# P6KE SERIES

## TRANSIENT VOLTAGE SUPPRESSORS

## FEATURE

- ✧ Plastic package.
- ✧ Glass passivated chip junction in DO-15 Package
- ✧ 600W peak pulse power capability on 10/1000μs waveform.
- ✧ Excellent clamping capability.
- ✧ Low zener impedance.
- ✧ Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- ✧ Typical $I_R$ less than 1μA above 10V.
- ✧ High temperature soldering guaranteed: 265℃/10 seconds/.375”, (9.5mm) lead length, 5lbs., (2.3kg) tension.



**DO-204AC/DO-15**

## MECHANICAL DATE

- ✧ Case: JEDEC DO-15 Molded Plastic.
- ✧ Terminals: Axial leads, solderable per MIL-STD-750, Method 2026.
- ✧ Polarity: Color band denoted cathode except bidirectional.
- ✧ Mounting Position: Any.
- ✧ Weight: 0.015 ounce, 0.4grams.

## DEVICES FOR BIPOLAR APPLICATION

For bidirectional use C or CA suffix for types P6KE6.8 thru types P6KE550 (e.g.P6KE6.8C, P6KE550CA), electrical characteristics apply in both directions.

## MAXIMUM RATINGS AND CHARACTERISTICS

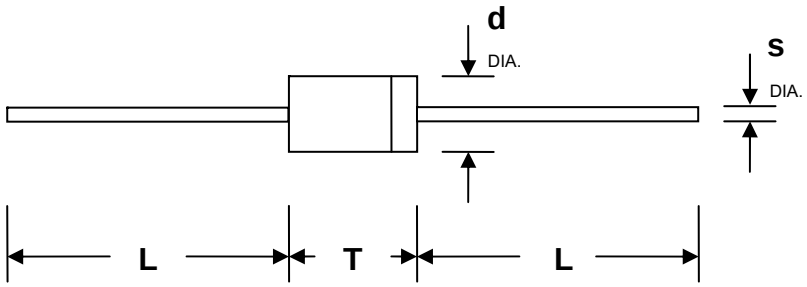
Ratings at 25℃ ambient temperature unless otherwise specified.

| RATING | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Peak Pulse Power Dissipation on 10/1000μs waveform (Note1, Fig.1). | $P_{PPM}$ | Minimum 600 | Watts |
| Peak Pulse Current of on 10/1000μs waveform.(Note1,Fig.3) | $I_{PPM}$ | See Table | Amps |
| Steady State Power Dissipation at $T_L$ =75℃,Lead lengths.375”, (9.5mm) (Fig.5). | $P_{M(AV)}$ | 5.0 | Watts |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 2,Fig.6). | $I_{FSM}$ | 100 | Amps |
| Operating junction and Storage Temperature Range. | $T_J$ , $T_{STG}$ | -55 to +175 | ℃ |

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A$ = 25℃ per Fig. 2.

2. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

## DIMENSIONS




**DO-204AC/DO-15**

| Item | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| L | 25.40 | - | 1.000 | - |
| T | 5.80 | 7.60 | 0.230 | 0.300 |
| d | 2.60 | 3.60 | 0.104 | 0.140 |
| s | 0.71 | 0.86 | 0.028 | 0.034 |

## ELECTRICAL CHARACTERISTICS

| Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@$I_T$ | Breakdown Voltage MAX.@$I_T$ | Test Current | Maximum Clamping Voltage @$I_{PP}$ | Peak Pulse Current | Reverse Leakage @$V_{RWM}$ |
|---|---|---|---|---|---|---|---|---|
| UNT-POLAR | BI-POLAR | $V_{RWM}$(V) | $V_{BR\ MIN.}$(V) | $V_{BR\ MAX.}$(V) | $I_T$(mA) | $V_C$(V) | $I_{PP}$(A) | $I_R$(μA) |
| P6KE6.8A | P6KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 58.1 | 1000 |
| P6KE7.5A | P6KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 54.0 | 500 |
| P6KE8.2A | P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.4 | 200 |
| P6KE9.1A | P6KE9.1CA | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.5 | 50 |
| P6KE10A | P6KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 42.1 | 10 |
| P6KE11A | P6KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 39.1 | 5 |
| P6KE12A | P6KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.5 | 5 |
| P6KE13A | P6KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.5 | 1 |
| P6KE15A | P6KE15CA | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.8 | 1 |
| P6KE16A | P6KE16CA | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.1 | 1 |
| P6KE18A | P6KE18CA | 15.30 | 17.10 | 18.90 | 1 | 25.2 | 24.2 | 1 |
| P6KE20A | P6KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 1 |
| P6KE22A | P6KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 19.9 | 1 |
| P6KE24A | P6KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.4 | 1 |
| P6KE27A | P6KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.3 | 1 |

