



P6KE6.8A(CA)-P6KE600A(CA)

AXIAL LEADED TRANSIENT VOLTAGE SUPPRESSOR DIODE

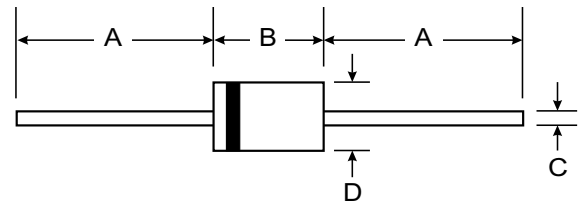
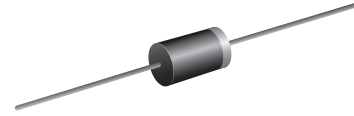
VOLTAGE RANGE: 6.8 - 600V
POWER: 600Watts

Features

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O

Mechanical Data

- Case : DO-15 Molded plastic
- Epoxy : UL94V-O rate flame retardant
- Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- Polarity : Color band denotes cathode end
- Mounting position : Any
- Weight : 0.465 gram



| 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 | | |

Maximum Ratings and Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|----------------------------------------------------------------------------------|----------------|-------------|------------------|
| Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 1, 2, 5) Figure 3 | PPPM | 600 Minimum | W |
| Peak Forward Surge Current (Note 3) | IFSM | 100 | A |
| Peak Pulse Current on 10/1000 μS Waveform (Note 1) Figure 1 | IPPM | See Table 1 | A |
| Steady State Power Dissipation (Note 2, 4) | PM(AV) | 5.0 | W |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

- Note:
1. Non-repetitive current pulse, per Figure 1 and derated above $T_A = 25^\circ\text{C}$ per Figure 4.
 2. Mounted on 40mm² copper pad.
 3. 8.3ms single half sine-wave duty cycle = 4 pulses per minutes maximum.
 4. Lead temperature at $75^\circ\text{C} = T_L$.
 5. Peak pulse power waveform is 10/1000 μS .



