



# P6KE SERIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

|                |                         |              |                  |              |                |
|----------------|-------------------------|--------------|------------------|--------------|----------------|
| <b>VOLTAGE</b> | <b>5.5 to 376 Volts</b> | <b>POWER</b> | <b>600 Watts</b> | <b>DO-15</b> | Unit: inch(mm) |
|----------------|-------------------------|--------------|------------------|--------------|----------------|

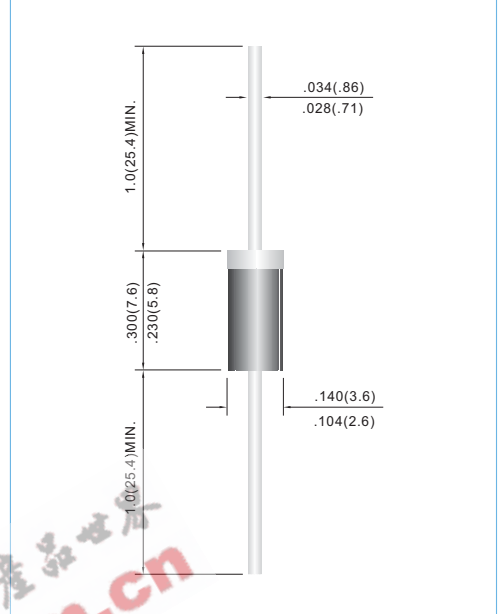
**Recongnized File # E210467**

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Typical IR less than 1μA above 10V
- 600W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- In compliance with EU RoHS 2002/95/EC directives

### MECHANICAL DATA

- Case: JEDEC DO-15 Molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except Bipolar
- Mounting Position: Any
- Weight: 0.015 ounce, 0.4 gram



### DEVICES FOR BIPOLAR APPLICATIONS

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

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.  
For Capacitive load derate current by 20%.