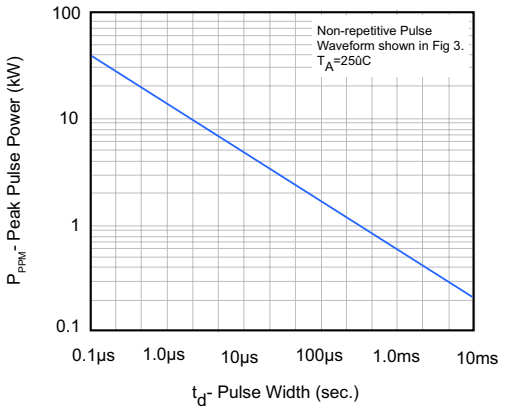
## ELECTRICAL CHARACTERISTICS

| Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@$I_T$ | Breakdown Voltage MAX.@$I_T$ | Test Current | Maximum Clamping Voltage @$I_{PP}$ | Peak Pulse Current | Reverse Leakage @$V_{RWM}$ |
|---|---|---|---|---|---|---|---|---|
| UNT-POLAR | BI-POLAR | $V_{RWM}$(V) | $V_{BR\ MIN.}$(V) | $V_{BR\ MAX.}$(V) | $I_T$(mA) | $V_C$(V) | $I_{PP}$(A) | $I_R$(μA) |
| P6KE30A | P6KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.7 | 1 |
| P6KE33A | P6KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.3 | 1 |
| P6KE36A | P6KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.2 | 1 |
| P6KE39A | P6KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.3 | 1 |
| P6KE43A | P6KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.3 | 1 |
| P6KE47A | P6KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.4 | 1 |
| P6KE51A | P6KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.7 | 1 |
| P6KE56A | P6KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.9 | 1 |
| P6KE62A | P6KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.2 | 1 |
| P6KE68A | P6KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.6 | 1 |
| P6KE75A | P6KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.9 | 1 |
| P6KE82A | P6KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.4 | 1 |
| P6KE91A | P6KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.9 | 1 |
| P6KE100A | P6KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.5 | 1 |
| P6KE110A | P6KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 1 |
| P6KE120A | P6KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.7 | 1 |
| P6KE130A | P6KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.4 | 1 |
| P6KE150A | P6KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 1 |
| P6KE160A | P6KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.8 | 1 |
| P6KE170A | P6KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 1 |
| P6KE180A | P6KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.5 | 1 |
| P6KE200A | P6KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 1 |
| P6KE220A | P6KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 1 |
| P6KE250A | P6KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.8 | 1 |
| P6KE300A | P6KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 1 |
| P6KE350A | P6KE350CA | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 1 |
| P6KE400A | P6KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.1 | 1 |
| P6KE440A | P6KE440CA | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 1.04 | 1 |
| P6KE480A | P6KE480CA | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.9 | 1 |
| P6KE510A | P6KE510CA | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.9 | 1 |
| P6KE530A | P6KE530CA | 450.00 | 503.50 | 556.50 | 1 | 725.0 | 0.8 | 1 |
| P6KE540A | P6KE540CA | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.8 | 1 |
| P6KE550A | P6KE550CA | 467.00 | 522.50 | 577.50 | 1 | 760.0 | 0.8 | 1 |
| P6KE600A | P6KE600CA | 512.00 | 570.00 | 630.00 | 1 | 828.0 | 0.75 | 1 |

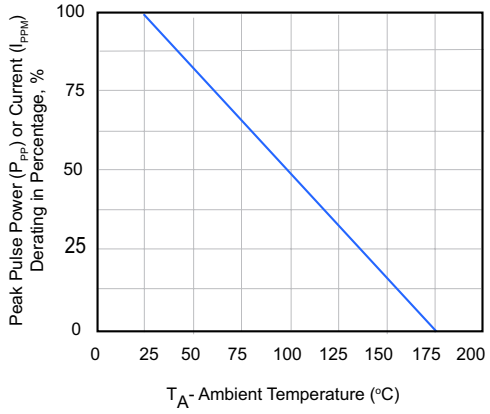
Notes: For bidirectional type having $V_{RWM}$ of 10 volts and less, the $I_R$ limit is double.

# RATINGS AND CHARACTERISTIC CURVES (TA=25℃ unless otherwise noted)

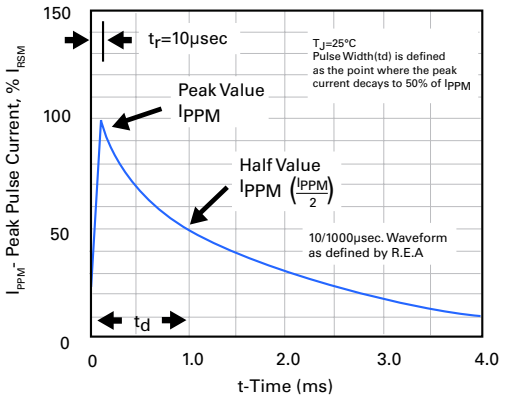
## Figure 1 - Peak Pulse Power Rating Curve



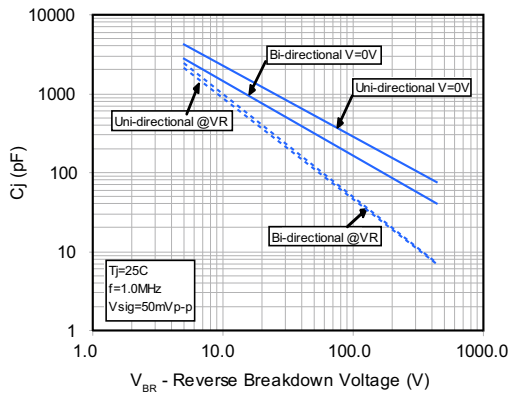

## Figure 2 - Pulse Derating Curve



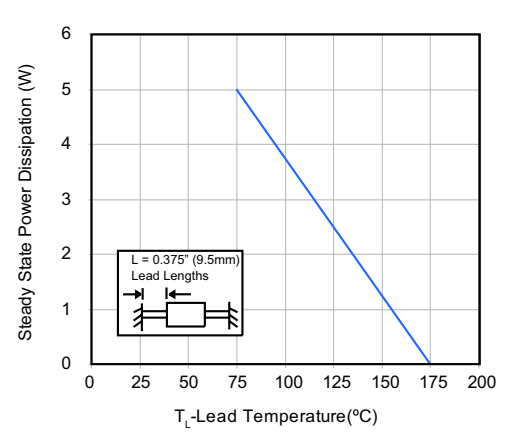

## Figure 3 - Pulse Waveform




## Figure 4 - Typical Junction Capacitance Uni-Directional




## Figure 5 - Steady State Power Dissipation Derating Curve




## Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