| TYPE | | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I _T | Breakdown Voltage Max. @ I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------|-----------|---------------------------|----------------------------------------|-----------------------------------------|---------------------|-------------------------------------------|---------------------|-----------------------------------|
| (UNI) | (BI) | V _{RWM} (V) | V _{BR MIN} (V) | V _{BR MAX} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (uA) |
| P6KE6.8 | P6KE6.8C | 5.50 | 6.12 | 7.48 | 10.0 | 10.8 | 55.6 | 1000.0 |
| P6KE6.8A | P6KE6.8CA | 5.80 | 6.45 | 7.25 | 10.0 | 10.5 | 57.1 | 1000.0 |
| P6KE7.5 | P6KE7.5C | 6.05 | 6.75 | 8.25 | 10.0 | 11.7 | 51.3 | 500.0 |
| P6KE7.5A | P6KE7.5CA | 6.40 | 7.13 | 7.88 | 10.0 | 11.3 | 53.1 | 500.0 |
| P6KE8.2 | P6KE8.2C | 6.63 | 7.38 | 9.02 | 10.0 | 12.5 | 48.0 | 200.0 |
| P6KE8.2A | P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10.0 | 12.1 | 49.6 | 200.0 |
| P6KE9.1 | P6KE9.1C | 7.37 | 8.19 | 10.0 | 1.0 | 13.8 | 43.5 | 50.0 |
| P6KE9.1A | P6KE9.1CA | 7.78 | 8.65 | 9.55 | 1.0 | 13.4 | 44.8 | 50.0 |
| P6KE10 | P6KE10C | 8.10 | 9.00 | 11.0 | 1.0 | 15.0 | 40.0 | 10.0 |
| P6KE10A | P6KE10CA | 8.55 | 9.50 | 10.5 | 1.0 | 14.5 | 41.4 | 10.0 |
| P6KE11 | P6KE11C | 8.92 | 9.90 | 12.1 | 1.0 | 16.2 | 37.0 | 5.0 |
| P6KE11A | P6KE11CA | 9.40 | 10.5 | 11.6 | 1.0 | 15.6 | 38.5 | 5.0 |
| P6KE12 | P6KE12C | 9.72 | 10.8 | 13.2 | 1.0 | 17.3 | 34.7 | 5.0 |
| P6KE12A | P6KE12CA | 10.2 | 11.4 | 12.6 | 1.0 | 16.7 | 35.9 | 5.0 |
| P6KE13 | P6KE13C | 10.5 | 11.7 | 14.3 | 1.0 | 19.0 | 31.6 | 5.0 |
| P6KE13A | P6KE13CA | 11.1 | 12.4 | 13.7 | 1.0 | 18.2 | 33.0 | 5.0 |
| P6KE15 | P6KE15C | 12.1 | 13.5 | 16.5 | 1.0 | 22.0 | 27.3 | 5.0 |
| P6KE15A | P6KE15CA | 12.8 | 14.3 | 15.8 | 1.0 | 21.2 | 28.3 | 5.0 |
| P6KE16 | P6KE16C | 12.9 | 14.4 | 17.6 | 1.0 | 23.5 | 25.5 | 5.0 |
| P6KE16A | P6KE16CA | 13.6 | 15.2 | 16.8 | 1.0 | 22.5 | 26.7 | 5.0 |
| P6KE18 | P6KE18C | 14.5 | 16.2 | 19.8 | 1.0 | 26.5 | 22.6 | 5.0 |
| P6KE18A | P6KE18CA | 15.3 | 17.1 | 18.9 | 1.0 | 25.2 | 23.8 | 5.0 |
| P6KE20 | P6KE20C | 16.2 | 18.0 | 22.0 | 1.0 | 29.1 | 20.6 | 5.0 |
| P6KE20A | P6KE20CA | 17.1 | 19.0 | 21.0 | 1.0 | 27.7 | 21.7 | 5.0 |
| P6KE22 | P6KE22C | 17.8 | 19.8 | 24.2 | 1.0 | 31.9 | 18.8 | 5.0 |
| P6KE22A | P6KE22CA | 18.8 | 20.9 | 23.1 | 1.0 | 30.6 | 19.6 | 5.0 |
| P6KE24 | P6KE24C | 19.4 | 21.6 | 26.4 | 1.0 | 34.7 | 17.3 | 5.0 |
| P6KE24A | P6KE24CA | 20.5 | 22.8 | 25.2 | 1.0 | 33.2 | 18.1 | 5.0 |
| P6KE27 | P6KE27C | 21.8 | 24.3 | 29.7 | 1.0 | 39.1 | 15.3 | 5.0 |
| P6KE27A | P6KE27CA | 23.1 | 25.7 | 28.4 | 1.0 | 37.5 | 16.0 | 5.0 |
| P6KE30 | P6KE30C | 24.3 | 27.0 | 33.0 | 1.0 | 43.5 | 13.8 | 5.0 |
| P6KE30A | P6KE30CA | 25.6 | 28.5 | 31.5 | 1.0 | 41.4 | 14.5 | 5.0 |
| P6KE33 | P6KE33C | 26.8 | 29.7 | 36.3 | 1.0 | 47.7 | 12.6 | 5.0 |
| P6KE33A | P6KE33CA | 28.2 | 31.4 | 34.7 | 1.0 | 45.7 | 13.1 | 5.0 |
| P6KE36 | P6KE36C | 29.1 | 32.4 | 39.6 | 1.0 | 52.0 | 11.5 | 5.0 |
| P6KE36A | P6KE36CA | 30.8 | 34.2 | 37.8 | 1.0 | 49.9 | 12.0 | 5.0 |



