



**DC COMPONENTS CO., LTD.**

RECTIFIER SPECIALISTS

**5KP5.0  
THRU  
5KP180CA**

**TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR**

**VOLTAGE RANGE - 5.0 to 180 Volts**

**PEAK PULSE POWER - 5000 Watts**

**FEATURES**

- \* Glass passivated junction
- \* 5000 Watts Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: MIL-STD-202E, Method 208 guaranteed
- \* Polarity: Color band denotes positive end (cathode)  
except bidirectional types
- \* Mounting position: Any
- \* Weight: 2.1 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

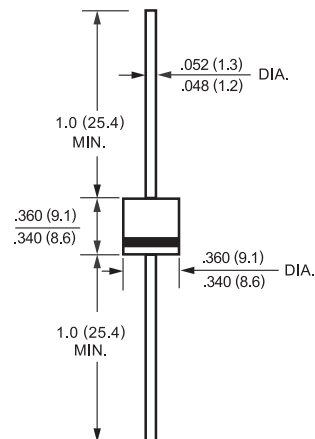
Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load,

For capacitive load, derate current by 20%.



**R6**



Dimensions in inches and (millimeters)

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix (e.g. 5KP5.0C, 5KP180CA).

Electrical characteristics apply in both directions

|                                                                                                                | SYMBOL                            | VALUE        | UNITS |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-------|
| Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform<br>(Note1,FIG.1)                                      | P <sub>PPM</sub>                  | Minimum 5000 | Watts |
| Steady State Power Dissipation at T <sub>A</sub> = 75°C<br>Lead Lengths .375"(9.5mm) (Note 2)                  | P <sub>M(AV)</sub>                | 8.0          | Watts |
| Peak Forward Surge Current, 8.3ms single half sine-wave<br>superimposed on rated load( JEDEC Method ) (Note 3) | I <sub>FSM</sub>                  | 400          | Amps  |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional<br>Only                                       | V <sub>F</sub>                    | 3.5          | Volts |
| Operating and Storage Temperature Range                                                                        | T <sub>J</sub> , T <sub>STG</sub> | -55 to + 175 | °C    |

NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 25°C per Fig.2.

