

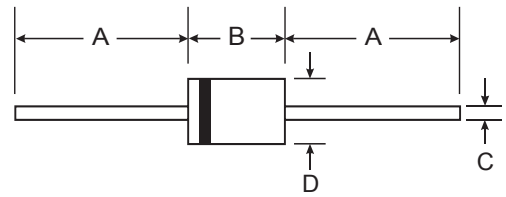
Features

- Plastic package has UL Flammability Classification 94V-
- 600 W peak pulse power capability on 10/1000 μ s waveform repetition rate (duty cycle): 0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time

| DO-15 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 25.40 | — |
| B | 5.50 | 7.62 |
| C | 0.686 | 0.889 |
| D | 2.60 | 3.60 |
| All Dimensions in mm | | |

MECHANICAL DATA

- **Case:** Molded plastic, DO-15
- **Lead:** Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- **Polarity:** Color band denotes cathode except bipolar
- **Mounting Position:** Any



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 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%.

| Parameter | mbol | Value | Unit |
|--|------------------|---------------|------|
| Peak Power Dissipation with a 10/1000 μ s Waveform ¹⁾ | P _{PPM} | Min. 600 | W |
| Steady State Power Dissipation at T _L = 75 °C, Lead Lengths 0.375" (9.5mm) ²⁾ | P _{tot} | 5 | W |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDED Method) Unidirectional Only ³⁾ | I _{FSM} | 100 | A |
| Maximum Instantaneous Forward Voltage at 50 A for Unidirectional Only ⁴⁾ | V _F | 3.5/5 | V |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature Range | T _{Stg} | - 55 to + 150 | °C |

¹⁾ Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25 °C, per Fig. 2

²⁾ Mounted on Copper pad area of 1.6 X 16" (40 X 40 mm) per Fig. 5

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

⁴⁾ V_F = 3.5 V max. for P6KE200(A) & below; V_F = 5 V max. for P6KE220(A) & above



