



DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

P4KE6.8
THRU
P4KE440CA

TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE RANGE - 6.8 to 440 Volts PEAK PULSE POWER - 400 Watts

FEATURES

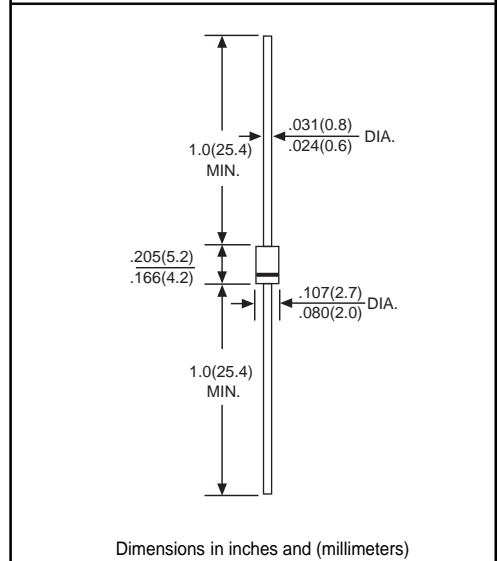
- * Glass passivated junction
- * 400 Watts Peak Pulse Power capability on 10/1000 μ s waveform
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time

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: 0.3 gram



DO-41



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. P4KE6.8C, P4KE440CA).

Electrical characteristics apply in both directions

| | SYMBOL | VALUE | UNITS |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-------|
| Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note1, Fig.1) | PPPM | Minimum 400 | Watts |
| Steady State Power Dissipation at T = 75°C Lead Lengths .375"(9.5mm) (Note 2) | P _{M(AV)} | 1.0 | Watts |
| Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) (Note 3) | I _{FSM} | 40 | Amps |
| Maximum Instantaneous Forward Voltage at 50A for Unidirectional only (Note 4) | V _F | 3.5/6.5 | 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 TA = 25°C per Fig. 2.
 2. Mounted on Copper Leaf area of 1.6 X 1.6" (40 X 40mm) per Fig. 5
 3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
 4. VF = 3.5V max. for devices of V_(BR) ≤ 200V max. and VF = 6.5V max. for devices of V_(BR) > 200V.

RATING AND CHARACTERISTIC CURVES (P4KE6.8 THRU P4KE440CA)

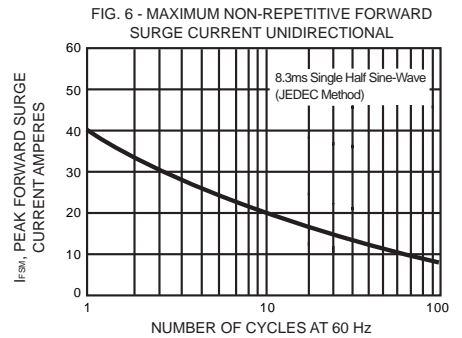
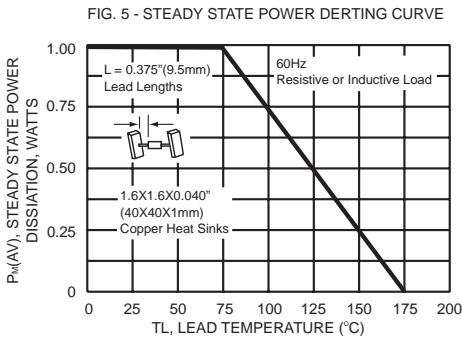
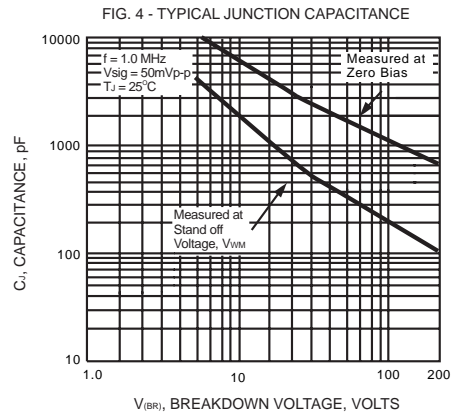
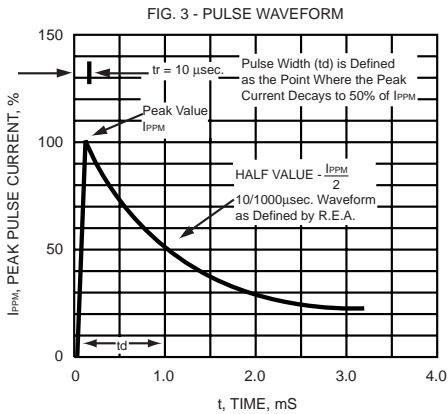
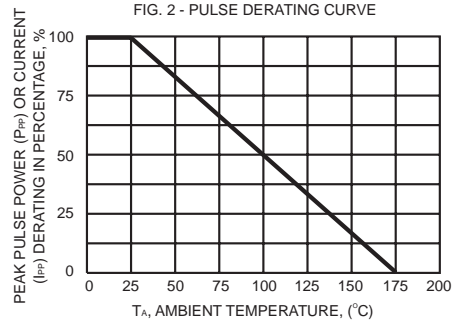
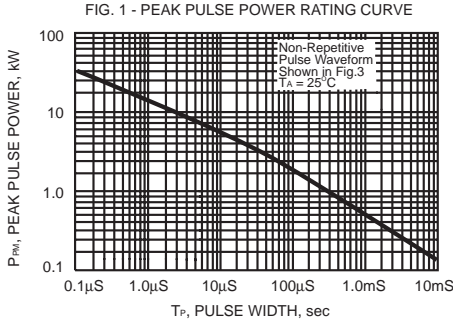
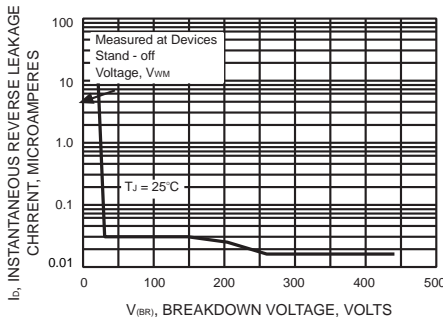


