



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

## AXIAL LEADED TRANSIENT VOLTAGE SUPPRESSOR DIODE

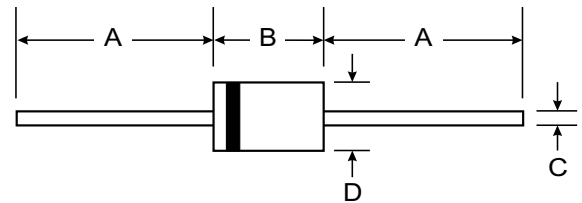
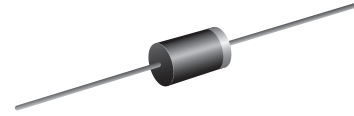
**VOLTAGE RANGE: 6.8 - 600V**  
**POWER: 600Watts**

### 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 $\mu\text{S}$ 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 40mm<sup>2</sup> 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 $\mu\text{S}$ .



| TYPE     |           | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|----------|-----------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (UNI)    | (BI)      | V <sub>RWM</sub> (V)      | V <sub>BR MIN</sub> (V)                | V <sub>BR MAX</sub> (V)                 | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (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 <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|----------|-----------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (UNI)    | (BI)      | V <sub>RWM</sub> (V)      | V <sub>BR</sub> MIN(V)                 | V <sub>BR</sub> MAX(V)                  | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (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 <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|----------|-----------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (UNI)    | (BI)      | V <sub>RWM</sub> (V)      | V <sub>BR</sub> MIN(V)                 | V <sub>BR</sub> MAX(V)                  | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (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                               |

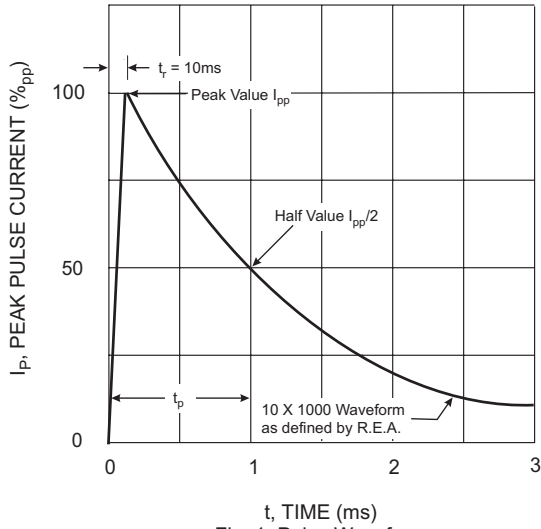


Fig. 1 Pulse Waveform

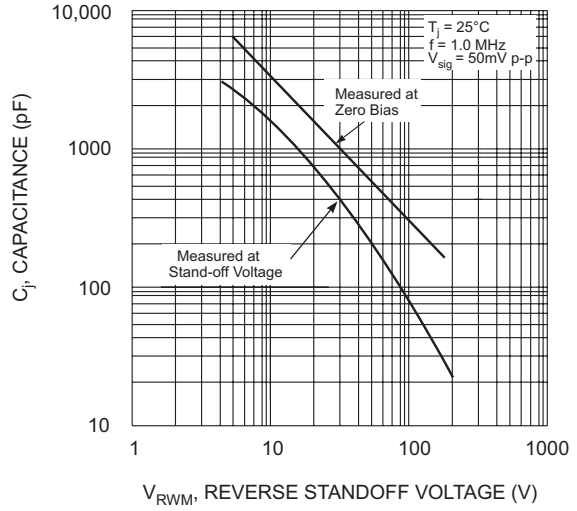


Fig. 2 Typical Junction Capacitance

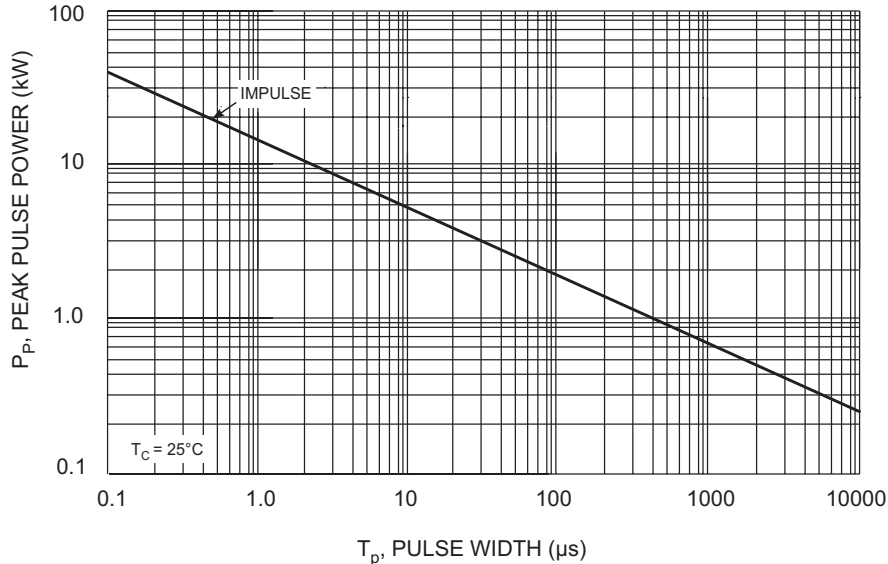


Fig. 3 Pulse Rating Curve

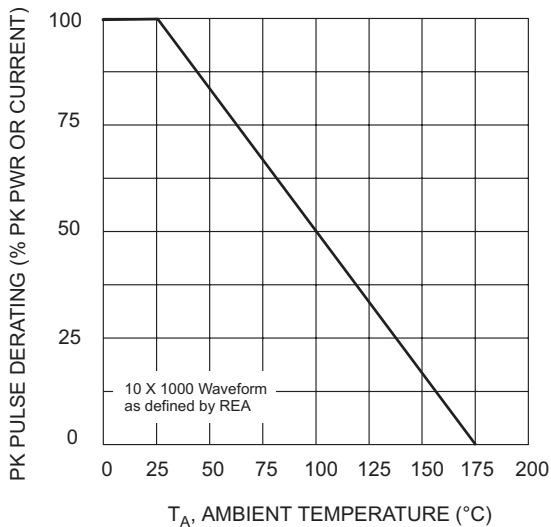


Fig. 4 Pulse Derating Curve

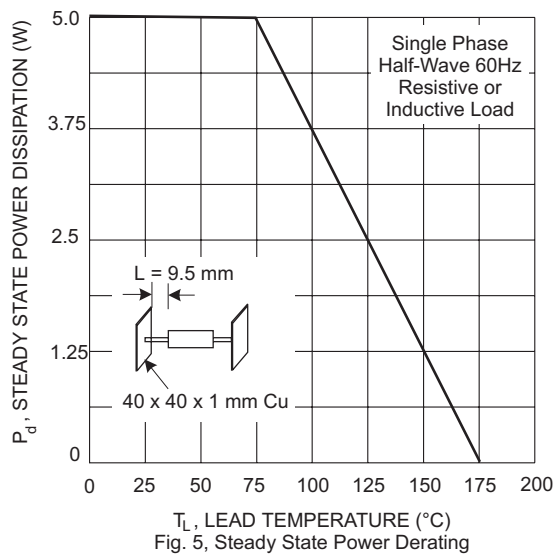


Fig. 5, Steady State Power Derating

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