| Rating  | Symbol         | Value       | Units            |
|---|----------------|-------------|------------------|
| Power Dissipation on $T_A = 25^\circ\text{C}$ , $T_P = 1\text{ms}$ (Note 1)                                   | $P_{PK}$       | 600         | Watts            |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$<br>Lead Lengths .375", (9.5mm) (Note 2)            | $P_D$          | 5.0         | Watts            |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave<br>Superimposed on Rated Load (JEDEC Method) (Note 3) | $I_{FSM}$      | 100         | 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                              | Part Number | V <sub>VRWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |       |                | I <sub>R</sub> @ V <sub>VRWM</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>600W Transient Voltage Suppressor</b> |             |                   |                                  |       |                |                                    |      |                                  |      |              |           |
| P6KE6.8                                  | P6KE6.8C    | 5.5               | 6.12                             | 7.48  | 10             | 1000                               | 2000 | 10.8                             | 56   | P6KE6.8      | P6KE6.8C  |
| P6KE6.8A                                 | P6KE6.8CA   | 5.8               | 6.45                             | 7.14  | 10             | 1000                               | 2000 | 10.5                             | 57   | P6KE6.8A     | P6KE6.8CA |
| P6KE7.5                                  | P6KE7.5C    | 6.05              | 6.75                             | 8.25  | 10             | 500                                | 1000 | 11.7                             | 51   | P6KE7.5      | P6KE7.5C  |
| P6KE7.5A                                 | P6KE7.5CA   | 6.4               | 7.13                             | 7.88  | 10             | 500                                | 1000 | 11.3                             | 53   | P6KE7.5A     | P6KE7.5CA |
| P6KE8.2                                  | P6KE8.2C    | 6.63              | 7.38                             | 9.02  | 10             | 200                                | 400  | 12.5                             | 48   | P6KE8.2      | P6KE8.2C  |
| P6KE8.2A                                 | P6KE8.2CA   | 7.02              | 7.79                             | 8.61  | 10             | 200                                | 400  | 12.1                             | 50   | P6KE8.2A     | P6KE8.2CA |
| P6KE9.1                                  | P6KE9.1C    | 7.37              | 8.19                             | 10    | 1              | 50                                 | 100  | 13.8                             | 44   | P6KE9.1      | P6KE9.1C  |
| P6KE9.1A                                 | P6KE9.1CA   | 7.78              | 8.65                             | 9.50  | 1              | 50                                 | 100  | 13.4                             | 45   | P6KE9.1A     | P6KE9.1CA |
| P6KE10                                   | P6KE10C     | 8.1               | 9                                | 11    | 1              | 10                                 | 20   | 15                               | 40   | P6KE10       | P6KE10C   |
| P6KE10A                                  | P6KE10CA    | 8.55              | 9.5                              | 10.50 | 1              | 10                                 | 20   | 14.5                             | 41   | P6KE10A      | P6KE10CA  |
| P6KE11                                   | P6KE11C     | 8.92              | 9.9                              | 12    | 1              | 5                                  | 10   | 16.2                             | 37   | P6KE11       | P6KE11C   |
| P6KE11A                                  | P6KE11CA    | 9.4               | 10.5                             | 12    | 1              | 5                                  | 10   | 15.6                             | 38   | P6KE11A      | P6KE11CA  |
| P6KE12                                   | P6KE12C     | 9.72              | 10.8                             | 13    | 1              | 5                                  | 5    | 17.3                             | 35   | P6KE12       | P6KE12C   |
| P6KE12A                                  | P6KE12CA    | 10.2              | 11.4                             | 13    | 1              | 5                                  | 5    | 16.7                             | 36   | P6KE12A      | P6KE12CA  |
| P6KE13                                   | P6KE13C     | 10.5              | 11.7                             | 14    | 1              | 5                                  | 5    | 19                               | 32   | P6KE13       | P6KE13C   |
| P6KE13A                                  | P6KE13CA    | 11.1              | 12.4                             | 14    | 1              | 5                                  | 5    | 18.2                             | 33   | P6KE13A      | P6KE13CA  |
| P6KE15                                   | P6KE15C     | 12.1              | 13.5                             | 16.5  | 1              | 5                                  | 5    | 22                               | 27   | P6KE15       | P6KE15C   |
| P6KE15A                                  | P6KE15CA    | 12.8              | 14.3                             | 15.8  | 1              | 5                                  | 5    | 21.2                             | 28   | P6KE15A      | P6KE15CA  |
| P6KE16                                   | P6KE16C     | 12.9              | 14.4                             | 17.6  | 1              | 5                                  | 5    | 23.5                             | 26   | P6KE16       | P6KE16C   |
