



E480232

## Features

- For Bidirectional Devices Add "C" To The Suffix of The Part Number: i.e. 5KP6.5CA for 5% Tolerance Devices
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Unidirectional and Bidirectional Unit
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 8.0°C/W Junction to Lead
- Typical Thermal Resistance: 40°C/W Junction to Ambient

|                              |                                               |       |  |
|------------------------------|-----------------------------------------------|-------|--|
| Peak Pulse Power Dissipation | P <sub>PPM</sub>                              | 5000W |  |
| Response Time                | Unidirectional < 1x10 <sup>-12</sup> Seconds; |       |  |
|                              | Bidirectional < 5x10 <sup>-9</sup> Seconds    |       |  |

Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

## Device Marking:

Unidirectional - Type Number and Cathode Band

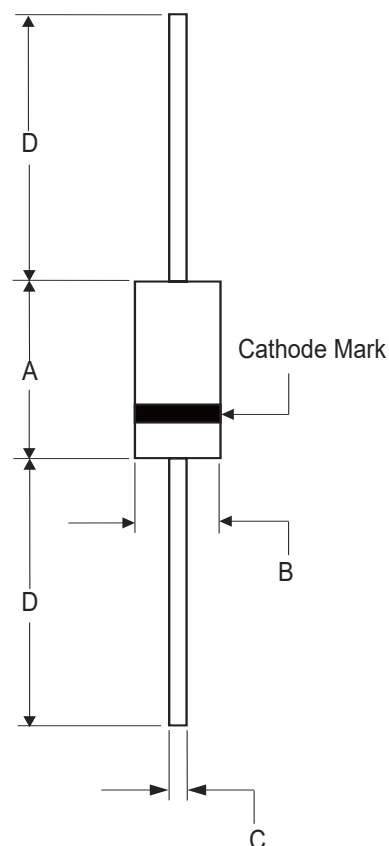
Bidirectional - Type Number Only

Pin Configuration



**5000Watts TVS**  
**5.0 to 440 Volts**

R-6



| DIM | INCHES |       | MM    |       | NOTE |
|-----|--------|-------|-------|-------|------|
|     | MIN    | MAX   | MIN   | MAX   |      |
| A   | 0.340  | 0.360 | 8.60  | 9.10  |      |
| B   | 0.340  | 0.360 | 8.60  | 9.10  |      |
| C   | 0.048  | 0.052 | 1.20  | 1.32  |      |
| D   | 1.000  | ----- | 25.40 | ----- |      |

