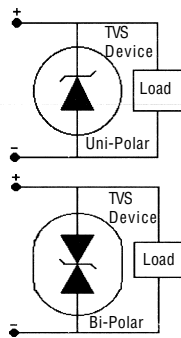
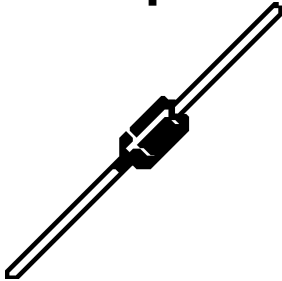


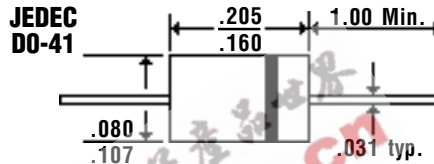
6.8V to 400V GPP TRANSIENT VOLTAGE SUPPRESSORS

P4KE Series

Description



Mechanical Dimensions



Features

- 400 WATT PEAK POWER PROTECTION
- EXCELLENT CLAMPING CAPABILITY
- FAST RESPONSE TIME
- TYPICAL $I_r < 1\mu A$ ABOVE 10V
- GLASS PASSIVATED CHIP CONSTRUCTION
- MEETS UL SPECIFICATION 94V-0

| P4KE Series <small>(For Bi-Polar Applications, See Note 1)</small> | | Units |
|--|------------|----------------|
| Maximum Ratings | | |
| Peak Power Dissipation... P_{PK} $T_p = 1ms$ (Note 5) | 400 Min. | Watts |
| Steady State Power Dissipation... P_D @ $T_L = 75^\circ C$ | 1 | Watts |
| Non-Repetitive Peak Forward Surge Current... I_{FSM} @ Rated Load Conditions, 8.3 ms, 1/2 Sine Wave, Single Phase (Note 3) | 40 | Amps |
| Weight... G_{RM} | 0.30 | Grams |
| Soldering Requirements (Time & Temp)... S_T @ 250°C | 10 Sec. | Min. to Solder |
| Operating & Storage Temperature Range... T_J, T_{STRG} | -65 to 175 | °C |

- NOTES:**
1. For Bi-Directional Applications, Use C or CA. Electrical Characteristics Apply in Both Directions.
 2. Mounted on 40mm² Copper Pads.
 3. 8.3 ms, 1/2 Sine Wave, Single Phase Duty Cycle, @ 4 Pulses Per Minute Maximum.
 4. V_{BR} Measured After I_r , Applies for 300 μs . I_T = Square Wave Pulse or Equivalent.
 5. Non-Repetitive Current Pulse. Per Fig. 3 and Derated Above $T_A = 25^\circ C$ Per Fig. 2.