| TYPE | | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I _T | Breakdown Voltage Max. @ I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------|-----------|---------------------------|----------------------------------------|-----------------------------------------|---------------------|-------------------------------------------|---------------------|-----------------------------------|
| (UNI) | (BI) | V _{RWM} (V) | V _{BR} MIN(V) | V _{BR} MAX(V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (uA) |
| P6KE39 | P6KE39C | 31.6 | 35.1 | 42.9 | 1.0 | 56.4 | 10.6 | 5.0 |
| P6KE39A | P6KE39CA | 33.3 | 37.1 | 41.0 | 1.0 | 53.9 | 11.1 | 5.0 |
| P6KE43 | P6KE43C | 34.8 | 38.7 | 47.3 | 1.0 | 61.9 | 9.7 | 5.0 |
| P6KE43A | P6KE43CA | 36.8 | 40.9 | 45.2 | 1.0 | 59.3 | 10.1 | 5.0 |
| P6KE47 | P6KE47C | 38.1 | 42.3 | 51.7 | 1.0 | 67.8 | 8.8 | 5.0 |
| P6KE47A | P6KE47CA | 40.2 | 44.7 | 49.4 | 1.0 | 64.8 | 9.3 | 5.0 |
| P6KE51 | P6KE51C | 41.3 | 45.9 | 56.1 | 1.0 | 73.5 | 8.2 | 5.0 |
| P6KE51A | P6KE51CA | 43.6 | 48.5 | 53.6 | 1.0 | 70.1 | 8.6 | 5.0 |
| P6KE56 | P6KE56C | 45.4 | 50.4 | 61.6 | 1.0 | 80.5 | 7.5 | 5.0 |
| P6KE56A | P6KE56CA | 47.8 | 53.2 | 58.8 | 1.0 | 77.0 | 7.8 | 5.0 |
| P6KE62 | P6KE62C | 50.2 | 55.8 | 68.2 | 1.0 | 89.0 | 6.7 | 5.0 |
| P6KE62A | P6KE62CA | 53.0 | 58.9 | 65.1 | 1.0 | 85.0 | 7.1 | 5.0 |
| P6KE68 | P6KE68C | 55.1 | 61.2 | 74.8 | 1.0 | 98.0 | 6.1 | 5.0 |
| P6KE68A | P6KE68CA | 58.1 | 64.6 | 71.4 | 1.0 | 92.0 | 6.5 | 5.0 |
| P6KE75 | P6KE75C | 60.7 | 67.5 | 82.5 | 1.0 | 108 | 5.6 | 5.0 |
| P6KE75A | P6KE75CA | 64.1 | 71.3 | 78.8 | 1.0 | 103 | 5.8 | 5.0 |
| P6KE82 | P6KE82C | 66.4 | 73.8 | 90.2 | 1.0 | 118 | 5.1 | 5.0 |
| P6KE82A | P6KE82CA | 70.1 | 77.9 | 86.1 | 1.0 | 113 | 5.3 | 5.0 |
| P6KE91 | P6KE91C | 73.7 | 81.9 | 100 | 1.0 | 131 | 4.6 | 5.0 |
| P6KE91A | P6KE91CA | 77.8 | 86.5 | 95.5 | 1.0 | 125 | 4.8 | 5.0 |
| P6KE100 | P6KE100C | 81.0 | 90.0 | 110 | 1.0 | 144 | 4.2 | 5.0 |
| P6KE100A | P6KE100CA | 85.5 | 95.0 | 105 | 1.0 | 137 | 4.4 | 5.0 |
| P6KE110 | P6KE110C | 89.2 | 99.0 | 121 | 1.0 | 158 | 3.8 | 5.0 |
| P6KE110A | P6KE110CA | 94.0 | 105 | 116 | 1.0 | 152 | 3.9 | 5.0 |
| P6KE120 | P6KE120C | 97.2 | 108 | 132 | 1.0 | 173 | 3.5 | 5.0 |
| P6KE120A | P6KE120CA | 102 | 114 | 126 | 1.0 | 165 | 3.6 | 5.0 |
| P6KE130 | P6KE130C | 105 | 117 | 143 | 1.0 | 187 | 3.2 | 5.0 |
| P6KE130A | P6KE130CA | 111 | 124 | 137 | 1.0 | 179 | 3.4 | 5.0 |
| P6KE150 | P6KE150C | 121 | 135 | 165 | 1.0 | 215 | 2.8 | 5.0 |
| P6KE150A | P6KE150CA | 128 | 143 | 158 | 1.0 | 207 | 2.9 | 5.0 |
| P6KE160 | P6KE160C | 130 | 144 | 176 | 1.0 | 230 | 2.6 | 5.0 |
| P6KE160A | P6KE160CA | 136 | 152 | 168 | 1.0 | 219 | 2.7 | 5.0 |
| P6KE170 | P6KE170C | 138 | 153 | 187 | 1.0 | 244 | 2.5 | 5.0 |
| P6KE170A | P6KE170CA | 145 | 162 | 179 | 1.0 | 234 | 2.6 | 5.0 |
| P6KE180 | P6KE180C | 146 | 162 | 198 | 1.0 | 258 | 2.3 | 5.0 |
| P6KE180A | P6KE180CA | 154 | 171 | 189 | 1.0 | 246 | 2.4 | 5.0 |