FIG. 7 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS



P4KE (400W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

| TYPE | Reverse Stand-off Voltage | Breakdown Voltage @ I _T | | Test Current | Maximum Reverse Leakage @ V _{RWM} | | Maximum Clamping Voltage @ I _{PP} | Maximum Peak Pulse Current |
|----------|---------------------------|------------------------------------|--------|--------------|--------------------------------------------|----------------|--------------------------------------------|----------------------------|
| | | V _{BR} | | | I _T | I _R | | |
| | V _{RWM} | Min. V | Max. V | mA | | UNI- μA | BI- μA | V _c |
| P4KE6.8 | 5.50 | 6.12 | 7.48 | 10 | 1000 | 2000 | 10.8 | 38.0 |
| P4KE6.8A | 5.80 | 6.45 | 7.14 | 10 | 1000 | 2000 | 10.5 | 38.1 |
| P4KE7.5 | 6.05 | 6.75 | 8.25 | 10 | 500 | 1000 | 11.7 | 34.2 |
| P4KE7.5A | 6.40 | 7.13 | 7.88 | 10 | 500 | 1000 | 11.3 | 35.4 |
| P4KE8.2 | 6.63 | 7.38 | 9.02 | 10 | 200 | 400 | 12.5 | 32.0 |
| P4KE8.2A | 7.02 | 7.79 | 8.61 | 10 | 200 | 400 | 12.1 | 33.1 |
| P4KE9.1 | 7.37 | 8.19 | 10.0 | 1 | 50 | 100 | 13.8 | 29.0 |
| P4KE9.1A | 7.78 | 8.65 | 9.50 | 1 | 50 | 100 | 13.4 | 29.9 |
| P4KE10 | 8.10 | 9.00 | 11.0 | 1 | 10 | 20 | 15.0 | 26.7 |
| P4KE10A | 8.55 | 9.50 | 10.5 | 1 | 10 | 20 | 14.5 | 27.6 |
| P4KE11 | 8.92 | 9.90 | 12.1 | 1 | 5 | 10 | 16.2 | 24.7 |
| P4KE11A | 9.40 | 10.5 | 11.6 | 1 | 5 | 10 | 15.6 | 25.6 |
| P4KE12 | 9.72 | 10.8 | 13.2 | 1 | 5 | | 17.3 | 23.1 |
| P4KE12A | 10.2 | 11.4 | 12.6 | 1 | 5 | | 16.7 | 24.0 |
| P4KE13 | 10.5 | 11.7 | 14.3 | 1 | 5 | | 19.0 | 21.1 |
| P4KE13A | 11.1 | 12.4 | 13.7 | 1 | 5 | | 18.2 | 22.0 |
| P4KE15 | 12.1 | 13.5 | 16.5 | 1 | 5 | | 22.0 | 18.2 |
| P4KE15A | 12.8 | 14.3 | 15.8 | 1 | 5 | | 21.2 | 18.9 |
| P4KE16 | 12.9 | 14.4 | 17.6 | 1 | 5 | | 23.5 | 17.0 |
| P4KE16A | 13.6 | 15.2 | 16.8 | 1 | 5 | | 22.5 | 17.8 |
| P4KE18 | 14.5 | 16.2 | 19.8 | 1 | 5 | | 26.5 | 15.1 |
| P4KE18A | 15.3 | 17.1 | 18.9 | 1 | 5 | | 25.2 | 15.9 |
| P4KE20 | 16.2 | 18.0 | 22.0 | 1 | 5 | | 29.1 | 13.7 |
| P4KE20A | 17.1 | 19.0 | 21.0 | 1 | 5 | | 27.7 | 14.4 |
| P4KE22 | 17.8 | 19.8 | 24.2 | 1 | 5 | | 31.9 | 12.5 |
| P4KE22A | 18.8 | 20.9 | 23.1 | 1 | 5 | | 30.6 | 13.1 |
| P4KE24 | 19.4 | 21.6 | 26.4 | 1 | 5 | | 34.7 | 11.5 |
| P4KE24A | 20.5 | 22.8 | 25.2 | 1 | 5 | | 33.2 | 12.0 |
| P4KE27 | 21.8 | 24.3 | 29.7 | 1 | 5 | | 39.1 | 10.2 |
| P4KE27A | 23.1 | 25.7 | 28.4 | 1 | 5 | | 37.5 | 10.7 |
| P4KE30 | 24.3 | 27.0 | 33.0 | 1 | 5 | | 43.5 | 9.2 |
| P4KE30A | 25.6 | 28.5 | 31.5 | 1 | 5 | | 41.4 | 9.7 |
| P4KE33 | 26.8 | 29.7 | 36.3 | 1 | 5 | | 47.7 | 8.4 |
| P4KE33A | 28.2 | 31.4 | 34.7 | 1 | 5 | | 45.7 | 8.8 |
| P4KE36 | 29.1 | 32.4 | 39.6 | 1 | 5 | | 52.0 | 7.7 |
| P4KE36A | 30.8 | 34.2 | 37.8 | 1 | 5 | | 49.9 | 8.0 |
| P4KE39 | 31.6 | 35.1 | 42.9 | 1 | 5 | | 56.4 | 7.1 |
| P4KE39A | 33.3 | 37.1 | 41.0 | 1 | 5 | | 53.9 | 7.4 |
| P4KE43 | 34.8 | 38.7 | 47.3 | 1 | 5 | | 61.9 | 6.5 |
| P4KE43A | 36.8 | 40.9 | 45.2 | 1 | 5 | | 59.3 | 6.7 |
| P4KE47 | 38.1 | 42.3 | 51.7 | 1 | 5 | | 67.8 | 5.9 |
| P4KE47A | 40.2 | 44.7 | 49.4 | 1 | 5 | | 64.8 | 6.2 |