| P6KE16A                                  | P6KE16CA    | 13.6              | 15.2                             | 16.8  | 1              | 5                                  | 5    | 22.5                             | 27   | P6KE16A      | P6KE16CA  |
| P6KE18                                   | P6KE18C     | 14.5              | 16.2                             | 19.8  | 1              | 5                                  | 5    | 26.5                             | 23   | P6KE18       | P6KE18C   |
| P6KE18A                                  | P6KE18CA    | 15.3              | 17.1                             | 18.9  | 1              | 5                                  | 5    | 25.2                             | 24   | P6KE18A      | P6KE18CA  |
| P6KE20                                   | P6KE20C     | 16.2              | 18                               | 22    | 1              | 5                                  | 5    | 29.1                             | 21   | P6KE20       | P6KE20C   |
| P6KE20A                                  | P6KE20CA    | 17.1              | 19                               | 21    | 1              | 5                                  | 5    | 27.7                             | 22   | P6KE20A      | P6KE20CA  |
| P6KE22                                   | P6KE22C     | 17.8              | 19.8                             | 24.2  | 1              | 5                                  | 5    | 31.9                             | 19   | P6KE22       | P6KE22C   |
| P6KE22A                                  | P6KE22CA    | 18.8              | 20.9                             | 23.1  | 1              | 5                                  | 5    | 30.6                             | 20   | P6KE22A      | P6KE22CA  |
| P6KE24                                   | P6KE24C     | 19.4              | 21.6                             | 26.4  | 1              | 5                                  | 5    | 34.7                             | 17   | P6KE24       | P6KE24C   |
| P6KE24A                                  | P6KE24CA    | 20.5              | 22.8                             | 25.2  | 1              | 5                                  | 5    | 33.2                             | 18   | P6KE24A      | P6KE24CA  |
| P6KE27                                   | P6KE27C     | 21.8              | 24.3                             | 29.7  | 1              | 5                                  | 5    | 39.1                             | 15   | P6KE27       | P6KE27C   |
| P6KE27A                                  | P6KE27CA    | 23.1              | 25.7                             | 28.4  | 1              | 5                                  | 5    | 37.5                             | 16   | P6KE27A      | P6KE27CA  |
| P6KE30                                   | P6KE30C     | 24.3              | 27                               | 33    | 1              | 5                                  | 5    | 43.5                             | 14   | P6KE30       | P6KE30C   |
| P6KE30A                                  | P6KE30CA    | 25.6              | 28.5                             | 31.5  | 1              | 5                                  | 5    | 41.4                             | 14.4 | P6KE30A      | P6KE30CA  |
| P6KE33                                   | P6KE33C     | 26.8              | 29.7                             | 36.3  | 1              | 5                                  | 5    | 47.7                             | 12.6 | P6KE33       | P6KE33C   |
| P6KE33A                                  | P6KE33CA    | 28.2              | 31.4                             | 34.7  | 1              | 5                                  | 5    | 45.7                             | 13.2 | P6KE33A      | P6KE33CA  |
| P6KE36                                   | P6KE36C     | 29.1              | 32.4                             | 39.6  | 1              | 5                                  | 5    | 52                               | 11.6 | P6KE36       | P6KE36C   |
| P6KE36A                                  | P6KE36CA    | 30.8              | 34.2                             | 37.8  | 1              | 5                                  | 5    | 49.9                             | 12   | P6KE36A      | P6KE36CA  |
| P6KE39                                   | P6KE39C     | 31.6              | 35.1                             | 42.9  | 1              | 5                                  | 5    | 56.4                             | 10.6 | P6KE39       | P6KE39C   |
| P6KE39A                                  | P6KE39CA    | 33.3              | 37.1                             | 41    | 1              | 5                                  | 5    | 53.9                             | 11.2 | P6KE39A      | P6KE39CA  |
| P6KE43                                   | P6KE43C     | 34.8              | 38.7                             | 47.3  | 1              | 5                                  | 5    | 61.9                             | 9.6  | P6KE43       | P6KE43C   |
| P6KE43A                                  | P6KE43CA    | 36.8              | 40.9                             | 45.2  | 1              | 5                                  | 5    | 59.3                             | 10.1 | P6KE43A      | P6KE43CA  |
| P6KE47                                   | P6KE47C     | 38.1              | 42.3                             | 51.7  | 1              | 5                                  | 5    | 67.8                             | 8.9  | P6KE47       | P6KE47C   |
| P6KE47A                                  | P6KE47CA    | 40.2              | 44.7                             | 49.4  | 1              | 5                                  | 5    | 64.8                             | 9.3  | P6KE47A      | P6KE47CA  |

