

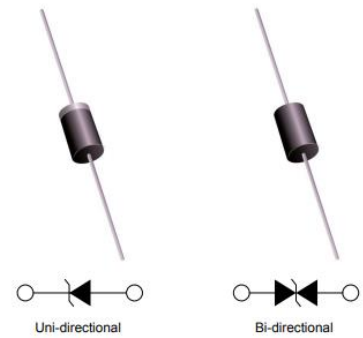
TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Features

1. Glass passivated chip
2. Excellent clamping capability
3. Low clamping voltage
4. Low leakage current
5. Very fast response time
6. RoHS compliant
7. 400W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycle): 0.01%



■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

■ Mechanical Data

1. Case: Molded plastic, DO-41
2. Epoxy: UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|
| P | 4 | K | E | 6 | . | 8 | C | A | Y |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | |
|----------------|--|
| Product Series | |
| P4KE | THINKING Transient Voltage Suppression Diodes P4KE Series |

| | |
|---|------|
| Central of Breakage Voltage (V_{BR}) | |
| 6.8 | 6.8V |
| 75 | 75V |
| 200 | 200V |

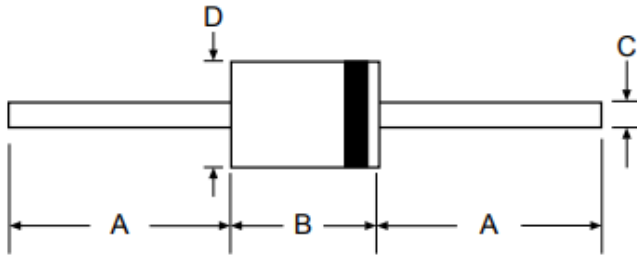
| | |
|-----------|---|
| Type Code | |
| AY | Uni-directional, 5% V_{BR} Voltage Tolerance |
| CAY | Bi-directional 5% V_{BR} Voltage Tolerance |

TVS Diode: P4KE Series

Axial Leaded Type 400 W



Structures and Dimensions



| Symbol | Dimensions in millimeters | |
|--------|---------------------------|------|
| | Min | Max |
| A | 25.0 | - |
| B | 4.1 | 5.2 |
| C | 0.54 | 0.85 |
| D | 2.0 | 2.7 |