2. Mounted on Copper Leaf area of 0.8 X 0.8" ( 20 X 20mm ) per Fig. 5

3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

## RATING AND CHARACTERISTIC CURVES ( 5KP5.0 THRU 5KP180CA )

FIG. 1 - PEAK PULSE POWER RATING CURVE

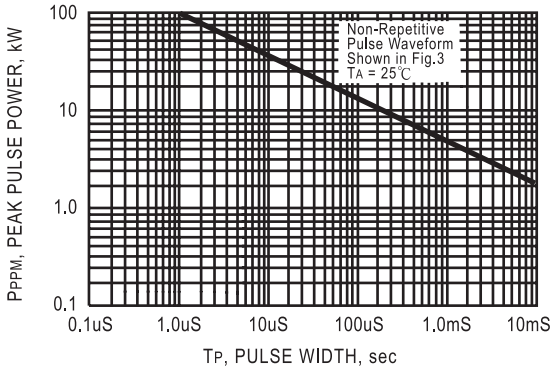


FIG. 2 - PULSE DERATING CURVE

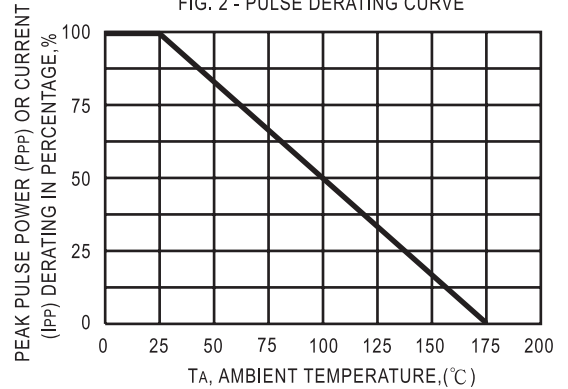


FIG. 3 - PULSE WAVEFORM

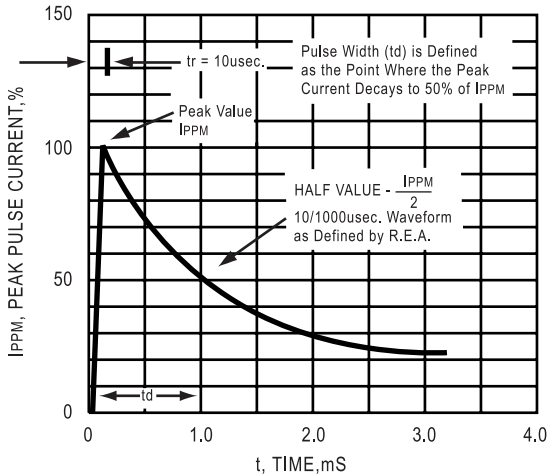


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

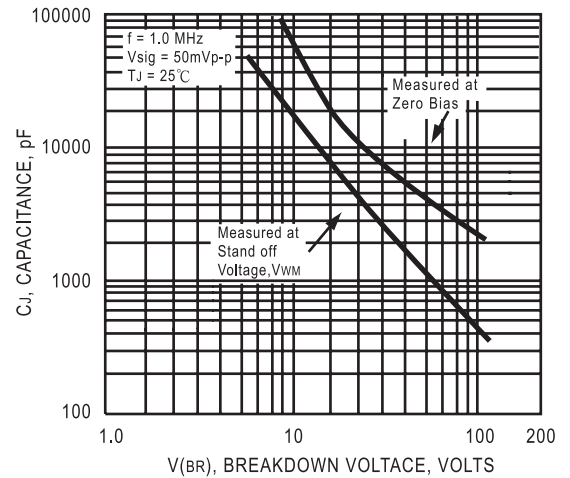


FIG. 5 - STEADY STATE POWER DERATING CURVE

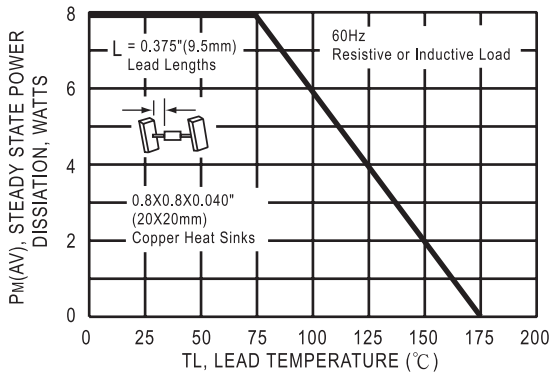
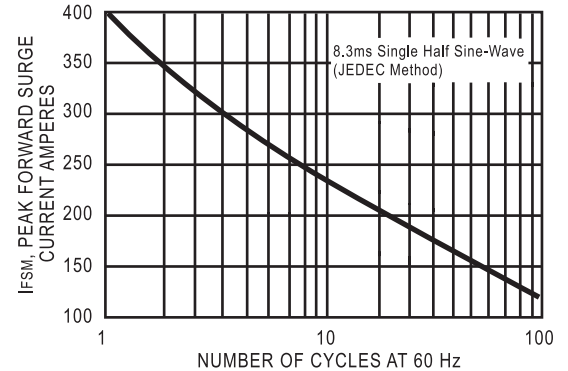