6.8V to 400V GPP TRANSIENT VOLTAGE SUPPRESSORS

P4KE Series

Fig. 1 Pulse Rating Curve

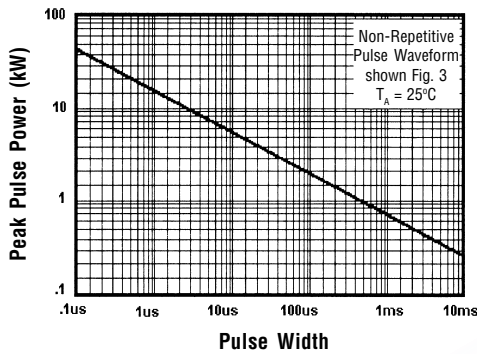


Fig. 4 Typical Junction Capacitance

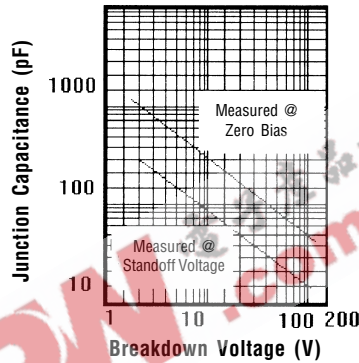


Fig. 2 Pulse Derating Curve

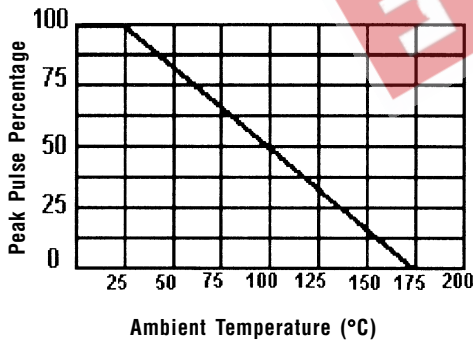


Fig. 5 Steady State Power Derating

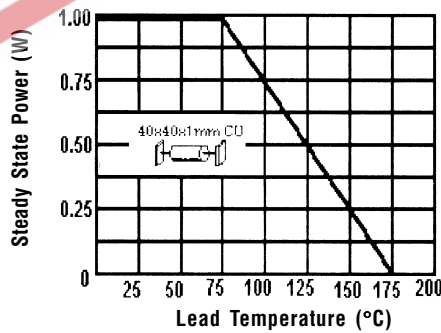


Fig. 3 Pulse Waveform

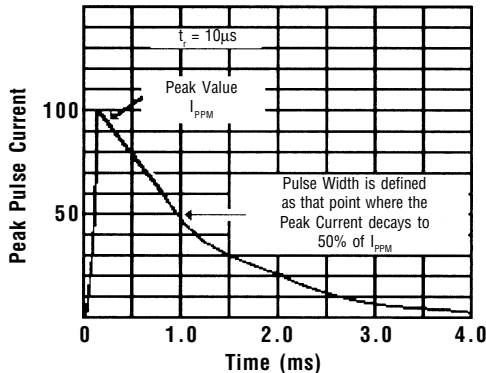
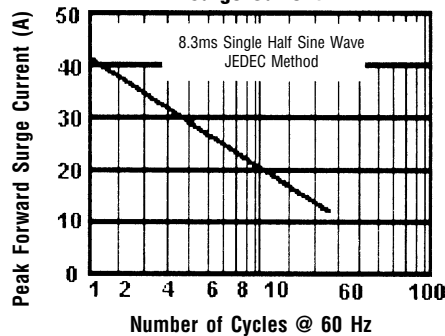


Fig. 6 Maximum Non-Repetitive Surge Current



Ratings at 25 Deg. C ambient temperature unless otherwise specified.

Single Phase Half Wave, 60 Hz Resistive or Inductive Load.

For Capacitive Load, Derate Current by 20%.