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P6KE Series

TRANSIENT VOLTAGE SUPPRESSOR

Electrical Characteristics @ $T_L = 30^\circ\text{C}$ unless otherwise specified

| Uni-directional / Bi-directional Type | Reverse Stand-off Voltage V_{WM} (V) | Breakdown Voltage ¹⁾ | | Test Current I_T (mA) | Maximum Clamping Voltage V_C (V) at I_{PPM} | Maximum Peak Pulse Current ²⁾ I_{PPM} (A) | Maximum Reverse Leakage ³⁾ I_D (μA) at V_{WM} |
|---|---|---------------------------------|-------------------------------|----------------------------------|--|---|--|
| | | V_{BR} (V) Min. at I_T | V_{BR} (V) Max. at I_T | | | | |
| P6KE6.8 / C | 5.5 | 6.12 | 7.48 | 10 | 10.8 | 55.6 | 1000 |
| P6KE6.8A / CA | 5.8 | 6.45 | 7. | 10 | 10.5 | 57.1 | 1000 |
| P6KE7.5 / C | 6.05 | 6.75 | 8.25 | 10 | 11.7 | 51.3 | 500 |
| P6KE7.5A / CA | 6.4 | 7.13 | 7.88 | 10 | 11.3 | 53.1 | 500 |
| P6KE8.2 / C | 6.63 | 7.38 | 9.02 | 10 | 12.5 | 48 | 200 |
| P6KE8.2A / CA | 7.02 | 7.79 | 8. | 10 | 12.1 | 49.6 | 200 |
| P6KE9.1 / C | 7.37 | 8.19 | 10 | 1 | 13.8 | 43.5 | 50 |
| P6KE9.1A / CA | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 44.8 | 50 |
| P6KE10 / C | 8.1 | 9 | 11 | 1 | 15 | 40 | 10 |
| P6KE10A / CA | 8.55 | 9.5 | 10. | 1 | 14.5 | 41.4 | 10 |
| P6KE11 / C | 8.92 | 9.9 | 12.1 | 1 | 16.2 | 37 | 5 |
| P6KE11A / CA | 9.4 | 10.5 | 11. | 1 | 15.6 | 38.5 | 5 |
| P6KE12 / C | 9.72 | 10.8 | 13.2 | 1 | 17.3 | 34.7 | 5 |
| P6KE12A / CA | 10.2 | 11.4 | 12. | 1 | 16.7 | 35.9 | 5 |
| P6KE13 / C | 10.5 | 11.7 | 14.3 | 1 | 19 | 31.6 | 5 |
| P6KE13A / CA | 11.1 | 12.4 | 13.7 | 1 | 18.2 | 33 | 5 |
| P6KE15 / C | 12.1 | 13.5 | 16.5 | 1 | 22 | 27.3 | 5 |
| P6KE15A / CA | 12.8 | 14.3 | 15. | 1 | 21.2 | 28.3 | 5 |
| P6KE16 / C | 12.9 | 14.4 | 17.6 | 1 | 23.5 | 25.5 | 5 |
| P6KE16A / CA | 13.6 | 15.2 | 16. | 1 | 22.5 | 26.7 | 5 |
| P6KE18 / C | 14.5 | 16.2 | 19.8 | 1 | 26.5 | 22.6 | 5 |
| P6KE18A / CA | 15.3 | 17.1 | 18. | 1 | 25.2 | 23.8 | 5 |
| P6KE20 / C | 16.2 | 18 | 22 | 1 | 29.1 | 20.6 | 5 |
| P6KE20A / CA | 17.1 | 19 | 21 | 1 | 27.7 | 21.7 | 5 |
| P6KE22 / C | 17.8 | 19.8 | 24.2 | 1 | 31.9 | 18.8 | 5 |
| P6KE22A / CA | 18.8 | 20.9 | 23. | 1 | 30.6 | 19.6 | 5 |
| P6KE24 / C | 19.4 | 21.6 | 26.4 | 1 | 34.7 | 17.3 | 5 |
| P6KE24A / CA | 20.5 | 22.8 | 25. | 1 | 33.2 | 18.1 | 5 |
| P6KE27 / C | 21.8 | 24.3 | 29.7 | 1 | 39.1 | 15.3 | 5 |
| P6KE27A / CA | 23.1 | 25.7 | 28.4 | 1 | 37.5 | 16 | 5 |
| P6KE30 / C | 24.3 | 27 | 33 | 1 | 43.5 | 13.8 | 5 |
| P6KE30A / CA | 25.6 | 28.5 | 31. | 1 | 41.4 | 14.5 | 5 |
| P6KE33 / C | 26.8 | 29.7 | 36.3 | 1 | 47.7 | 12.6 | 5 |
| P6KE33A / CA | 28.2 | 31.4 | 34. | 1 | 45.7 | 13.1 | 5 |
| P6KE36 / C | 29.1 | 32.4 | 39.6 | 1 | 52 | 11.5 | 5 |
| P6KE36A / CA | 30.8 | 34.2 | 37.8 | 1 | 49.9 | 12 | 5 |
| P6KE39 / C | 31.6 | 35.1 | 42.9 | 1 | 56.4 | 10.6 | 5 |
| P6KE39A / CA | 33.3 | 37.1 | 41 | 1 | 53.9 | 11.1 | 5 |
| P6KE43 / C | 34.8 | 38.7 | 47.3 | 1 | 61.9 | 9.7 | 5 |
| P6KE43A / CA | 36.8 | 40.9 | 45. | 1 | 59.3 | 10.1 | 5 |
| P6KE47 / C | 38.1 | 42.3 | 51.7 | 1 | 67.8 | 8.8 | 5 |
| P6KE47A / CA | 40.2 | 44.7 | 49. | 1 | 64.8 | 9.3 | 5 |
| P6KE51 / C | 41.3 | 45.9 | 56.1 | 1 | 73.5 | 8.2 | 5 |
| P6KE51A / CA | 43.6 | 48.5 | 53. | 1 | 70.1 | 8.6 | 5 |



