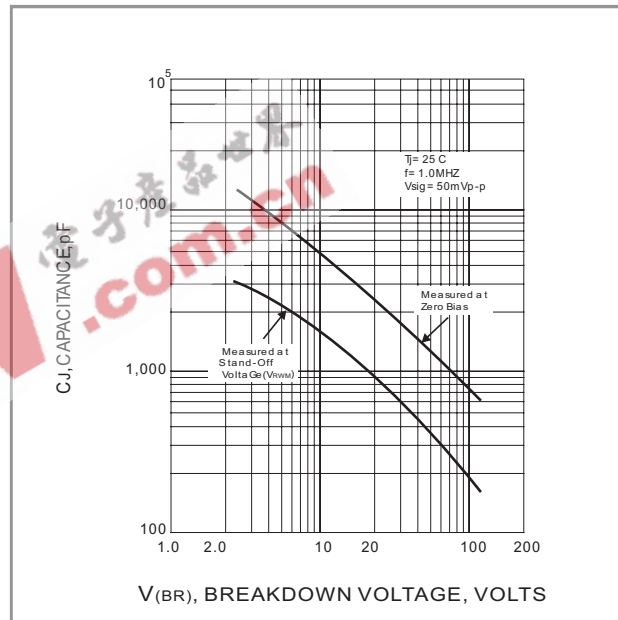
**Fig.1 PEAK PULSE POWER RATING PULSE TIME CURVE**



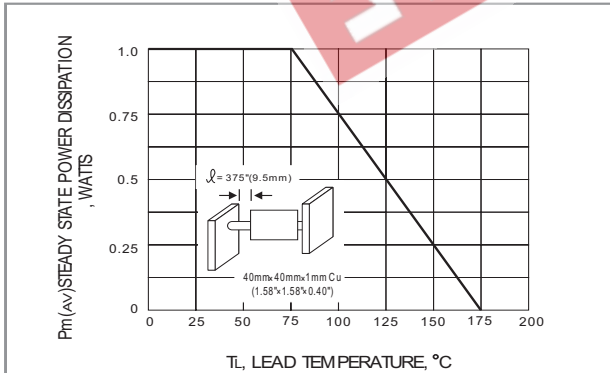
**Fig.2 PULSE DERATING CURVE**



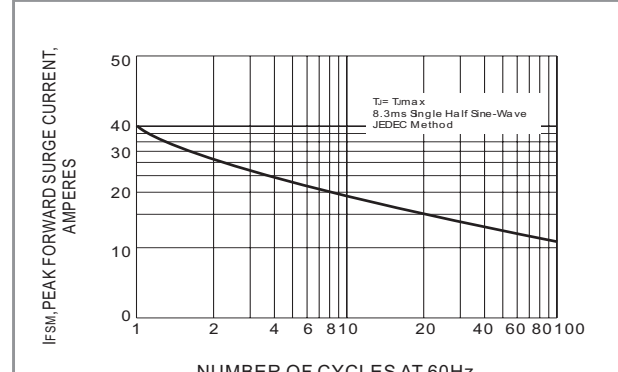
**Fig.3 PULSE WAVEFORM**



**Fig.4 TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL**



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



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

PLEASE REFER THE TVS APPLICATION NOTE IN PANJIT WEBSITE

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