6.8V to 400V GPP TRANSIENT VOLTAGE SUPPRESSORS

P4KE Series

| DEVICE | Breakdown Voltage | | | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Leakage @ V_{RWM} I_R (μ A) | Peak Pulse Current I_{PPM} (A) (Note 2) | Maximum Clamping Voltage @ I_{PPM} V_C (V) | Maximum Temperature Coefficient of V_{BR} % / $^{\circ}$ C |
|-----------|----------------------------|-------|-----------------|---|--|---|--|--|
| | V_{BR} Volts (Note 1) | | @ I_T (mA) | | | | | |
| | Min. | Max. | | | | | | |
| P4KE-6.8 | 6.12 | 7.48 | 10.00 | 5.50 | 1000 | 38.00 | 10.80 | 0.057 |
| P4KE-6.8A | 6.45 | 7.14 | 10.00 | 5.80 | 1000 | 40.00 | 10.50 | 0.057 |
| P4KE-7.5 | 6.75 | 8.25 | 10.00 | 6.05 | 500 | 36.00 | 11.70 | 0.061 |
| P4KE-7.5A | 7.13 | 7.88 | 10.00 | 6.40 | 500 | 37.00 | 11.30 | 0.061 |
| P4KE-8.2 | 7.38 | 9.02 | 10.00 | 6.63 | 200 | 33.00 | 12.50 | 0.065 |
| P4KE-8.2A | 7.79 | 8.61 | 10.00 | 7.02 | 200 | 35.00 | 12.10 | 0.065 |
| P4KE-9.1 | 8.19 | 10.00 | 1.00 | 7.37 | 50.00 | 30.00 | 13.80 | 0.068 |
| P4KE-9.1A | 8.65 | 9.55 | 1.00 | 7.78 | 50.00 | 31.00 | 13.40 | 0.068 |
| P4KE-10 | 9.00 | 11.00 | 1.00 | 8.10 | 10.00 | 28.00 | 15.00 | 0.073 |
| P4KE-10A | 9.50 | 10.50 | 1.00 | 8.55 | 10.00 | 29.00 | 14.50 | 0.073 |
| P4KE-11 | 9.90 | 12.10 | 1.00 | 8.92 | 5.00 | 26.00 | 16.20 | 0.075 |
| P4KE-11A | 10.50 | 11.60 | 1.00 | 9.40 | 5.00 | 27.00 | 15.60 | 0.075 |
| P4KE-12 | 10.80 | 13.20 | 1.00 | 9.72 | 5.00 | 24.00 | 17.30 | 0.078 |
| P4KE-12A | 11.40 | 12.60 | 1.00 | 10.20 | 5.00 | 25.00 | 16.70 | 0.078 |
| P4KE-13 | 11.70 | 14.30 | 1.00 | 10.50 | 5.00 | 22.00 | 19.00 | 0.081 |
| P4KE-13A | 12.40 | 13.70 | 1.00 | 11.10 | 5.00 | 23.00 | 18.20 | 0.081 |
| P4KE-15 | 13.50 | 16.50 | 1.00 | 12.10 | 5.00 | 19.00 | 22.00 | 0.084 |
| P4KE-15A | 14.30 | 15.80 | 1.00 | 12.80 | 5.00 | 20.00 | 21.20 | 0.084 |