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P6KE Series

TRANSIENT VOLTAGE SUPPRESSOR

Electrical Characteristics @ $T_L = 30^\circ\text{C}$ unless otherwise specified

| Uni-directional / Bi-directional Type | Reverse Stand-off Voltage V_{WM} (V) | Breakdown Voltage ¹⁾ | | Test Current I_T (mA) | Maximum Clamping Voltage V_C (V) at I_{PPM} | Maximum Peak Pulse Current ²⁾ I_{PPM} (A) | Maximum Reverse Leakage ³⁾ I_D (μA) at V_{WM} |
|---|---|---------------------------------|-------------------------------|----------------------------------|--|---|--|
| | | V_{BR} (V) Min. at I_T | V_{BR} (V) Max. at I_T | | | | |
| P6KE56 / C | 45.4 | 50.4 | 61.6 | 1 | 80.5 | 7.5 | 5 |
| P6KE56A / CA | 47.8 | 53.2 | 58.8 | 1 | 77 | 7.8 | 5 |
| P6KE62 / C | 50.2 | 55.8 | 68.2 | 1 | 89 | 6.7 | 5 |
| P6KE62A / CA | 53 | 58.9 | 65.1 | 1 | 85 | 7.1 | 5 |
| P6KE68 / C | 55.1 | 61.2 | 74.8 | 1 | 98 | 6.1 | 5 |
| P6KE68A / CA | 58.1 | 64.6 | 71.4 | 1 | 92 | 6.5 | 5 |
| P6KE75 / C | 60.7 | 67.5 | 82.5 | 1 | 108 | 5.6 | 5 |
| P6KE75A / CA | 64.1 | 71.3 | 78.8 | 1 | 103 | 5.8 | 5 |
| P6KE82 / C | 66.4 | 73.8 | 90.2 | 1 | 118 | 5.1 | 5 |
| P6KE82A / CA | 70.1 | 77.9 | 86.1 | 1 | 113 | 5.3 | 5 |
| P6KE91 / C | 73.7 | 81.9 | 100 | 1 | 131 | 4.6 | 5 |
| P6KE91A / CA | 77.8 | 86.5 | 95.5 | 1 | 125 | 4.8 | 5 |
| P6KE100 / C | 81 | 90 | 110 | 1 | 144 | 4.2 | 5 |
| P6KE100A / CA | 85.5 | 95 | 105 | 1 | 137 | 4.4 | 5 |
| P6KE110 / C | 89.2 | 99 | 121 | 1 | 158 | 3.8 | 5 |
| P6KE110A / CA | 94 | 105 | 116 | 1 | 152 | 3.9 | 5 |
| P6KE120 / C | 97.2 | 108 | 132 | 1 | 173 | 3.5 | 5 |
| P6KE120A / CA | 102 | 114 | 126 | 1 | 165 | 3.6 | 5 |
| P6KE130 / C | 105 | 117 | 143 | 1 | 187 | 3.2 | 5 |
| P6KE130A / CA | 111 | 124 | 137 | 1 | 179 | 3.4 | 5 |
| P6KE150 / C | 121 | 135 | 165 | 1 | 215 | 2.8 | 5 |
| P6KE150A / CA | 128 | 143 | 158 | 1 | 207 | 2.9 | 5 |
| P6KE160 / C | 130 | 144 | 176 | 1 | 230 | 2.6 | 5 |
| P6KE160A / CA | 136 | 152 | 168 | 1 | 219 | 2.7 | 5 |
| P6KE170 / C | 138 | 153 | 187 | 1 | 244 | 2.5 | 5 |
| P6KE170A / CA | 145 | 162 | 179 | 1 | 234 | 2.6 | 5 |
| P6KE180 / C | 146 | 162 | 198 | 1 | 258 | 2.3 | 5 |
| P6KE180A / CA | 154 | 171 | 189 | 1 | 246 | 2.4 | 5 |
| P6KE200 / C | 162 | 180 | 220 | 1 | 287 | 2.1 | 5 |
| P6KE200A / CA | 171 | 190 | 210 | 1 | 274 | 2.2 | 5 |
| P6KE220 / C | 175 | 198 | 242 | 1 | 344 | 1.7 | 5 |
| P6KE220A / CA | 185 | 209 | 231 | 1 | 328 | 1.8 | 5 |
| P6KE250 / C | 202 | 225 | 275 | 1 | 360 | 1.7 | 5 |
| P6KE250A / CA | 214 | 237 | 263 | 1 | 344 | 1.7 | 5 |
| P6KE300 / C | 243 | 270 | 330 | 1 | 430 | 1.4 | 5 |
| P6KE300A / CA | 256 | 285 | 315 | 1 | 414 | 1.4 | 5 |
| P6KE350 / C | 284 | 315 | 385 | 1 | 504 | 1.2 | 5 |
| P6KE350A / CA | 300 | 332 | 368 | 1 | 482 | 1.2 | 5 |
| P6KE400 / C | 324 | 360 | 440 | 1 | 574 | 1 | 5 |
| P6KE400A / CA | 342 | 380 | 420 | 1 | 548 | 1.1 | 5 |
| P6KE440 / C | 356 | 396 | 484 | 1 | 631 | 0.95 | 5 |
| P6KE440A / CA | 376 | 418 | 462 | 1 | 602 | 1 | 5 |