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC<br>PART NUMBER |          | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$ | BREAKDOWN VOLTAGE<br>$V(BR) @ I_T$<br>(VOLTS) |      |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$ | PEAK PULSE<br>CURRENT<br>$I_{PP}$ | MAXIMUM REVERSE<br>LEAKAGE @ $V_{WM}$<br>$I_D$ |
|--------------------|----------|---------------------------------------------|-----------------------------------------------|------|------------|----------------------------------------------|-----------------------------------|------------------------------------------------|
| UNI-POLAR          | BI-POLAR | (VOLTS)                                     | MIN                                           | MAX  | $I_T$ (mA) | (VOLTS)                                      | (AMPS)                            | ( $\mu A$ )                                    |
| 5KP5.0             | 5KP5.0C  | 5.0                                         | 6.40                                          | 7.30 | 50         | 9.6                                          | 520                               | 5000                                           |
| 5KP5.0A            | 5KP5.0CA | 5.0                                         | 6.40                                          | 7.00 | 50         | 9.2                                          | 543                               | 5000                                           |
| 5KP6.0             | 5KP6.0C  | 6.0                                         | 6.67                                          | 8.15 | 50         | 11.4                                         | 439                               | 5000                                           |
| 5KP6.0A            | 5KP6.0CA | 6.0                                         | 6.67                                          | 7.37 | 50         | 10.3                                         | 485                               | 5000                                           |
| 5KP6.5             | 5KP6.5C  | 6.5                                         | 7.22                                          | 8.82 | 50         | 12.3                                         | 407                               | 2000                                           |
| 5KP6.5A            | 5KP6.5CA | 6.5                                         | 7.22                                          | 7.98 | 50         | 11.2                                         | 447                               | 2000                                           |
| 5KP7.0             | 5KP7.0C  | 7.0                                         | 7.78                                          | 9.51 | 50         | 13.3                                         | 378                               | 1000                                           |
| 5KP7.0A            | 5KP7.0CA | 7.0                                         | 7.78                                          | 8.60 | 50         | 12.0                                         | 417                               | 1000                                           |
| 5KP7.5             | 5KP7.5C  | 7.5                                         | 8.33                                          | 10.2 | 5          | 14.3                                         | 350                               | 250                                            |
| 5KP7.5A            | 5KP7.5CA | 7.5                                         | 8.33                                          | 9.21 | 5          | 12.9                                         | 388                               | 250                                            |
| 5KP8.0             | 5KP8.0C  | 8.0                                         | 8.89                                          | 10.9 | 5          | 15.0                                         | 333                               | 150                                            |
| 5KP8.0A            | 5KP8.0CA | 8.0                                         | 8.89                                          | 9.83 | 5          | 13.6                                         | 367                               | 150                                            |
| 5KP8.5             | 5KP8.5C  | 8.5                                         | 9.44                                          | 11.5 | 5          | 15.9                                         | 314                               | 50                                             |
| 5KP8.5A            | 5KP8.5CA | 8.5                                         | 9.44                                          | 10.4 | 5          | 14.4                                         | 347                               | 50                                             |
| 5KP9.0             | 5KP9.0C  | 9.0                                         | 10.0                                          | 12.2 | 5          | 16.9                                         | 295                               | 20                                             |
| 5KP9.0A            | 5KP9.0CA | 9.0                                         | 10.0                                          | 11.1 | 5          | 15.4                                         | 325                               | 20                                             |
| 5KP10              | 5KP10C   | 10                                          | 11.1                                          | 13.6 | 5          | 18.8                                         | 266                               | 15                                             |
| 5KP10A             | 5KP10CA  | 10                                          | 11.1                                          | 12.3 | 5          | 17.0                                         | 294                               | 15                                             |
| 5KP11              | 5KP11C   | 11                                          | 12.2                                          | 14.9 | 5          | 20.1                                         | 249                               | 10                                             |
| 5KP11A             | 5KP11CA  | 11                                          | 12.2                                          | 13.5 | 5          | 18.2                                         | 274                               | 10                                             |
| 5KP12              | 5KP12C   | 12                                          | 13.3                                          | 16.3 | 5          | 22.0                                         | 227                               | 10                                             |
| 5KP12A             | 5KP12CA  | 12                                          | 13.3                                          | 14.7 | 5          | 19.9                                         | 251                               | 10                                             |