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



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| TYPE    | Breakdown Voltage |      |          | Reverse Stand off Voltage VWM (Volts) | Maximum Reverse Leakage at VWM Id(uA) | Maximum Peak Pulse Current IPPM (Amps) | Maximum Clamping Voltage at IPPM Vc (Volts) |
|---------|-------------------|------|----------|---------------------------------------|---------------------------------------|----------------------------------------|---------------------------------------------|
|         | VBR (Volts)       |      | @IT (mA) |                                       |                                       |                                        |                                             |
|         | MIN.              | MAX. |          |                                       |                                       |                                        |                                             |
| 5KP5.0  | 6.40              | 7.30 | 50       | 5.0                                   | 2000                                  | 546                                    | 9.6                                         |
| 5KP5.0A | 6.40              | 7.00 | 50       | 5.0                                   | 2000                                  | 570                                    | 9.2                                         |
| 5KP6.0  | 6.67              | 8.15 | 50       | 6.0                                   | 5000                                  | 460                                    | 11.4                                        |
| 5KP6.0A | 6.67              | 7.37 | 50       | 6.0                                   | 5000                                  | 509                                    | 10.3                                        |
| 5KP6.5  | 7.22              | 8.82 | 50       | 6.5                                   | 2000                                  | 426                                    | 12.3                                        |
| 5KP6.5A | 7.22              | 7.98 | 50       | 6.5                                   | 2000                                  | 468                                    | 11.2                                        |
| 5KP7.0  | 7.78              | 9.51 | 50       | 7.0                                   | 1000                                  | 394                                    | 13.3                                        |
| 5KP7.0A | 7.78              | 8.86 | 50       | 7.0                                   | 1000                                  | 437                                    | 12.0                                        |
| 5KP7.5  | 8.33              | 10.2 | 5.0      | 7.5                                   | 250                                   | 367                                    | 14.3                                        |
| 5KP7.5A | 8.33              | 9.21 | 5.0      | 7.5                                   | 250                                   | 406                                    | 12.9                                        |
| 5KP8.0  | 8.89              | 10.9 | 5.0      | 8.0                                   | 150                                   | 356                                    | 15.0                                        |
| 5KP8.0A | 8.89              | 9.83 | 5.0      | 8.0                                   | 150                                   | 386                                    | 13.6                                        |
| 5KP8.5  | 9.44              | 11.5 | 5.0      | 8.5                                   | 50                                    | 330                                    | 15.9                                        |
| 5KP8.5A | 9.44              | 10.4 | 5.0      | 8.5                                   | 50                                    | 364                                    | 14.4                                        |
| 5KP9.0  | 10.0              | 12.2 | 5.0      | 9.0                                   | 20                                    | 310                                    | 16.9                                        |
| 5KP9.0A | 10.0              | 15.0 | 5.0      | 9.0                                   | 20                                    | 340                                    | 15.4                                        |
| 5KP10   | 11.1              | 13.6 | 5.0      | 10.0                                  | 15                                    | 279                                    | 18.8                                        |
| 5KP10A  | 11.1              | 12.3 | 5.0      | 10.0                                  | 15                                    | 308                                    | 17.0                                        |
| 5KP11   | 12.2              | 14.9 | 5.0      | 11.0                                  | 10                                    | 261                                    | 20.1                                        |
| 5KP11A  | 12.2              | 13.5 | 5.0      | 11.0                                  | 10                                    | 288                                    | 18.2                                        |
| 5KP12   | 13.3              | 16.5 | 5.0      | 12.0                                  | 10                                    | 238                                    | 22.0                                        |