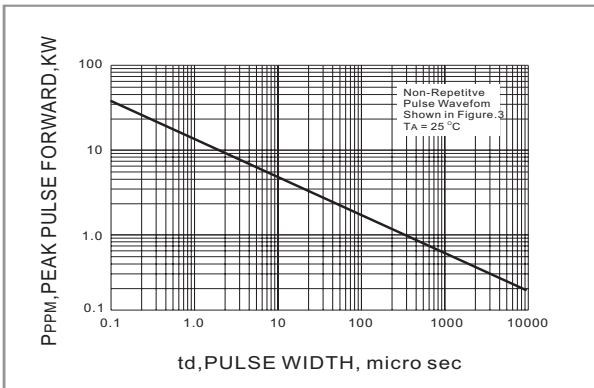


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| Part Number                              | Part Number | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> |           |                      | I <sub>R</sub> @ V <sub>RWM</sub> |           | V <sub>c</sub> @ I <sub>PP</sub> |     | Marking Code |           |
|--|-------------|------------------|----------------------------------|-----------|----------------------|-----------------------------------|-----------|----------------------------------|-----|--------------|-----------|
|  |             |                  | Min.<br>V                        | Max.<br>V | I <sub>T</sub><br>mA | UNI-<br>μA                        | BI-<br>μA | V                                | A   | UNI-         | BI-       |
| <b>600W Transient Voltage Suppressor</b> |             |                  |                                  |           |                      |                                   |           |                                  |     |              |           |
| P6KE51                                   | P6KE51C     | 41.3             | 45.9                             | 56.1      | 1                    | 5                                 | 5         | 73.5                             | 8.2 | P6KE51       | P6KE51C   |
| P6KE51A                                  | P6KE51CA    | 43.6             | 48.5                             | 53.6      | 1                    | 5                                 | 5         | 70.1                             | 8.6 | P6KE51A      | P6KE51CA  |
| P6KE56                                   | P6KE56C     | 45.6             | 50.4                             | 61.6      | 1                    | 5                                 | 5         | 80.5                             | 7.4 | P6KE56       | P6KE56C   |
| P6KE56A                                  | P6KE56CA    | 47.8             | 53.2                             | 58.8      | 1                    | 5                                 | 5         | 77                               | 7.8 | P6KE56A      | P6KE56CA  |
| P6KE62                                   | P6KE62C     | 50.2             | 55.8                             | 68.2      | 1                    | 5                                 | 5         | 89                               | 6.8 | P6KE62       | P6KE62C   |
| P6KE62A                                  | P6KE62CA    | 53               | 58.9                             | 65.1      | 1                    | 5                                 | 5         | 85                               | 7.1 | P6KE62A      | P6KE62CA  |
| P6KE68                                   | P6KE68C     | 55.1             | 61.2                             | 74.8      | 1                    | 5                                 | 5         | 98                               | 6.1 | P6KE68       | P6KE68C   |
| P6KE68A                                  | P6KE68CA    | 58.1             | 64.6                             | 71.4      | 1                    | 5                                 | 5         | 92                               | 6.5 | P6KE68A      | P6KE68CA  |
| P6KE75                                   | P6KE75C     | 60.7             | 67.5                             | 82.5      | 1                    | 5                                 | 5         | 108                              | 5.5 | P6KE75       | P6KE75C   |
| P6KE75A                                  | P6KE75CA    | 64.1             | 71.3                             | 78.8      | 1                    | 5                                 | 5         | 103                              | 5.8 | P6KE75A      | P6KE75CA  |
| P6KE82                                   | P6KE82C     | 66.4             | 73.8                             | 90.2      | 1                    | 5                                 | 5         | 118                              | 5.1 | P6KE82       | P6KE82C   |
| P6KE82A                                  | P6KE82CA    | 70.1             | 77.9                             | 86.1      | 1                    | 5                                 | 5         | 113                              | 5.3 | P6KE82A      | P6KE82CA  |
| P6KE91                                   | P6KE91C     | 73.7             | 81.9                             | 100       | 1                    | 5                                 | 5         | 131                              | 4.5 | P6KE91       | P6KE91C   |
| P6KE91A                                  | P6KE91CA    | 77.8             | 86.5                             | 95.5      | 1                    | 5                                 | 5         | 125                              | 4.8 | P6KE91A      | P6KE91CA  |
| P6KE100                                  | P6KE100C    | 81               | 90                               | 110       | 1                    | 5                                 | 5         | 144                              | 4.2 | P6KE100      | P6KE100C  |
| P6KE100A                                 | P6KE100CA   | 85.5             | 95                               | 105       | 1                    | 5                                 | 5         | 137                              | 4.4 | P6KE100A     | P6KE100CA |
| P6KE110                                  | P6KE110C    | 89.2             | 99                               | 121       | 1                    | 5                                 | 5         | 158                              | 3.8 | P6KE110      | P6KE110C  |
| P6KE110A                                 | P6KE110CA   | 94               | 105                              | 116       | 1                    | 5                                 | 5         | 152                              | 4   | P6KE110A     | P6KE110CA |
| P6KE120                                  | P6KE120C    | 97.2             | 108                              | 132       | 1                    | 5                                 | 5         | 173                              | 3.5 | P6KE120      | P6KE120C  |
| P6KE120A                                 | P6KE120CA   | 102              | 114                              | 126       | 1                    | 5                                 | 5         | 165                              | 3.6 | P6KE120A     | P6KE120CA |
| P6KE130                                  | P6KE130C    | 105              | 117                              | 143       | 1                    | 5                                 | 5         | 187                              | 3.2 | P6KE130      | P6KE130C  |