Maximum Rating ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|----------------|----------------------|
| Peak power dissipation with a 10/1000 μs waveform (Note 1) | P_{PPM} | 400 | W |
| Peak pulse current with 10/1000 μs waveform (Note 1) | I_{PPM} | See next table | A |
| Peak forward surge current, 8.3 ms single half sine-wave (Note 2) | I_{FSM} | 40 | A |
| Power dissipation on infinite heatsink at $T_L=75^{\circ}\text{C}$ | P_D | 1 | W |
| Typical thermal resistance junction to ambient | $R_{\theta JA}$ | 100 | $^{\circ}\text{C/W}$ |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 60 | $^{\circ}\text{C/W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part No. (Uni) | Part No. (Bi) | Reverse Stand off Voltage | Breakage Voltage V _{BR} @ I _T | | Test Current | Maximum Clamping Voltage V _C @ I _{pp} | Maximum Peak Pulse Current | Maximum Reverse Leakage I _R @ V _{RWM} |
|-------------------|------------------|---------------------------------|---|----------|-----------------------|--|-------------------------------------|--|
| | | V _{RWM} (V) | Min(V) | Max(V) | I _T (mA) | V _C (V) | I _{pp} (A) | I _R (μA) |
| P4KE6.8AY | P4KE6.8CAY | 5.8 | 6.45 | 7.14 | 10 | 10.5 | 39 | 1000 |
| P4KE7.5AY | P4KE7.5CAY | 6.4 | 7.13 | 7.88 | 10 | 11.3 | 36.3 | 500 |
| P4KE8.2AY | P4KE8.2CAY | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 33.9 | 200 |
| P4KE9.1AY | P4KE9.1CAY | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 30.6 | 50 |
| P4KE10AY | P4KE10CAY | 8.55 | 9.5 | 10.5 | 1 | 14.5 | 28.3 | 10 |
| P4KE11AY | P4KE11CAY | 9.4 | 10.5 | 11.6 | 1 | 15.6 | 26.3 | 5 |
| P4KE12AY | P4KE12CAY | 10.2 | 11.4 | 12.6 | 1 | 16.7 | 24.6 | 5 |
| P4KE13AY | P4KE13CAY | 11.1 | 12.4 | 13.7 | 1 | 18.2 | 22.5 | 1 |
| P4KE15AY | P4KE15CAY | 12.8 | 14.3 | 15.8 | 1 | 21.2 | 19.3 | 1 |
| P4KE16AY | P4KE16CAY | 13.6 | 15.2 | 16.8 | 1 | 22.5 | 18.2 | 1 |
| P4KE18AY | P4KE18CAY | 15.3 | 17.1 | 18.9 | 1 | 25.2 | 16.1 | 1 |
| P4KE20AY | P4KE20CAY | 17.1 | 19 | 21 | 1 | 27.7 | 14.8 | 1 |
| P4KE22AY | P4KE22CAY | 18.8 | 20.9 | 23.1 | 1 | 30.6 | 13.4 | 1 |
| P4KE24AY | P4KE24CAY | 20.5 | 22.8 | 25.2 | 1 | 33.2 | 12.3 | 1 |
| P4KE27AY | P4KE27CAY | 23.1 | 25.7 | 28.4 | 1 | 37.5 | 10.9 | 1 |
| P4KE30AY | P4KE30CAY | 25.6 | 28.5 | 31.5 | 1 | 41.4 | 9.9 | 1 |
| P4KE33AY | P4KE33CAY | 28.2 | 31.4 | 34.7 | 1 | 45.7 | 9 | 1 |
| P4KE36AY | P4KE36CAY | 30.8 | 34.2 | 37.8 | 1 | 49.9 | 8.2 | 1 |
| P4KE39AY | P4KE39CAY | 33.3 | 37.1 | 41 | 1 | 53.9 | 7.6 | 1 |
| P4KE43AY | P4KE43CAY | 36.8 | 40.9 | 45.2 | 1 | 59.3 | 6.9 | 1 |
| P4KE47AY | P4KE47CAY | 40.2 | 44.7 | 49.4 | 1 | 64.8 | 6.3 | 1 |
| P4KE51AY | P4KE51CAY | 43.6 | 48.5 | 53.6 | 1 | 70.1 | 5.8 | 1 |
| P4KE56AY | P4KE56CAY | 47.8 | 53.2 | 58.8 | 1 | 77 | 5.3 | 1 |
| P4KE62AY | P4KE62CAY | 53 | 58.9 | 65.1 | 1 | 85 | 4.8 | 1 |
| P4KE68AY | P4KE68CAY | 58.1 | 64.6 | 71.4 | 1 | 92 | 4.5 | 1 |
| P4KE75AY | P4KE75CAY | 64.1 | 71.3 | 78.8 | 1 | 103 | 4 | 1 |
| P4KE82AY | P4KE82CAY | 70.1 | 77.9 | 86.1 | 1 | 113 | 3.6 | 1 |
| P4KE91AY | P4KE91CAY | 77.8 | 86.5 | 95.5 | 1 | 125 | 3.3 | 1 |
| P4KE100AY | P4KE100CAY | 85.5 | 95 | 105 | 1 | 137 | 3 | 1 |

TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Electrical Characteristics (T_A=25°C unless otherwise noted)