| 5KP13              | 5KP13C   | 13                                          | 14.4                                          | 17.6 | 5          | 23.8                                         | 210                               | 10                                             |
| 5KP13A             | 5KP13CA  | 13                                          | 14.4                                          | 15.9 | 5          | 21.5                                         | 232                               | 10                                             |
| 5KP14              | 5KP14C   | 14                                          | 15.6                                          | 19.1 | 5          | 25.8                                         | 194                               | 10                                             |
| 5KP14A             | 5KP14CA  | 14                                          | 15.6                                          | 17.2 | 5          | 23.2                                         | 215                               | 10                                             |
| 5KP15              | 5KP15C   | 15                                          | 16.7                                          | 20.4 | 5          | 26.9                                         | 188                               | 10                                             |
| 5KP15A             | 5KP15CA  | 15                                          | 16.7                                          | 18.5 | 5          | 24.4                                         | 206                               | 10                                             |
| 5KP16              | 5KP16C   | 16                                          | 17.8                                          | 21.8 | 5          | 28.8                                         | 176                               | 10                                             |
| 5KP16A             | 5KP16CA  | 16                                          | 17.8                                          | 19.7 | 5          | 26.0                                         | 192                               | 10                                             |
| 5KP17              | 5KP17C   | 17                                          | 18.9                                          | 23.1 | 5          | 30.5                                         | 164                               | 10                                             |
| 5KP17A             | 5KP17CA  | 17                                          | 18.9                                          | 20.9 | 5          | 27.6                                         | 181                               | 10                                             |
| 5KP18              | 5KP18C   | 18                                          | 20.0                                          | 24.4 | 5          | 32.2                                         | 155                               | 10                                             |
| 5KP18A             | 5KP18CA  | 18                                          | 20.0                                          | 22.1 | 5          | 29.2                                         | 172                               | 10                                             |
| 5KP20              | 5KP20C   | 20                                          | 22.2                                          | 27.1 | 5          | 35.8                                         | 139                               | 10                                             |
| 5KP20A             | 5KP20CA  | 20                                          | 22.2                                          | 24.5 | 5          | 32.4                                         | 154                               | 10                                             |
| 5KP22              | 5KP22C   | 22                                          | 24.4                                          | 29.8 | 5          | 39.4                                         | 127                               | 10                                             |
| 5KP22A             | 5KP22CA  | 22                                          | 24.4                                          | 26.9 | 5          | 35.5                                         | 141                               | 10                                             |
| 5KP24              | 5KP24C   | 24                                          | 26.7                                          | 32.6 | 5          | 43.0                                         | 116                               | 10                                             |
| 5KP24A             | 5KP24CA  | 24                                          | 26.7                                          | 29.5 | 5          | 38.9                                         | 128                               | 10                                             |
| 5KP26              | 5KP26C   | 26                                          | 28.9                                          | 35.3 | 5          | 46.6                                         | 107                               | 10                                             |
| 5KP26A             | 5KP26CA  | 26                                          | 28.9                                          | 31.9 | 5          | 42.1                                         | 119                               | 10                                             |
| 5KP28              | 5KP28C   | 28                                          | 31.1                                          | 38.0 | 5          | 50.0                                         | 99                                | 10                                             |
| 5KP28A             | 5KP28CA  | 28                                          | 31.1                                          | 34.4 | 5          | 45.4                                         | 110                               | 10                                             |
| 5KP30              | 5KP30C   | 30                                          | 33.3                                          | 40.7 | 5          | 53.5                                         | 93                                | 10                                             |
| 5KP30A             | 5KP30CA  | 30                                          | 33.3                                          | 36.8 | 5          | 48.4                                         | 103                               | 10                                             |
| 5KP33              | 5KP33C   | 33                                          | 36.7                                          | 44.9 | 5          | 59.0                                         | 85                                | 10                                             |