| P6KE130A                                 | P6KE130CA   | 111              | 124                              | 137       | 1                    | 5                                 | 5         | 179                              | 3.3 | P6KE130A     | P6KE130CA |
| P6KE150                                  | P6KE150C    | 121              | 135                              | 165       | 1                    | 5                                 | 5         | 215                              | 2.8 | P6KE150      | P6KE150C  |
| P6KE150A                                 | P6KE150CA   | 128              | 143                              | 158       | 1                    | 5                                 | 5         | 207                              | 2.9 | P6KE150A     | P6KE150CA |
| P6KE160                                  | P6KE160C    | 130              | 144                              | 176       | 1                    | 5                                 | 5         | 230                              | 2.6 | P6KE160      | P6KE160C  |
| P6KE160A                                 | P6KE160CA   | 136              | 152                              | 168       | 1                    | 5                                 | 5         | 219                              | 2.7 | P6KE160A     | P6KE160CA |
| P6KE170                                  | P6KE170C    | 138              | 153                              | 187       | 1                    | 5                                 | 5         | 244                              | 2.5 | P6KE170      | P6KE170C  |
| P6KE170A                                 | P6KE170CA   | 145              | 162                              | 179       | 1                    | 5                                 | 5         | 234                              | 2.6 | P6KE170A     | P6KE170CA |
| P6KE180                                  | P6KE180C    | 146              | 162                              | 198       | 1                    | 5                                 | 5         | 258                              | 2.3 | P6KE180      | P6KE180C  |
| P6KE180A                                 | P6KE180CA   | 154              | 171                              | 189       | 1                    | 5                                 | 5         | 246                              | 2.4 | P6KE180A     | P6KE180CA |
| P6KE200                                  | P6KE200C    | 162              | 180                              | 220       | 1                    | 5                                 | 5         | 287                              | 2.1 | P6KE200      | P6KE200C  |
| P6KE200A                                 | P6KE200CA   | 171              | 190                              | 210       | 1                    | 5                                 | 5         | 274                              | 2.2 | P6KE200A     | P6KE200CA |
| P6KE220                                  | P6KE220C    | 175              | 198                              | 242       | 1                    | 5                                 | 5         | 344                              | 1.8 | P6KE220      | P6KE220C  |
| P6KE220A                                 | P6KE220CA   | 185              | 209                              | 231       | 1                    | 5                                 | 5         | 328                              | 1.9 | P6KE220A     | P6KE220CA |
| P6KE250                                  | P6KE250C    | 202              | 225                              | 275       | 1                    | 5                                 | 5         | 360                              | 1.7 | P6KE250      | P6KE250C  |
| P6KE250A                                 | P6KE250CA   | 214              | 237                              | 263       | 1                    | 5                                 | 5         | 344                              | 1.8 | P6KE250A     | P6KE250CA |
| P6KE300                                  | P6KE300C    | 243              | 270                              | 330       | 1                    | 5                                 | 5         | 430                              | 1.4 | P6KE300      | P6KE300C  |
| P6KE300A                                 | P6KE300CA   | 256              | 285                              | 315       | 1                    | 5                                 | 5         | 414                              | 1.5 | P6KE300A     | P6KE300CA |
| P6KE350                                  | P6KE350C    | 284              | 315                              | 385       | 1                    | 5                                 | 5         | 504                              | 1.2 | P6KE350      | P6KE350C  |
| P6KE350A                                 | P6KE350CA   | 300              | 332                              | 368       | 1                    | 5                                 | 5         | 482                              | 1.3 | P6KE350A     | P6KE350CA |
| P6KE400                                  | P6KE400C    | 324              | 360                              | 440       | 1                    | 5                                 | 5         | 574                              | 1.1 | P6KE400      | P6KE400C  |
| P6KE400A                                 | P6KE400CA   | 342              | 380                              | 420       | 1                    | 5                                 | 5         | 548                              | 1.1 | P6KE400A     | P6KE400CA |
| P6KE440                                  | P6KE440C    | 356              | 396                              | 484       | 1                    | 5                                 | 5         | 631                              | 1   | P6KE440      | P6KE440C  |
| P6KE440A                                 | P6KE440CA   | 376              | 418                              | 462       | 1                    | 5                                 | 5         | 600                              | 1   | P6KE440A     | P6KE440CA |



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



**Fig.2 PULSE DERATING CURVE**



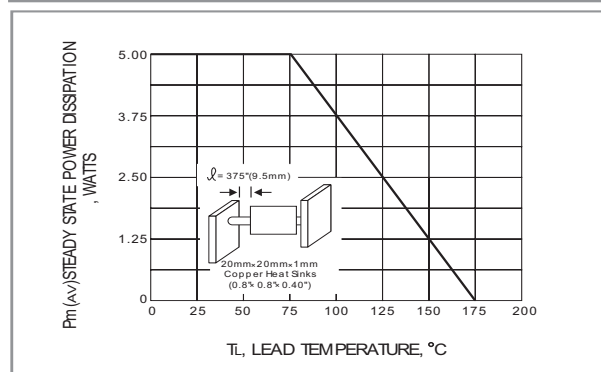
**Fig.3 PULSE WAVEFORM**



**Fig.4 TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL**



**Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



**Fig.6 STEADY STATE POWER DERATING CURVE**

PLEASE REFER THE TVS APPLICATION NOTE IN PANJIT WEBSITE

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