¹⁾ Pulse test: $t_p \leq 50\text{ms}$

²⁾ Surge current waveform per Fig. 3 and Fig. 2

³⁾ For bidirectional types having V_{RWM} of 10V and less, the I_D limit is doubled

TYPICAL TRANSIENT CHARACTERISTICS

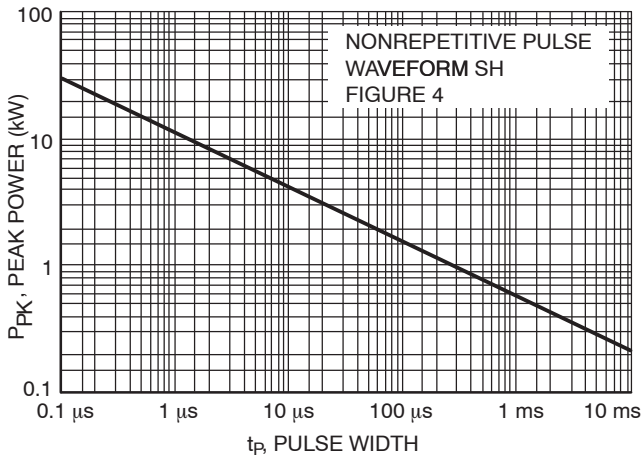


Figure 1. Pulse Rating Curve

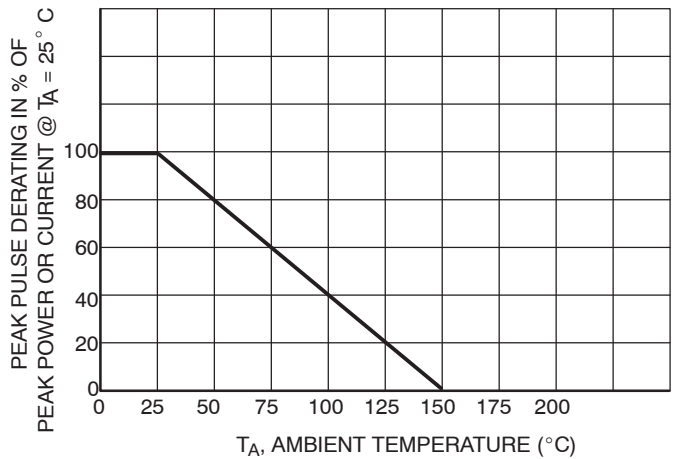


Figure 2. Pulse Derating Curve

