



DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

**5KP5.0
THRU
5KP180CA**

TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE RANGE - 5.0 to 180 Volts

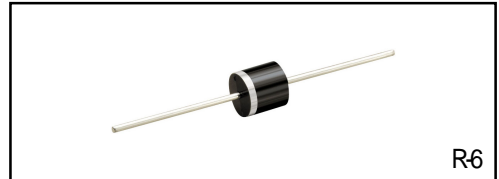
PEAK PULSE POWER - 5000 Watts

FEATURES

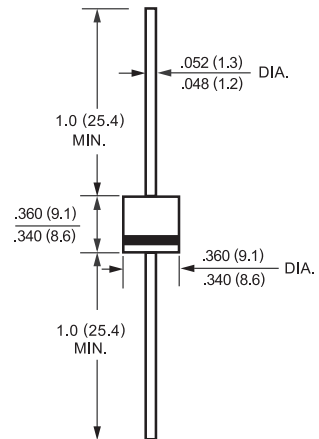
- * Glass passivated junction
- * 5000 Watts Peak Pulse Power capability on 10/1000 μ s waveform
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time

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



R6



Dimensions in inches and (millimeters)

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%.

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 μ s waveform (Note1,FIG.1) | PPPM | Minimum 5000 | Watts |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead Lengths .375"(9.5mm) (Note 2) | PM(AV) | 8.0 | Watts |
| Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) (Note 3) | IFSM | 400 | Amps |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only | V _F | 3.5 | Volts |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to + 175 | °C |

- NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.
2. Mounted on Copper Leaf area of 0.8 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

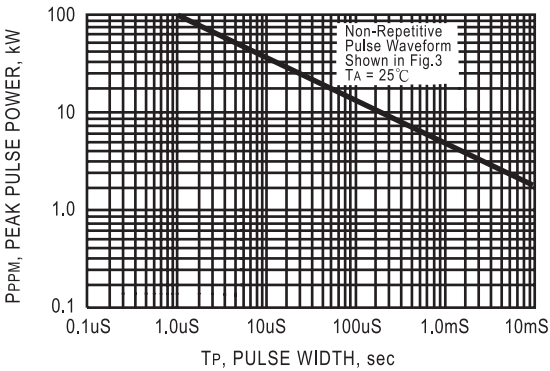


FIG. 2 - PULSE DERATING CURVE

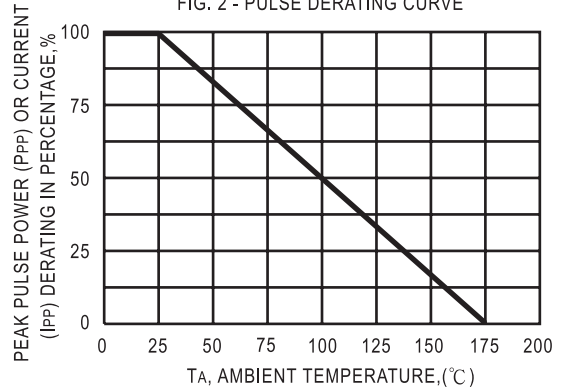


FIG. 3 - PULSE WAVEFORM

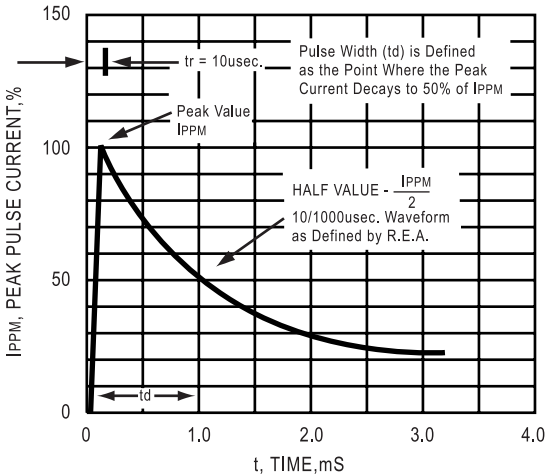


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

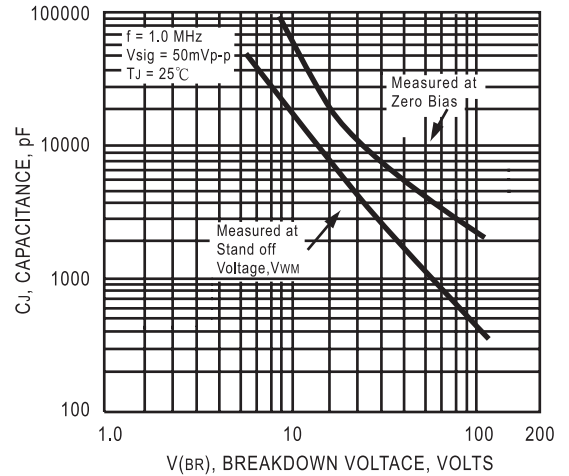


FIG. 5 - STEADY STATE POWER DERATING CURVE

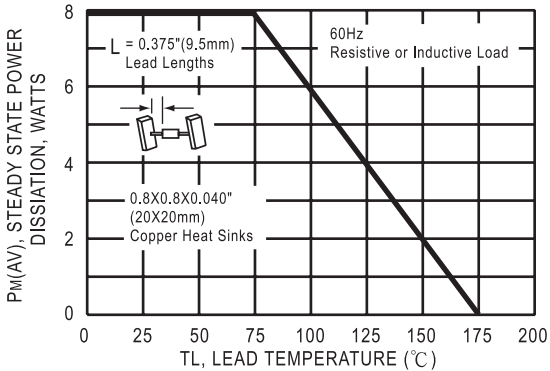
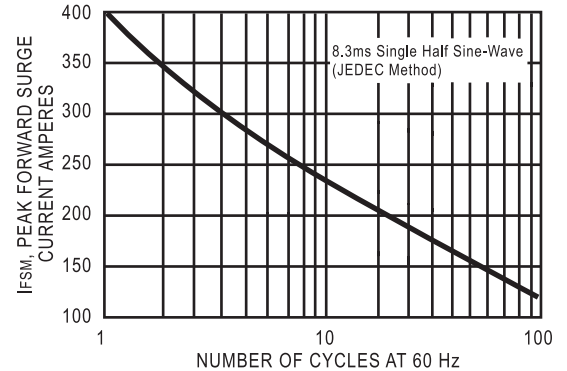


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



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| TYPE | Breakdown Voltage | | | Reverse Stand off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (uA) | Maximum Peak Pulse Current I _{PPM} (Amps) | Maximum Clamping Voltage at I _{PPM} V _C (Volts) |
|---------|-------------------------|------|----------------------|---|--|--|---|
| | V _{BR} (Volts) | | @I _T (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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|---------|-------------------------|------|----------------------|---|--|--|---|
| | V _{BR} (Volts) | | @I _T (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.V_{BR} measured after I_T applied for 300μs. I_T = 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 V_{WM} of 10 volts and less, the I_D limit is doubled.



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