## FEATURES



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

- Glass passivated junction.
- 600W Peak Pulse Power capability at1.0 ms.
- Excellent clamping capability.
- Low incremental surge resistance.
- Very fast response time;
- Typical $I_R$ less than 1.0μA above 10V.

## MECHANICAL DATA

- Case: Molded plastic
- Lead: Pure tin plated lead free, solderable per MIL-STD-202, Method 208.
- Polarity : Color band denotes cathode except bipolar.
- Weight : 0.42 gram.

## DEVICES FOR BIPOLAR APPLICATIONS

- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

## MAXIMUM RATINGS AND CHARACTERISTICS

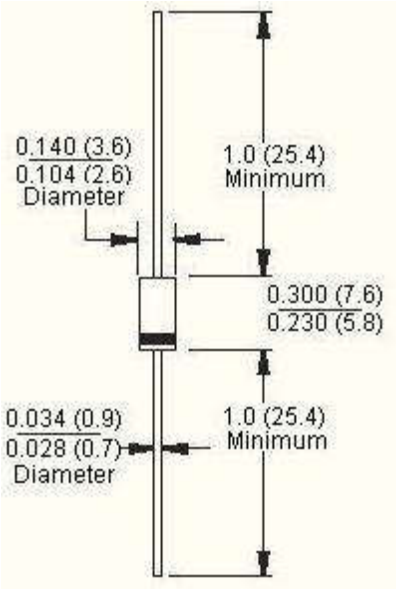
Ratings at $T_A$=25°C unless otherwise specified.

| Type Number | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power Dissipation with 10/1000μs waveform (Note 1) | $P_{PPK}$ | Minimum 600 | Watts |
| Steady State Power Dissipation at $T_L$= 75°C Lead Lengths 0.375 Inch 9.5mm (Note 2) | $P_D$ | 5.0 | |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 3) | $I_{FSM}$ | 100 | Amps |
| Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only (Note 4) | $V_F$ | 3.5 / 5.0 | Volts |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to + 175 | °C |

Notes: 1. Non-repetitive current pulse and derated above $T_A$= 25°C.
2. Mounted on copper pad area of 1.6 x 1.6 inch (40 x 40mm) per.
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.
4. $V_F$= 3.5V for devices of $V_{BR} \leq$ 200V and $V_F$= 5.0V maximum for devices of $V_{BR}$>200V.

## PACKAGE DIMENSIONS

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




## ORDERING INFORMATION

P6KE □□□ C A

- A — 5% Voltage Tolerance
- C — Bi-Directional
- □□□ — Nominal Breakdown Voltage

## PACKAGING

| Part Number | Component Package | Quantity |
|---|---|---|
| P6KExxxA/CA | DO-204AC/DO-15 | 2000 |

# ELECTRICAL CHARACTERISTICS

| P6KE DEVICES | Reverse Stand-off Voltage | Breakdown Voltage Min.@$I_T$ | Breakdown Voltage Max.@$I_T$ | Test Current | Maximum Clamping Voltage @$I_{ppm}$ | Maximum Peak Pulse Current | Maximum Reverse Leakage @$V_{RWM}$ |
|---|---|---|---|---|---|---|---|
| | $V_{RWM}$(v) | $V_{BR\ Min.}$(V) | $V_{BR\ Max.}$(V) | $I_T$ (mA) | $V_C$ (V) | $I_{ppm}$ (A) | $I_R$ (uA) |
| P6KE6.8CA/A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 57.0 | 1000 |
| P6KE7.5CA/A | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 53.0 | 500 |
| P6KE8.2CA/A | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.0 | 200 |
| P6KE9.1CA/A | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.0 | 50 |
| P6KE10CA/A | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 41.0 | 10 |
| P6KE11CA/A | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 38.0 | 1 |
| P6KE12CA/A | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.0 | 1 |
| P6KE13CA/A | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.0 | 1 |
| P6KE15CA/A | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.0 | 1 |
| P6KE16CA/A | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.0 | 1 |
| P6KE18CA/A | 15.30 | 17.10 | 18.90 | 1 | 25.2 | 24.0 | 1 |
| P6KE20CA/A | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 1 |
| P6KE22CA/A | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 20.0 | 1 |
| P6KE24CA/A | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.0 | 1 |
| P6KE27CA/A | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.0 | 1 |
| P6KE30CA/A | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.4 | 1 |
| P6KE33CA/A | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.2 | 1 |
| P6KE36CA/A | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.0 | 1 |
| P6KE39CA/A | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.2 | 1 |
| P6KE43CA/A | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.1 | 1 |
| P6KE47CA/A | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.3 | 1 |
| P6KE51CA/A | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.6 | 1 |
| P6KE56CA/A | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.8 | 1 |
| P6KE62CA/A | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.1 | 1 |
| P6KE68CA/A | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.5 | 1 |
| P6KE75CA/A | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.8 | 1 |
| P6KE82CA/A | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.3 | 1 |
| P6KE91CA/A | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.8 | 1 |
| P6KE100CA/A | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.4 | 1 |
| P6KE110CA/A | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 1 |
| P6KE120CA/A | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.6 | 1 |
| P6KE130CA/A | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.3 | 1 |
| P6KE150CA/A | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 1 |
| P6KE160CA/A | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.7 | 1 |
| P6KE170CA/A | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 1 |
| P6KE180CA/A | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.4 | 1 |
| P6KE200CA/A | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 1 |
| P6KE220CA/A | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 1 |
| P6KE250CA/A | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.8 | 1 |
| P6KE300CA/A | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 1 |
| P6KE350CA/A | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 1 |
| P6KE400CA/A | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.1 | 1 |
| P6KE440CA/A | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 1.04 | 1 |
| P6KE480CA/A | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.9 | 1 |
| P6KE510CA/A | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.9 | 1 |
| P6KE530CA/A | 450.00 | 503.50 | 556.50 | 1 | 725.0 | 0.8 | 1 |
| P6KE540CA/A | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.8 | 1 |
| P6KE550CA/A | 467.00 | 522.50 | 577.50 | 1 | 760.0 | 0.8 | 1 |