| 5KP12A  | 13.3              | 14.7 | 5.0      | 12.0                                  | 10                                    | 263                                    | 19.9                                        |
| 5KP13   | 14.4              | 17.6 | 5.0      | 13.0                                  | 10                                    | 220                                    | 23.8                                        |
| 5KP13A  | 14.4              | 15.9 | 5.0      | 13.0                                  | 10                                    | 244                                    | 21.5                                        |
| 5KP14   | 15.6              | 19.1 | 5.0      | 14.0                                  | 10                                    | 203                                    | 25.8                                        |
| 5KP14A  | 15.6              | 17.2 | 5.0      | 14.0                                  | 10                                    | 226                                    | 23.2                                        |
| 5KP15   | 16.7              | 20.4 | 5.0      | 15.0                                  | 10                                    | 195                                    | 26.9                                        |
| 5KP15A  | 16.7              | 18.5 | 5.0      | 15.0                                  | 10                                    | 215                                    | 24.4                                        |
| 5KP16   | 17.8              | 21.8 | 5.0      | 16.0                                  | 10                                    | 182                                    | 28.8                                        |
| 5KP16A  | 17.8              | 19.7 | 5.0      | 16.0                                  | 10                                    | 201                                    | 26.0                                        |
| 5KP17   | 18.9              | 23.1 | 5.0      | 17.0                                  | 10                                    | 172                                    | 30.5                                        |
| 5KP17A  | 18.9              | 20.9 | 5.0      | 17.0                                  | 10                                    | 190                                    | 27.6                                        |
| 5KP18   | 20.0              | 24.2 | 5.0      | 18.0                                  | 10                                    | 163                                    | 32.2                                        |
| 5KP18A  | 20.0              | 22.1 | 5.0      | 18.0                                  | 10                                    | 179                                    | 29.2                                        |
| 5KP20   | 22.2              | 27.1 | 5.0      | 20.0                                  | 10                                    | 146                                    | 35.8                                        |
| 5KP20A  | 22.2              | 24.5 | 5.0      | 20.0                                  | 10                                    | 162                                    | 32.4                                        |
| 5KP22   | 24.4              | 29.8 | 5.0      | 22.0                                  | 10                                    | 133                                    | 39.4                                        |
| 5KP22A  | 24.4              | 26.9 | 5.0      | 22.0                                  | 10                                    | 147                                    | 35.5                                        |
| 5KP24   | 26.7              | 32.6 | 5.0      | 24.0                                  | 10                                    | 122                                    | 43.0                                        |
| 5KP24A  | 26.7              | 29.5 | 5.0      | 24.0                                  | 10                                    | 134                                    | 38.9                                        |
| 5KP26   | 28.9              | 35.3 | 5.0      | 26.0                                  | 10                                    | 112                                    | 46.6                                        |
| 5KP26A  | 28.9              | 31.9 | 5.0      | 26.0                                  | 10                                    | 124                                    | 42.1                                        |
| 5KP28   | 31.1              | 38.0 | 5.0      | 28.0                                  | 10                                    | 104                                    | 50.1                                        |
| 5KP28A  | 31.1              | 34.4 | 5.0      | 28.0                                  | 10                                    | 115                                    | 45.4                                        |
| 5KP30   | 33.3              | 40.7 | 5.0      | 30.0                                  | 10                                    | 98                                     | 53.5                                        |
| 5KP30A  | 33.3              | 36.8 | 5.0      | 30.0                                  | 10                                    | 108                                    | 48.4                                        |