| P4KE-16 | 14.40 | 17.60 | 1.00 | 12.90 | 5.00 | 18.00 | 23.50 | 0.086 |
| P4KE-16A | 15.20 | 16.80 | 1.00 | 13.60 | 5.00 | 19.00 | 22.50 | 0.086 |
| P4KE-18 | 16.20 | 19.80 | 1.00 | 14.50 | 5.00 | 16.00 | 26.50 | 0.088 |
| P4KE-18A | 17.10 | 18.90 | 1.00 | 15.30 | 5.00 | 17.00 | 25.20 | 0.088 |
| P4KE-20 | 18.00 | 22.00 | 1.00 | 16.20 | 5.00 | 14.00 | 29.10 | 0.090 |
| P4KE-20A | 19.00 | 21.00 | 1.00 | 17.10 | 5.00 | 15.00 | 27.70 | 0.090 |
| P4KE-22 | 19.80 | 24.20 | 1.00 | 17.80 | 5.00 | 13.00 | 31.90 | 0.092 |
| P4KE-22A | 20.90 | 23.10 | 1.00 | 18.80 | 5.00 | 14.00 | 30.60 | 0.092 |
| P4KE-24 | 21.60 | 26.40 | 1.00 | 19.40 | 5.00 | 12.00 | 34.70 | 0.094 |
| P4KE-24A | 22.80 | 25.20 | 1.00 | 20.50 | 5.00 | 13.00 | 33.20 | 0.094 |
| P4KE-27 | 24.30 | 29.70 | 1.00 | 21.80 | 5.00 | 11.00 | 39.10 | 0.096 |
| P4KE-27A | 25.70 | 28.40 | 1.00 | 23.10 | 5.00 | 11.20 | 37.50 | 0.096 |
| P4KE-30 | 27.00 | 33.00 | 1.00 | 24.30 | 5.00 | 10.00 | 43.50 | 0.097 |
| P4KE-30A | 28.50 | 31.50 | 1.00 | 25.60 | 5.00 | 10.00 | 41.40 | 0.097 |
| P4KE-33 | 29.70 | 36.30 | 1.00 | 26.80 | 5.00 | 9.00 | 47.70 | 0.098 |
| P4KE-33A | 31.40 | 34.70 | 1.00 | 28.20 | 5.00 | 9.00 | 45.70 | 0.098 |
| P4KE-36 | 32.40 | 39.60 | 1.00 | 29.10 | 5.00 | 8.00 | 52.00 | 0.099 |
| P4KE-36A | 34.20 | 37.80 | 1.00 | 30.80 | 5.00 | 8.40 | 49.90 | 0.099 |
| P4KE-39 | 35.10 | 42.90 | 1.00 | 31.60 | 5.00 | 7.40 | 56.40 | 0.100 |
| P4KE-39A | 37.10 | 41.00 | 1.00 | 33.30 | 5.00 | 7.80 | 53.90 | 0.100 |
| P4KE-43 | 38.70 | 47.30 | 1.00 | 34.80 | 5.00 | 6.80 | 61.90 | 0.100 |
| P4KE-43A | 40.90 | 45.20 | 1.00 | 36.80 | 5.00 | 7.10 | 59.30 | 0.100 |
| P4KE-47 | 42.30 | 51.70 | 1.00 | 38.10 | 5.00 | 6.20 | 67.80 | 0.100 |
| P4KE-47A | 44.70 | 49.40 | 1.00 | 40.20 | 5.00 | 5.00 | 64.80 | 0.100 |