## TYPICAL CHARACTERISTICS

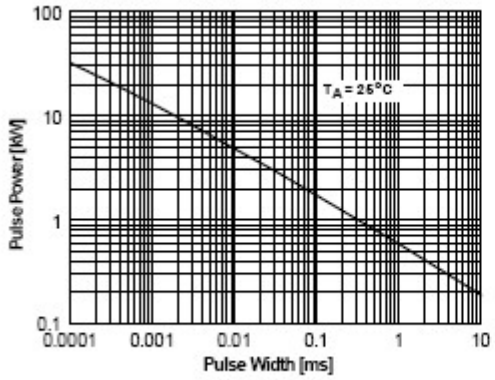



Figure 1. Peak Pulse Power Rating Curve

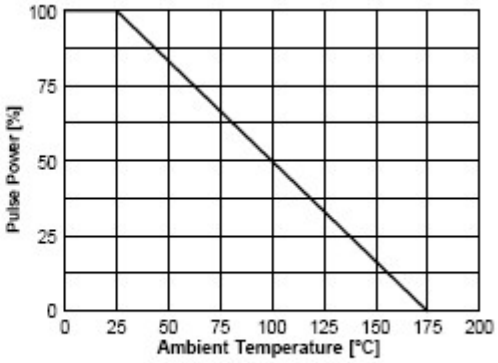



Figure 2. Pulse Derating Curve

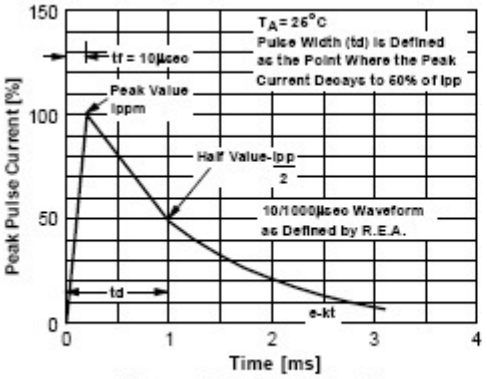



Figure 3. Pulse Waveform

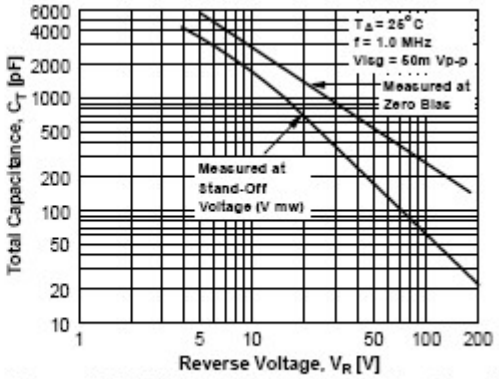



Figure 4. Total Capacitance - Unidirectional

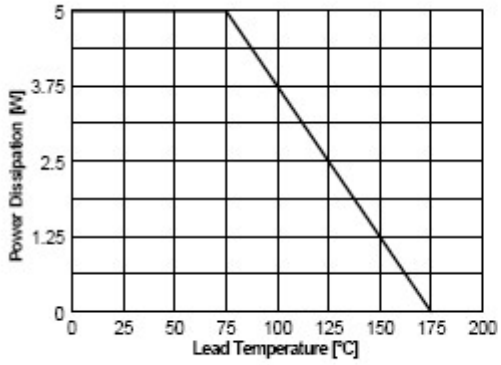



Figure 5. Steady State Power Derating Curve

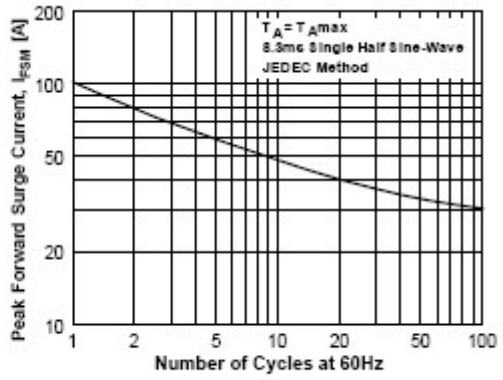



Figure 6. Non-Repetitive Surge Current