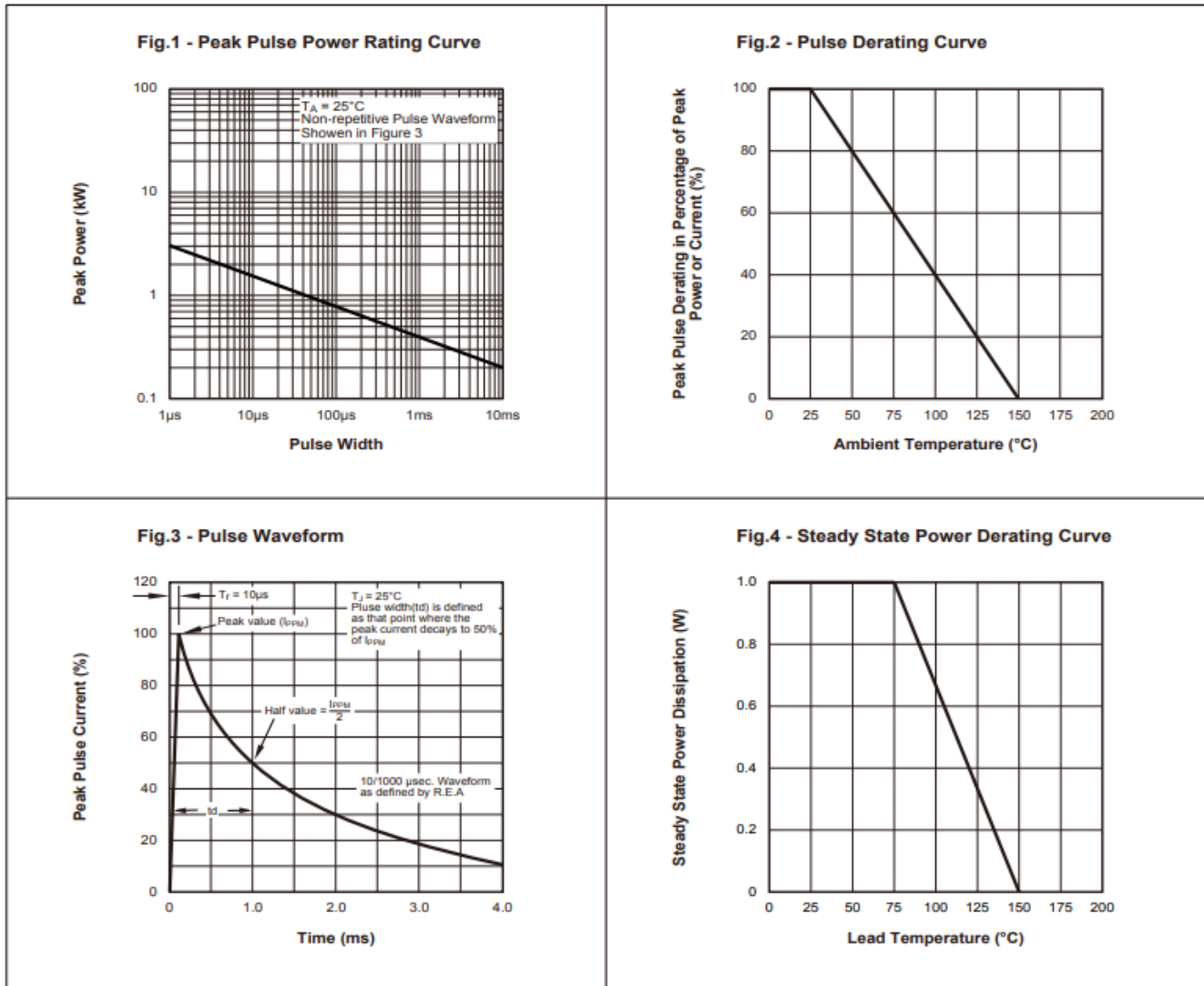
| Part No. (Uni) | Part No. (Bi) | Reverse Stand off Voltage | Breakage Voltage V _{BR} @ I _T | | Test Current | Maximum Clamping Voltage V _C @ I _{pp} | Maximum Peak Pulse Current | Maximum Reverse Leakage I _R @ V _{RWM} |
|-------------------|------------------|---------------------------------|---|----------|-----------------------|--|-------------------------------------|--|
| | | V _{RWM} (V) | Min(V) | Max(V) | I _T (mA) | V _C (V) | I _{pp} (A) | I _R (μA) |
| P4KE110AY | P4KE110CAY | 94 | 105 | 116 | 1 | 152 | 2.7 | 1 |
| P4KE120AY | P4KE120CAY | 102 | 114 | 126 | 1 | 165 | 2.5 | 1 |
| P4KE130AY | P4KE130CAY | 111 | 124 | 137 | 1 | 179 | 2.3 | 1 |
| P4KE150AY | P4KE150CAY | 128 | 143 | 158 | 1 | 207 | 2 | 1 |
| P4KE160AY | P4KE160CAY | 136 | 152 | 168 | 1 | 219 | 1.9 | 1 |
| P4KE170AY | P4KE170CAY | 145 | 162 | 179 | 1 | 234 | 1.8 | 1 |
| P4KE180AY | P4KE180CAY | 154 | 171 | 189 | 1 | 246 | 1.7 | 1 |
| P4KE200AY | P4KE200CAY | 171 | 190 | 210 | 1 | 274 | 1.5 | 1 |
| P4KE220AY | P4KE220CAY | 185 | 209 | 231 | 1 | 328 | 1.3 | 1 |
| P4KE250AY | P4KE250CAY | 214 | 237 | 263 | 1 | 344 | 1.2 | 1 |
| P4KE300AY | P4KE300CAY | 256 | 285 | 315 | 1 | 414 | 1 | 1 |
| P4KE350AY | P4KE350CAY | 300 | 332 | 368 | 1 | 482 | 0.9 | 1 |
| P4KE400AY | P4KE400CAY | 342 | 380 | 420 | 1 | 548 | 0.8 | 1 |
| P4KE440AY | P4KE440CAY | 376 | 418 | 462 | 1 | 602 | 0.7 | 1 |
| P4KE480AY | P4KE480CAY | 408 | 456 | 504 | 1 | 658 | 0.6 | 1 |
| P4KE510AY | P4KE510CAY | 434 | 485 | 535 | 1 | 698 | 0.6 | 1 |
| P4KE530AY | P4KE530CAY | 450 | 503.5 | 556.5 | 1 | 725 | 0.6 | 1 |
| P4KE540AY | P4KE540CAY | 459 | 513 | 567 | 1 | 740 | 0.5 | 1 |
| P4KE550AY | P4KE550CAY | 467 | 522.5 | 557.5 | 1 | 760 | 0.5 | 1 |

TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

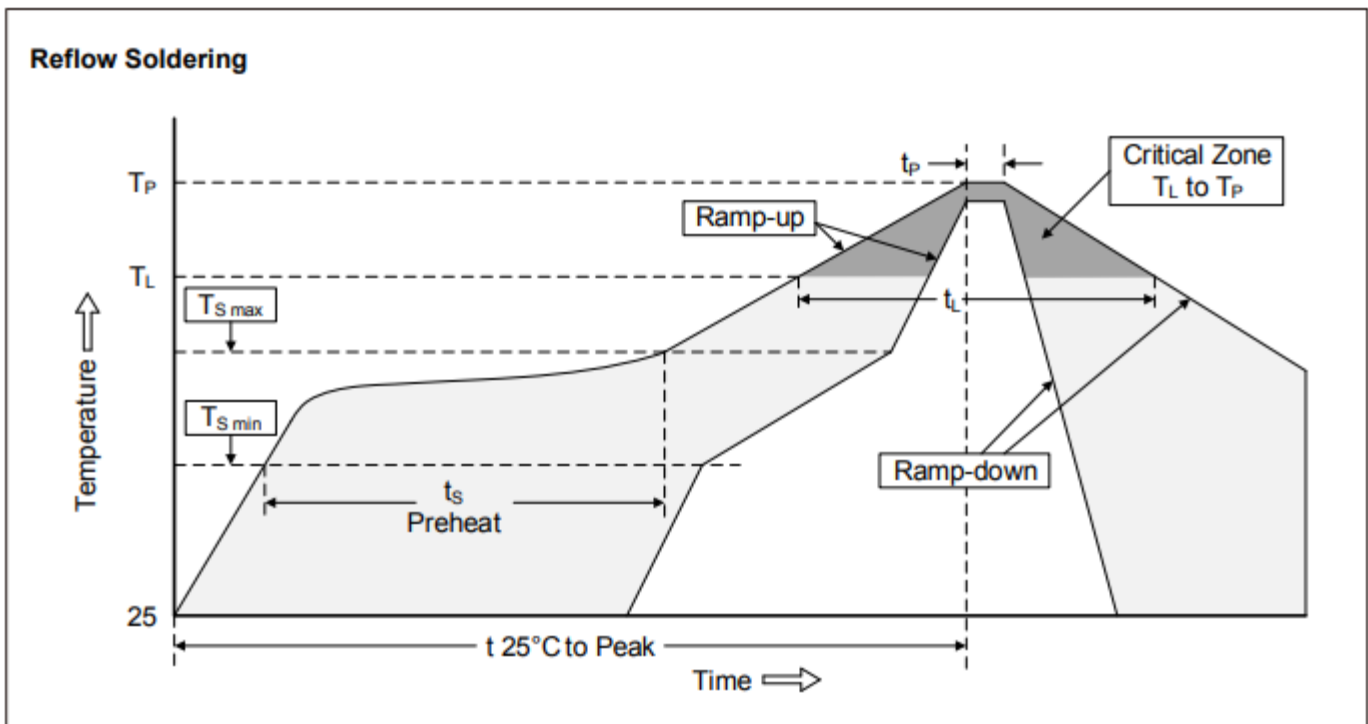


TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Soldering Recommendation



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s) | 150°C 200°C 60-180 seconds |
| $T_{S\ max}$ to T_L -Ramp-up Rate | 3°C/second max. |
| Time maintained above: -Temperature (T_L) -Time (t_L) | 217°C 60-150 seconds |
| Peak Temperature (T_P) | 260°C |
| Time within 5°C of actual Peak Temperature (t_p) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

TVS Diode: P4KE Series

Axial Leaded Type 400 W



■ Quantity

| Series Type | Packaging option | Base quantity | Packaging specification |
|-------------|------------------|---------------|-------------------------|
| P4KE | Tape and box | 5000pcs / box | EIA STD RS-481 |

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
 2. Relative Humidity: $\leq 75\%RH$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.