For parts without A, the VBR is +10%

Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC<br>PART NUMBER |          | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$ | BREAKDOWN VOLTAGE<br>$V(BR) @ I_T$<br>(VOLTS) |      |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$ | PEAK PULSE<br>CURRENT<br>$I_{PP}$ | MAXIMUM REVERSE<br>LEAKAGE @ $V_{WM}$<br>$I_D$ |
|--------------------|----------|---------------------------------------------|-----------------------------------------------|------|------------|----------------------------------------------|-----------------------------------|------------------------------------------------|
| UNI-POLAR          | BI-POLAR | (VOLTS)                                     | MIN                                           | MAX  | $I_T$ (mA) | (VOLTS)                                      | (AMPS)                            | ( $\mu A$ )                                    |
| 5KP33A             | 5KP33CA  | 33                                          | 36.7                                          | 40.6 | 5          | 53.3                                         | 94                                | 10                                             |
| 5KP36              | 5KP36C   | 36                                          | 40.0                                          | 48.9 | 5          | 64.3                                         | 78                                | 10                                             |
| 5KP36A             | 5KP36CA  | 36                                          | 40.0                                          | 44.2 | 5          | 58.1                                         | 86                                | 10                                             |
| 5KP40              | 5KP40C   | 40                                          | 44.4                                          | 54.3 | 5          | 71.4                                         | 70                                | 10                                             |
| 5KP40A             | 5KP40CA  | 40                                          | 44.4                                          | 49.1 | 5          | 64.5                                         | 78                                | 10                                             |
| 5KP43              | 5KP43C   | 43                                          | 47.8                                          | 58.4 | 5          | 76.7                                         | 65                                | 10                                             |
| 5KP43A             | 5KP43CA  | 43                                          | 47.8                                          | 52.8 | 5          | 69.4                                         | 72                                | 10                                             |
| 5KP45              | 5KP45C   | 45                                          | 50.0                                          | 61.1 | 5          | 80.3                                         | 62                                | 10                                             |
| 5KP45A             | 5KP45CA  | 45                                          | 50.0                                          | 55.3 | 5          | 72.7                                         | 69                                | 10                                             |
| 5KP48              | 5KP48C   | 48                                          | 53.3                                          | 65.1 | 5          | 85.5                                         | 58                                | 10                                             |
| 5KP48A             | 5KP48CA  | 48                                          | 53.3                                          | 58.9 | 5          | 77.4                                         | 65                                | 10                                             |
| 5KP 51             | 5KP 51C  | 51                                          | 56.7                                          | 69.3 | 5          | 91.1                                         | 55                                | 10                                             |
| 5KP51A             | 5KP51CA  | 51                                          | 56.7                                          | 62.7 | 5          | 82.4                                         | 61                                | 10                                             |
| 5KP54              | 5KP54C   | 54                                          | 60.0                                          | 73.3 | 5          | 96.3                                         | 52                                | 10                                             |
| 5KP54A             | 5KP54CA  | 54                                          | 60.0                                          | 66.3 | 5          | 87.1                                         | 57                                | 10                                             |
| 5KP58              | 5KP58C   | 58                                          | 64.4                                          | 78.7 | 5          | 103                                          | 49                                | 10                                             |
| 5KP58A             | 5KP58CA  | 58                                          | 64.4                                          | 71.2 | 5          | 93.6                                         | 53                                | 10                                             |
| 5KP60              | 5KP60C   | 60                                          | 66.7                                          | 81.5 | 5          | 107                                          | 47                                | 10                                             |
| 5KP60A             | 5KP60CA  | 60                                          | 66.7                                          | 73.7 | 5          | 96.8                                         | 52                                | 10                                             |
| 5KP64              | 5KP64C   | 64                                          | 71.1                                          | 86.9 | 5          | 114                                          | 44                                | 10                                             |
| 5KP64A             | 5KP64CA  | 64                                          | 71.1                                          | 78.6 | 5          | 103                                          | 49                                | 10                                             |
| 5KP70              | 5KP70C   | 70                                          | 77.8                                          | 95.1 | 5          | 125                                          | 40                                | 10                                             |
| 5KP70A             | 5KP70CA  | 70                                          | 77.8                                          | 86.0 | 5          | 113                                          | 44                                | 10                                             |