6.8V to 400V GPP TRANSIENT VOLTAGE SUPPRESSORS

| DEVICE | Breakdown Voltage | | | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Leakage @ V_{RWM} I_R (μA) | Peak Pulse Current I_{PPM} (A) (Note 2) | Maximum Clamping Voltage @ I_{PPM} V_C (V) | Maximum Temperature Coefficient of V_{BR} % / °C |
|-----------|----------------------------|--------|-----------------|---|--|---|--|--|
| | V_{BR} Volts (Note 1) | | @ I_T (mA) | | | | | |
| | Min. | Max. | | | | | | |
| P4KE-51 | 45.90 | 56.10 | 1.00 | 41.30 | 5.00 | 5.70 | 73.50 | 0.102 |
| P4KE-51A | 48.50 | 53.60 | 1.00 | 43.60 | 5.00 | 6.00 | 70.10 | 0.102 |
| P4KE-56 | 50.40 | 61.60 | 1.00 | 45.40 | 5.00 | 5.20 | 80.50 | 0.103 |
| P4KE-56A | 53.20 | 58.80 | 1.00 | 47.80 | 5.00 | 5.50 | 77.00 | 0.103 |
| P4KE-62 | 55.80 | 68.20 | 1.00 | 50.20 | 5.00 | 4.70 | 89.00 | 0.104 |
| P4KE-62A | 58.90 | 65.10 | 1.00 | 53.00 | 5.00 | 5.00 | 85.00 | 0.104 |
| P4KE-68 | 61.20 | 74.80 | 1.00 | 55.10 | 5.00 | 4.30 | 98.00 | 0.104 |
| P4KE-68A | 64.60 | 71.40 | 1.00 | 58.10 | 5.00 | 4.60 | 92.00 | 0.105 |
| P4KE-75 | 67.50 | 82.50 | 1.00 | 60.70 | 5.00 | 3.90 | 108.00 | 0.105 |
| P4KE-75A | 71.30 | 78.80 | 1.00 | 64.10 | 5.00 | 4.10 | 103.00 | 0.105 |
| P4KE-82 | 73.80 | 90.20 | 1.00 | 66.40 | 5.00 | 3.60 | 118.00 | 0.105 |
| P4KE-82A | 77.90 | 86.10 | 1.00 | 70.10 | 5.00 | 3.70 | 113.00 | 0.105 |
| P4KE-91 | 81.90 | 100.00 | 1.00 | 73.70 | 5.00 | 3.20 | 131.80 | 0.106 |
| P4KE-91A | 86.50 | 95.50 | 1.00 | 77.80 | 5.00 | 3.40 | 125.00 | 0.106 |
| P4KE-100 | 90.00 | 110.00 | 1.00 | 81.00 | 5.00 | 2.90 | 144.00 | 0.106 |
| P4KE-100A | 95.00 | 105.00 | 1.00 | 85.50 | 5.00 | 3.10 | 137.00 | 0.106 |
| P4KE-110 | 99.00 | 121.00 | 1.00 | 89.20 | 5.00 | 2.70 | 158.00 | 0.107 |
| P4KE-110A | 105.00 | 116.00 | 1.00 | 94.00 | 5.00 | 2.80 | 152.00 | 0.107 |
| P4KE-120 | 108.00 | 132.00 | 1.00 | 97.20 | 5.00 | 2.40 | 173.00 | 0.107 |
| P4KE-120A | 114.00 | 126.00 | 1.00 | 102.00 | 5.00 | 2.50 | 165.00 | 0.107 |
| P4KE-130 | 117.00 | 143.00 | 1.00 | 105.00 | 5.00 | 2.20 | 187.00 | 0.107 |
| P4KE-130A | 124.00 | 137.00 | 1.00 | 111.00 | 5.00 | 2.30 | 179.00 | 0.107 |
| P4KE-150 | 135.00 | 165.00 | 1.00 | 121.00 | 5.00 | 2.00 | 215.00 | 0.108 |
| P4KE-150A | 143.00 | 158.00 | 1.00 | 128.00 | 5.00 | 2.00 | 207.00 | 0.108 |
| P4KE-160 | 144.00 | 176.00 | 1.00 | 130.00 | 5.00 | 1.80 | 230.00 | 0.108 |
| P4KE-160A | 152.00 | 168.00 | 1.00 | 136.00 | 5.00 | 1.90 | 219.00 | 0.108 |
| P4KE-170 | 153.00 | 187.00 | 1.00 | 138.00 | 5.00 | 1.70 | 244.00 | 0.108 |
| P4KE-170A | 162.00 | 179.00 | 1.00 | 145.00 | 5.00 | 1.80 | 234.00 | 0.108 |
| P4KE-180 | 162.00 | 198.00 | 1.00 | 146.00 | 5.00 | 1.60 | 258.00 | 0.108 |
| P4KE-180A | 171.00 | 189.00 | 1.00 | 154.00 | 5.00 | 1.70 | 246.00 | 0.108 |
| P4KE-200 | 180.00 | 220.00 | 1.00 | 162.00 | 5.00 | 1.50 | 287.00 | 0.108 |
| P4KE-200A | 190.00 | 210.00 | 1.00 | 171.10 | 5.00 | 1.53 | 274.00 | 0.108 |
| P4KE-220 | 198.00 | 242.00 | 1.00 | 175.00 | 5.00 | 1.16 | 344.00 | 0.108 |
| P4KE-220A | 209.00 | 231.00 | 1.00 | 185.00 | 5.00 | 1.22 | 328.00 | 0.108 |
| P4KE-250 | 225.00 | 275.00 | 1.00 | 202.00 | 5.00 | 1.11 | 360.00 | 0.110 |
| P4KE-250A | 237.00 | 267.00 | 1.00 | 214.00 | 5.00 | 1.16 | 344.00 | 0.110 |
| P4KE-300 | 270.00 | 330.00 | 1.00 | 243.00 | 5.00 | 0.93 | 430.00 | 0.110 |
| P4KE-300A | 285.00 | 315.00 | 1.00 | 256.00 | 5.00 | 0.97 | 414.00 | 0.110 |
| P4KE-350 | 315.00 | 385.00 | 1.00 | 284.00 | 5.00 | 0.79 | 504.00 | 0.110 |
| P4KE-350A | 332.00 | 368.00 | 1.00 | 300.00 | 5.00 | 0.83 | 482.00 | 0.110 |
| P4KE-400 | 360.00 | 440.00 | 1.00 | 324.00 | 5.00 | 0.70 | 574.00 | 0.110 |
| P4KE-400A | 380.00 | 420.00 | 1.00 | 342.00 | 5.00 | 0.73 | 548.00 | 0.110 |

P4KE Series