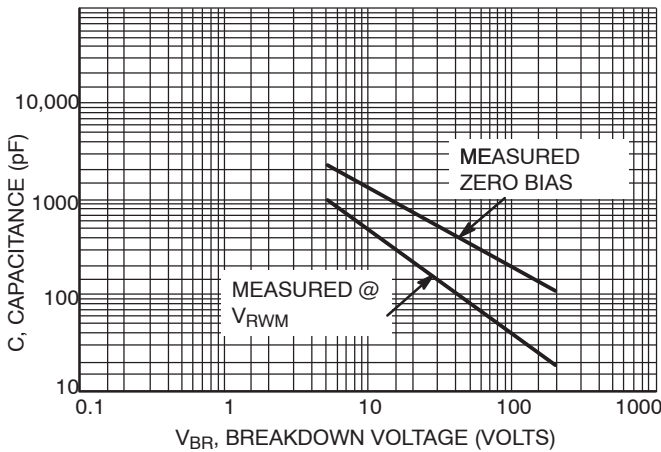


Figure 3. Capacitance versus Breakdown Voltage

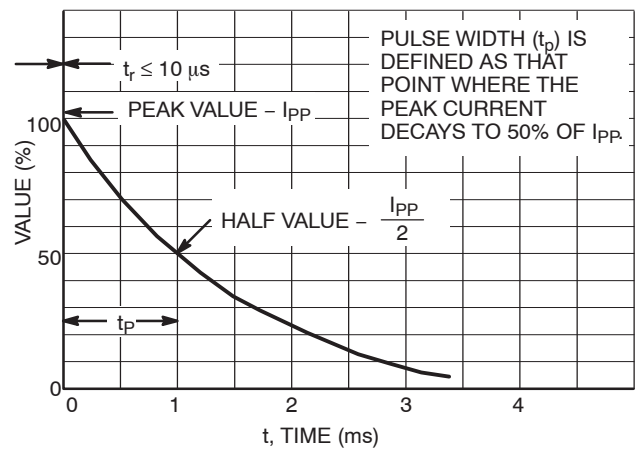


Figure 4. Pulse Waveform

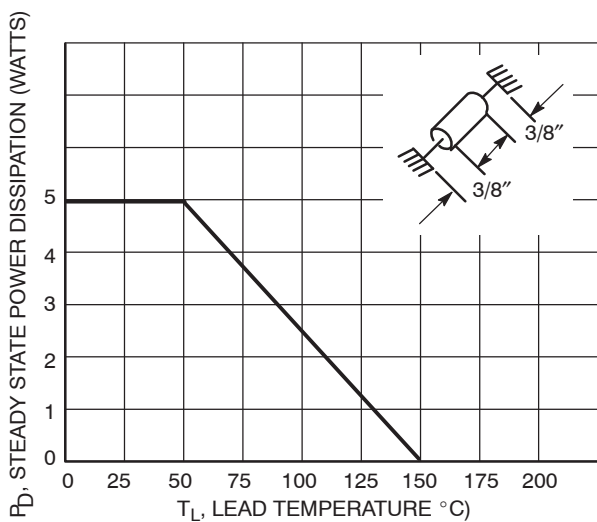


Figure 5. Steady State Power Derating

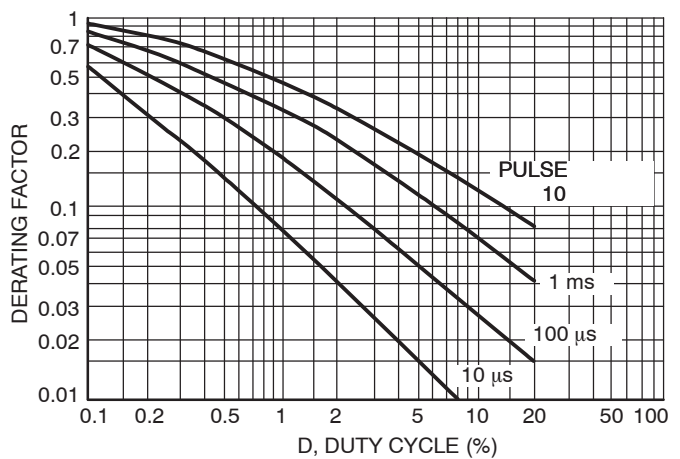


Figure 6. Typical Derating Factor for Duty Cycle

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