| 5KP75              | 5KP75C   | 75                                          | 83.3                                          | 102  | 5          | 134                                          | 37                                | 10                                             |
| 5KP75A             | 5KP75CA  | 75                                          | 83.3                                          | 92.1 | 5          | 121                                          | 41                                | 10                                             |
| 5KP78              | 5KP78C   | 78                                          | 86.7                                          | 106  | 5          | 139                                          | 36                                | 10                                             |
| 5KP78A             | 5KP78CA  | 78                                          | 86.7                                          | 95.8 | 5          | 126                                          | 40                                | 10                                             |
| 5KP85              | 5KP85C   | 85                                          | 94.4                                          | 115  | 5          | 151                                          | 33                                | 10                                             |
| 5KP85A             | 5KP85CA  | 85                                          | 94.4                                          | 104  | 5          | 137                                          | 36                                | 10                                             |
| 5KP90              | 5KP90C   | 90                                          | 100                                           | 122  | 5          | 160                                          | 31                                | 10                                             |
| 5KP90A             | 5KP90CA  | 90                                          | 100                                           | 111  | 5          | 146                                          | 34                                | 10                                             |
| 5KP100             | 5KP100C  | 100                                         | 111                                           | 136  | 5          | 179                                          | 28                                | 10                                             |
| 5KP100A            | 5KP100CA | 100                                         | 111                                           | 123  | 5          | 162                                          | 31                                | 10                                             |
| 5KP110             | 5KP110C  | 110                                         | 122                                           | 149  | 5          | 196                                          | 26                                | 10                                             |
| 5KP110A            | 5KP110CA | 110                                         | 122                                           | 135  | 5          | 177                                          | 28                                | 10                                             |
| 5KP120A            | 5KP120CA | 120                                         | 133                                           | 147  | 5          | 193                                          | 26.4                              | 10                                             |
| 5KP130A            | 5KP130CA | 130                                         | 144                                           | 159  | 5          | 209                                          | 24.4                              | 10                                             |
| 5KP150A            | 5KP150CA | 150                                         | 167                                           | 185  | 5          | 243                                          | 21.0                              | 10                                             |
| 5KP160A            | 5KP160CA | 160                                         | 178                                           | 197  | 5          | 259                                          | 19.7                              | 10                                             |
| 5KP170A            | 5KP170CA | 170                                         | 189                                           | 209  | 5          | 275                                          | 18.5                              | 10                                             |
| 5KP180A            | 5KP180CA | 180                                         | 200                                           | 221  | 5          | 292                                          | 17.5                              | 10                                             |
| 5KP190A            | 5KP190CA | 190                                         | 211                                           | 233  | 5          | 310                                          | 16.5                              | 10                                             |
| 5KP200A            | 5KP200CA | 200                                         | 222                                           | 246  | 5          | 329.2                                        | 15.5                              | 10                                             |
| 5KP210A            | 5KP210CA | 210                                         | 233                                           | 258  | 5          | 349.5                                        | 14.6                              | 10                                             |
| 5KP220A            | 5KP220CA | 220                                         | 244                                           | 270  | 5          | 371.1                                        | 13.7                              | 10                                             |
| 5KP250A            | 5KP250CA | 250                                         | 277                                           | 306  | 5          | 425                                          | 12.0                              | 10                                             |
| 5KP300A            | 5KP300CA | 300                                         | 335                                           | 371  | 5          | 486                                          | 10.3                              | 10                                             |
| 5KP350A            | 5KP350CA | 350                                         | 391                                           | 432  | 5          | 567                                          | 8.8                               | 10                                             |
| 5KP400A            | 5KP400CA | 400                                         | 447                                           | 494  | 5          | 648                                          | 7.7                               | 10                                             |
| 5KP440A            | 5KP440CA | 440                                         | 492                                           | 543  | 5          | 713                                          | 7.0                               | 10                                             |