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|---------|-------------------|------|----------|---------------------------------------|---------------------------------------|----------------------------------------|---------------------------------------------|
|         | VBR (Volts)       |      | @IT (mA) |                                       |                                       |                                        |                                             |
|         | MIN.              | MAX. |          |                                       |                                       |                                        |                                             |
| 5KP36   | 40.0              | 48.9 | 5.0      | 36.0                                  | 10                                    | 78                                     | 64.3                                        |
| 5KP36A  | 40.0              | 44.2 | 5.0      | 36.0                                  | 10                                    | 86                                     | 58.1                                        |
| 5KP40   | 44.4              | 54.3 | 5.0      | 40.0                                  | 10                                    | 70                                     | 71.4                                        |
| 5KP40A  | 44.4              | 49.1 | 5.0      | 40.0                                  | 10                                    | 78                                     | 64.5                                        |
| 5KP43   | 47.8              | 58.4 | 5.0      | 43.0                                  | 10                                    | 65                                     | 76.7                                        |
| 5KP43A  | 47.8              | 52.8 | 5.0      | 43.0                                  | 10                                    | 62                                     | 80.3                                        |
| 5KP45   | 50.0              | 61.1 | 5.0      | 45.0                                  | 10                                    | 62                                     | 80.3                                        |
| 5KP45A  | 50.0              | 55.3 | 5.0      | 45.0                                  | 10                                    | 69                                     | 72.7                                        |
| 5KP48   | 53.3              | 65.2 | 5.0      | 48.0                                  | 10                                    | 58                                     | 85.5                                        |
| 5KP48A  | 53.3              | 58.9 | 5.0      | 48.0                                  | 10                                    | 65                                     | 77.4                                        |
| 5KP51   | 56.7              | 69.3 | 5.0      | 51.0                                  | 10                                    | 55                                     | 91.1                                        |
| 5KP51A  | 56.7              | 62.7 | 5.0      | 51.0                                  | 10                                    | 61                                     | 82.4                                        |
| 5KP54   | 60.0              | 73.3 | 5.0      | 54.0                                  | 10                                    | 52                                     | 96.3                                        |
| 5KP54A  | 60.0              | 66.3 | 5.0      | 54.0                                  | 10                                    | 49                                     | 87.1                                        |
| 5KP58   | 64.4              | 66.3 | 5.0      | 58.0                                  | 10                                    | 49                                     | 103                                         |
| 5KKP58A | 64.4              | 71.2 | 5.0      | 58.0                                  | 10                                    | 53                                     | 93.6                                        |
| 5KP60   | 66.7              | 81.5 | 5.0      | 60.0                                  | 10                                    | 47                                     | 107                                         |
| 5KP60A  | 66.7              | 73.7 | 5.0      | 60.0                                  | 10                                    | 52                                     | 96.8                                        |
| 5KP64   | 71.1              | 86.9 | 5.0      | 64.0                                  | 10                                    | 44                                     | 114                                         |
| 5KP64A  | 71.1              | 78.6 | 5.0      | 64.0                                  | 10                                    | 49                                     | 103                                         |
| 5KP70   | 77.8              | 95.1 | 5.0      | 70.0                                  | 10                                    | 40                                     | 125                                         |
| 5KP70A  | 77.8              | 86.0 | 5.0      | 70.0                                  | 10                                    | 44                                     | 113                                         |
| 5KP75   | 83.3              | 102  | 5.0      | 75.0                                  | 10                                    | 37                                     | 134                                         |
| 5KP75A  | 83.3              | 92.1 | 5.0      | 75.0                                  | 10                                    | 41                                     | 121                                         |
| 5KP78   | 86.7              | 106  | 5.0      | 78.0                                  | 10                                    | 36                                     | 139                                         |
| 5KP78A  | 86.7              | 95.8 | 5.0      | 78.0                                  | 10                                    | 40                                     | 126                                         |
| 5KP85   | 94.4              | 115  | 5.0      | 85.0                                  | 10                                    | 33                                     | 151                                         |
| 5KP85A  | 94.4              | 104  | 5.0      | 85.0                                  | 10                                    | 36                                     | 137                                         |
| 5KP90   | 100               | 122  | 5.0      | 90.0                                  | 10                                    | 31                                     | 160                                         |
| 5KP90A  | 100               | 111  | 5.0      | 90.0                                  | 10                                    | 34                                     | 146                                         |
| 5KP100  | 111               | 136  | 5.0      | 100                                   | 10                                    | 28                                     | 179                                         |
| 5KP100A | 111               | 123  | 5.0      | 100                                   | 10                                    | 31                                     | 162                                         |
| 5KP110  | 122               | 149  | 5.0      | 110                                   | 10                                    | 26                                     | 196                                         |
| 5KP110A | 122               | 135  | 5.0      | 110                                   | 10                                    | 28                                     | 177                                         |
| 5KP120  | 133               | 163  | 5.0      | 120                                   | 10                                    | 23                                     | 215                                         |
| 5KP120A | 133               | 148  | 5.0      | 120                                   | 10                                    | 26                                     | 194                                         |
| 5KP150  | 166               | 204  | 5.0      | 150                                   | 10                                    | 19                                     | 269                                         |
| 5KP150A | 166               | 186  | 5.0      | 150                                   | 10                                    | 21                                     | 242                                         |
| 5KP160  | 178               | 217  | 5.0      | 160                                   | 10                                    | 17                                     | 285                                         |
| 5KP160A | 178               | 196  | 5.0      | 160                                   | 10                                    | 19                                     | 285                                         |
| 5KP170  | 189               | 230  | 5.0      | 170                                   | 10                                    | 17                                     | 302                                         |
| 5KP170A | 189               | 208  | 5.0      | 170                                   | 10                                    | 18                                     | 273                                         |
| 5KP180  | 200               | 245  | 5.0      | 180                                   | 10                                    | 16                                     | 322                                         |
| 5KP180A | 200               | 222  | 5.0      | 180                                   | 10                                    | 17                                     | 292                                         |

NOTES : 1.VBR measured after IT applied for 300μs. IT = Square Wave Pulse or equivalent.

2.For bidirectional use C or CA suffixs for all types (ex. 5KP5.0C, 5KP180CA).  
electrical characteristics apply in both directions.

3.For bidirectional types having VWM of 10 volts and less, the Id limit is doubled.



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