| TYPE | | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I _T | Breakdown Voltage Max. @ I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------|-----------|---------------------------|----------------------------------------|-----------------------------------------|---------------------|-------------------------------------------|---------------------|-----------------------------------|
| (UNI) | (BI) | V _{RWM} (V) | V _{BR} MIN(V) | V _{BR} MAX(V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (uA) |
| P6KE200 | P6KE200C | 162 | 180 | 220 | 1.0 | 287 | 2.1 | 5.0 |
| P6KE200A | P6KE200CA | 171 | 190 | 210 | 1.0 | 274 | 2.2 | 5.0 |
| P6KE220 | P6KE220C | 175 | 198 | 242 | 1.0 | 344 | 1.7 | 5.0 |
| P6KE220A | P6KE220CA | 185 | 209 | 231 | 1.0 | 328 | 1.8 | 5.0 |
| P6KE250 | P6KE250C | 202 | 225 | 275 | 1.0 | 360 | 1.7 | 5.0 |
| P6KE250A | P6KE250CA | 214 | 237 | 263 | 1.0 | 344 | 1.7 | 5.0 |
| P6KE300 | P6KE300C | 243 | 270 | 330 | 1.0 | 430 | 1.4 | 5.0 |
| P6KE300A | P6KE300CA | 256 | 285 | 315 | 1.0 | 414 | 1.4 | 5.0 |
| P6KE350 | P6KE350C | 284 | 315 | 385 | 1.0 | 504 | 1.2 | 5.0 |
| P6KE350A | P6KE350CA | 300 | 333 | 368 | 1.0 | 482 | 1.2 | 5.0 |
| P6KE400 | P6KE400C | 324 | 360 | 440 | 1.0 | 574 | 1.0 | 5.0 |
| P6KE400A | P6KE400CA | 342 | 380 | 420 | 1.0 | 548 | 1.1 | 5.0 |
| P6KE440 | P6KE440C | 356 | 396 | 484 | 1.0 | 631 | 0.95 | 5.0 |
| P6KE440A | P6KE440CA | 376 | 418 | 462 | 1.0 | 602 | 1.0 | 5.0 |
| P6KE480 | P6KE480C | 389 | 432 | 528 | 1.0 | 686 | 0.88 | 5.0 |
| P6KE480A | P6KE480CA | 408 | 456 | 504 | 1.0 | 658 | 0.9 | 5.0 |
| P6KE510 | P6KE510C | 413 | 459 | 561 | 1.0 | 729 | 0.82 | 5.0 |
| P6KE510A | P6KE510CA | 434 | 485 | 535 | 1.0 | 698 | 0.9 | 5.0 |
| P6KE530 | P6KE530C | 457 | 477 | 583 | 1.0 | 798 | 0.76 | 5.0 |
| P6KE530A | P6KE530CA | 451 | 503.5 | 556.5 | 1.0 | 725 | 0.8 | 5.0 |
| P6KE540 | P6KE540C | 437 | 486 | 594 | 1.0 | 772 | 0.78 | 5.0 |
| P6KE540A | P6KE540CA | 460 | 513 | 567 | 1.0 | 740 | 0.8 | 5.0 |
| P6KE550 | P6KE550C | 470 | 495 | 605 | 1.0 | 836 | 0.76 | 5.0 |
| P6KE550A | P6KE550CA | 468 | 522.50 | 577.50 | 1.0 | 760 | 0.8 | 5.0 |
| P6KE600 | P6KE600C | 490 | 540 | 660 | 1.0 | 911 | 0.71 | 5.0 |
| P6KE600A | P6KE600CA | 512 | 570 | 630 | 1.0 | 828 | 0.75 | 5.0 |