For parts without A, the VBR is +10%

## Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

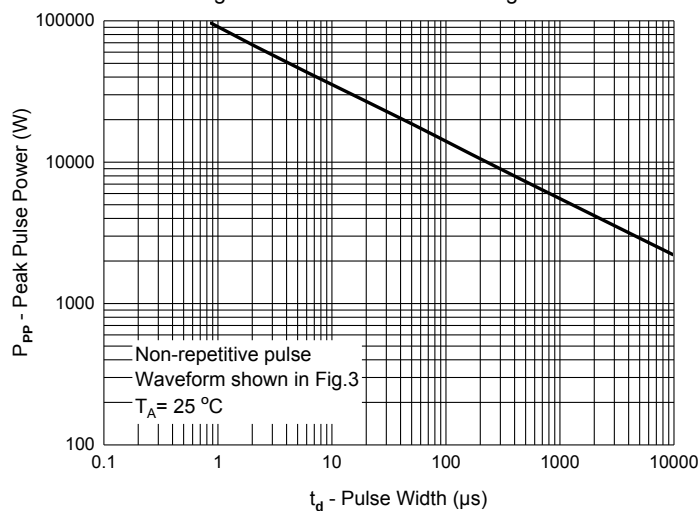


Fig. 2 - Typical Junction Capacitance

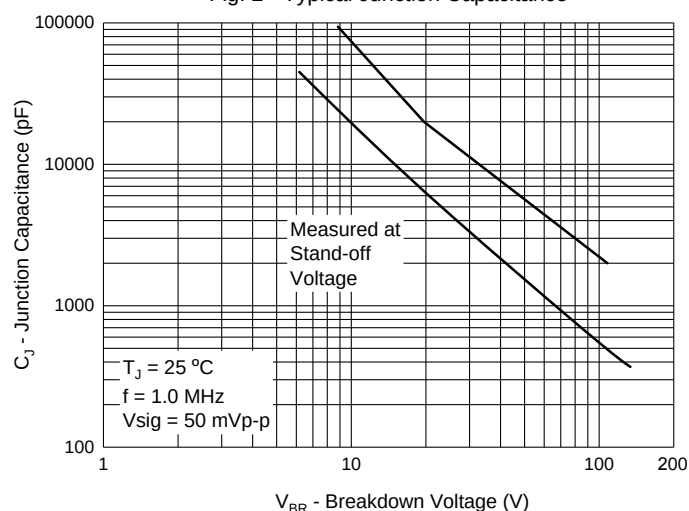


Fig. 3 - Pulse Waveform

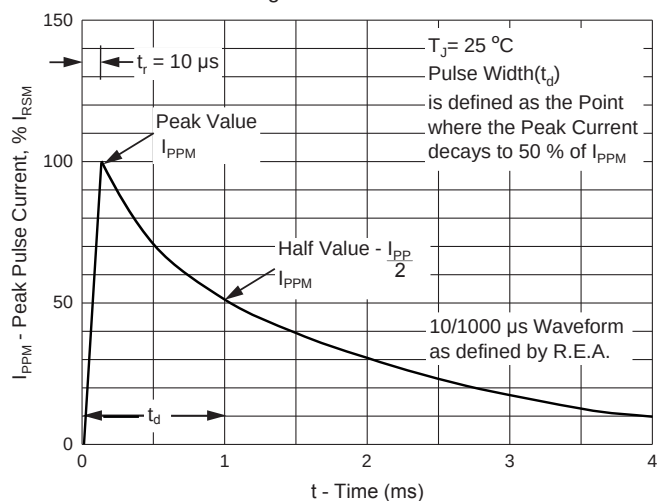
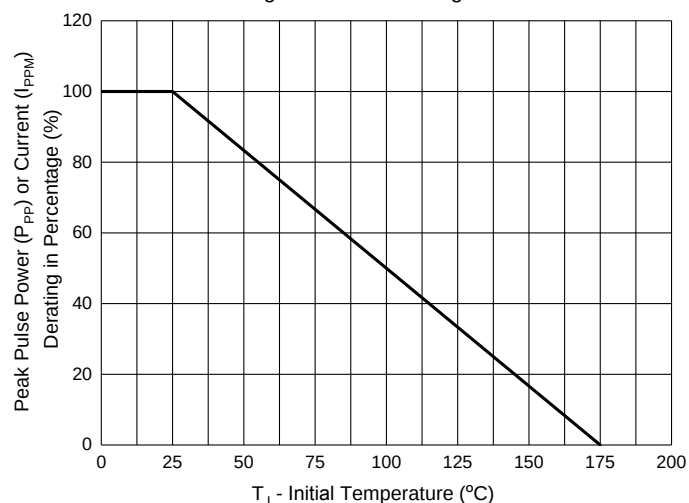


Fig. 4 - Pulse Derating Curve



## Ordering Information

| Device           | Packing                          |
|------------------|----------------------------------|
| (Part Number)-TP | Tape&Reel: 500pcs/Reel           |
| (Part Number)-AP | Ammo Packing: 450pcs/Ammo Box    |
| (Part Number)-BP | Bulk: 200pcs/Box ;4.8Kpcs/Carton |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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