P4KE (400W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

| TYPE | Reverse Stand-off Voltage | Breakdown Voltage @ I _T | | Test Current | Maximum Reverse Leakage @ V _{RWM} | | Maximum Clamping Voltage @ I _{PP} | Maximum Peak Pulse Current |
|----------|---------------------------|------------------------------------|--------|--------------|--------------------------------------------|----------------|--------------------------------------------|----------------------------|
| | | V _{BR} | | | I _R | I _R | | |
| | V _{RWM} | Min. V | Max. V | mA | | UNI- μA | BI- μA | V _c |
| | V | | | | | | V | A |
| P4KE51 | 41.3 | 45.9 | 56.1 | 1 | 5 | | 73.5 | 5.4 |
| P4KE51A | 43.6 | 48.5 | 53.6 | 1 | 5 | | 70.1 | 5.7 |
| P4KE56 | 45.6 | 50.4 | 61.6 | 1 | 5 | | 80.5 | 5.0 |
| P4KE56A | 47.8 | 53.2 | 58.8 | 1 | 5 | | 77.0 | 5.2 |
| P4KE62 | 50.2 | 55.8 | 68.2 | 1 | 5 | | 89.0 | 4.5 |
| P4KE62A | 53.0 | 58.9 | 65.1 | 1 | 5 | | 85.0 | 4.7 |
| P4KE68 | 55.1 | 61.2 | 74.8 | 1 | 5 | | 98.0 | 4.1 |
| P4KE68A | 58.1 | 64.6 | 71.4 | 1 | 5 | | 92.0 | 4.3 |
| P4KE75 | 60.7 | 67.5 | 82.5 | 1 | 5 | | 108 | 3.7 |
| P4KE75A | 54.1 | 71.3 | 78.8 | 1 | 5 | | 103 | 3.9 |
| P4KE82 | 66.4 | 73.8 | 90.2 | 1 | 5 | | 118 | 3.4 |
| P4KE82A | 70.1 | 77.9 | 86.1 | 1 | 5 | | 113 | 3.5 |
| P4KE91 | 73.7 | 81.9 | 100 | 1 | 5 | | 131 | 3.1 |
| P4KE91A | 77.8 | 86.5 | 95.5 | 1 | 5 | | 125 | 3.2 |
| P4KE100 | 81.0 | 90.0 | 110 | 1 | 5 | | 144 | 2.8 |
| P4KE100A | 85.5 | 95.0 | 105 | 1 | 5 | | 137 | 2.9 |
| P4KE110 | 89.2 | 99.0 | 121 | 1 | 5 | | 158 | 2.5 |
| P4KE110A | 94.0 | 105 | 116 | 1 | 5 | | 152 | 2.6 |
| P4KE120 | 97.2 | 108 | 132 | 1 | 5 | | 173 | 2.3 |
| P4KE120A | 102 | 114 | 126 | 1 | 5 | | 165 | 2.4 |
| P4KE130 | 105 | 117 | 143 | 1 | 5 | | 187 | 2.1 |
| P4KE130A | 111 | 124 | 137 | 1 | 5 | | 179 | 2.2 |
| P4KE150 | 121 | 135 | 165 | 1 | 5 | | 215 | 1.9 |
| P4KE150A | 128 | 143 | 158 | 1 | 5 | | 207 | 1.9 |
| P4KE160 | 130 | 144 | 176 | 1 | 5 | | 230 | 1.7 |
| P4KE160A | 136 | 152 | 168 | 1 | 5 | | 219 | 1.8 |
| P4KE170 | 138 | 153 | 187 | 1 | 5 | | 244 | 1.6 |
| P4KE170A | 145 | 162 | 179 | 1 | 5 | | 234 | 1.7 |
| P4KE180 | 146 | 162 | 198 | 1 | 5 | | 258 | 1.6 |
| P4KE180A | 154 | 171 | 189 | 1 | 5 | | 246 | 1.6 |
| P4KE200 | 162 | 180 | 220 | 1 | 5 | | 287 | 1.4 |
| P4KE200A | 171 | 190 | 210 | 1 | 5 | | 274 | 1.5 |
| P4KE220 | 175 | 198 | 242 | 1 | 5 | | 344 | 1.2 |
| P4KE220A | 185 | 209 | 231 | 1 | 5 | | 328 | 1.2 |
| P4KE250 | 202 | 225 | 275 | 1 | 5 | | 360 | 1.1 |
| P4KE250A | 214 | 237 | 263 | 1 | 5 | | 344 | 1.2 |
| P4KE300 | 243 | 270 | 330 | 1 | 5 | | 430 | 0.93 |
| P4KE300A | 256 | 285 | 315 | 1 | 5 | | 414 | 1.0 |
| P4KE350 | 284 | 315 | 385 | 1 | 5 | | 504 | 0.79 |
| P4KE350A | 300 | 332 | 368 | 1 | 5 | | 482 | 0.83 |
| P4KE400 | 324 | 360 | 440 | 1 | 5 | | 574 | 0.7 |
| P4KE400A | 342 | 380 | 420 | 1 | 5 | | 548 | 0.73 |
| P4KE440 | 356 | 396 | 484 | 1 | 5 | | 631 | 0.63 |
| P4KE440A | 376 | 418 | 462 | 1 | 5 | | 602 | 0.66 |

- 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" Suffix for all types (e.g.: P4KE6.8C, P4KE6.8CA, P4KE440C, P4KE440CA).
 Electrical characteristics apply in both directions.
 3. For bidirectional types having V_{RWM} of 10 volts and less, the I_D limit is doubled.

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