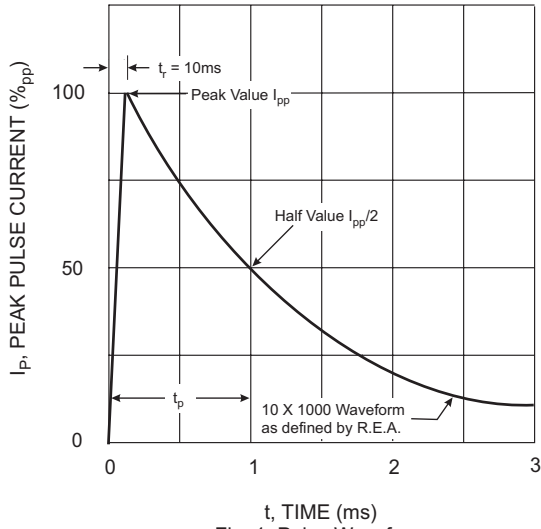


Fig. 1 Pulse Waveform

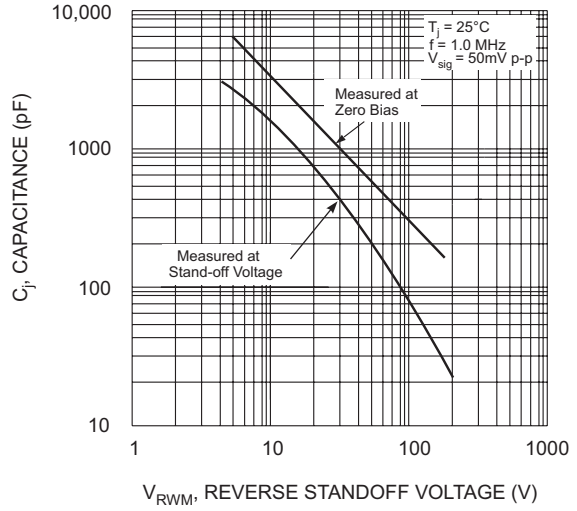


Fig. 2 Typical Junction Capacitance

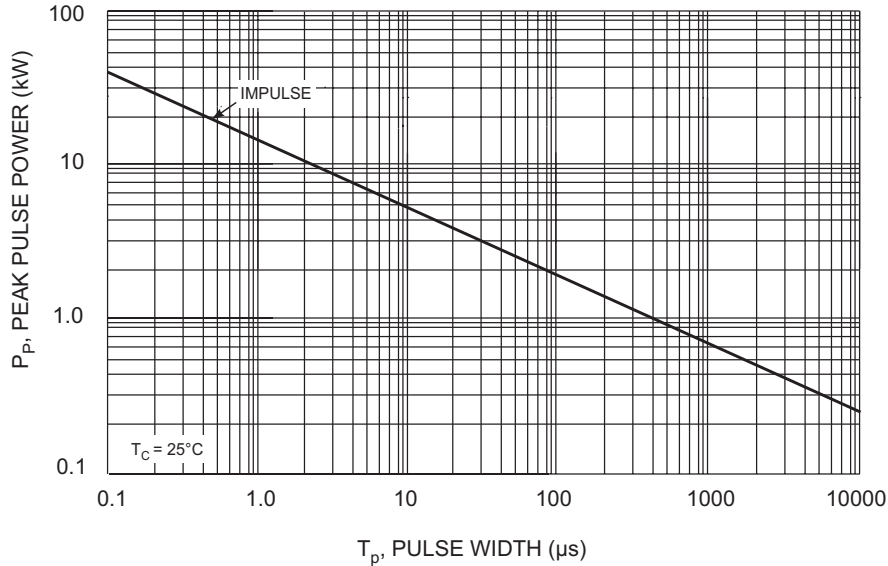


Fig. 3 Pulse Rating Curve

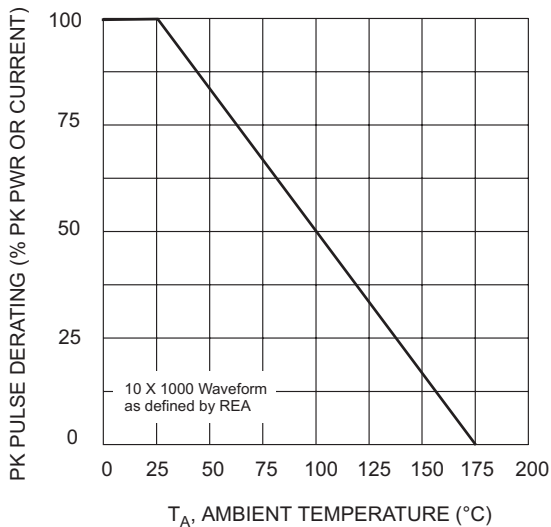


Fig. 4 Pulse Derating Curve

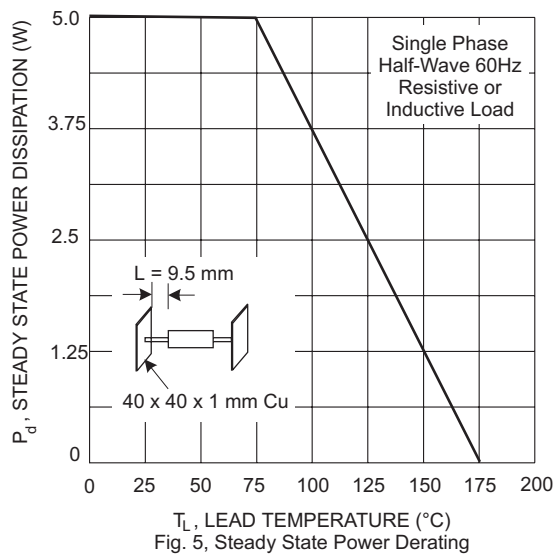


Fig. 5, Steady State Power Derating