

## FEATURES

- Glass passivated junction.
- 600W Peak Pulse Power capability at 1.0 ms.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time; typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0 ns for bidirectional.
- Typical  $I_R$  less than 1.0  $\mu$ A above 10V.



DO-204AC/DO-15

## 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 25 ambient temperature unless otherwise specified.

| Type Number   | Symbol         | Value        | Units              |
|---|----------------|--------------|--------------------|
| Peak Power Dissipation at $T_A= 25^{\circ}\text{C}$ , $T_p= 1\text{ms}$ (Note 1)                              | $P_{PPK}$      | Minimum 600  | Watts              |
| Steady State Power Dissipation at $T_L= 75^{\circ}\text{C}$<br>Lead Lengths 0.375 Inch 9.5mm (Note 2)         | $P_D$          | 3.2          |                    |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave<br>Superimposed on Rated Load (JEDEC method) (Note 3) | $I_{FSM}$      | 40           | Amps               |
| Maximum Instantaneous Forward Voltage at 50.0A for<br>Unidirectional Only (Note 4)                            | $V_F$          | 3.5 / 5.0    | Volts              |
| Operating and Storage Temperature Range   | $T_J, T_{STG}$ | -55 to + 175 | $^{\circ}\text{C}$ |

Notes: Notes: 1. Non-repetitive current pulse and derated above  $T_A= 25^{\circ}\text{C}$ .

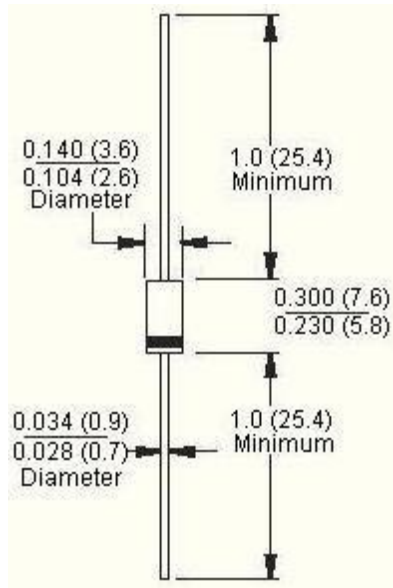
2. Mounted on copper pad area of 1.6 x 1.6 inch (40 x 40mm) per.

3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

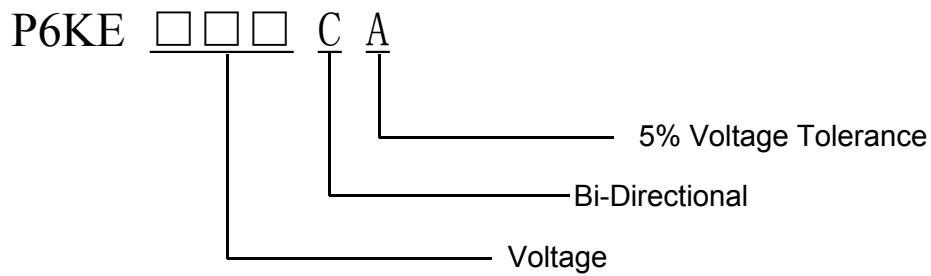
4.  $V_F= 3.5\text{V}$  for devices of  $V_{BR} \leq 200\text{V}$  and  $V_F= 5.0\text{V}$  maximum for devices of  $V_{BR} > 200\text{V}$ .

**PACKAGE DIMENSIONS**

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



**ORDERING INFORMATION**



**PACKAGING**

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

### ELECTRICAL CHARACTERISTICS

| P6KE DEVICES | REVERSE STAND-OFF VOLTAGE<br>$V_{RWM}(V)$ | BREAKDOWN VOLTAGE<br>Min.@ $I_T$ $V_{BR}$<br>Min.(V) | BREAKDOWN VOLTAGE<br>Max.@ $I_T$ $V_{BR}$<br>Max.(V) | TEST CURRENT<br>$I_T(mA)$ | MAXIMUM CLAMPING VOLTAGE<br>@ $I_{pp}$ $V_C(V)$ | PEAK PULSE CURRENT<br>$I_{pp}(A)$ | REVERSE LEAKAGE<br>@ $V_{RWM}$<br>$I_R(\mu A)$ |
|--------------|---|--|--|---------------------------|---|-----------------------------------|--|
| 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  |

### TYPICAL CHARACTERISTICS

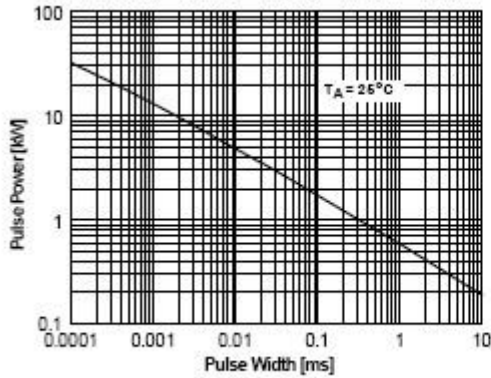


Figure 1. Peak Pulse Power Rating Curve

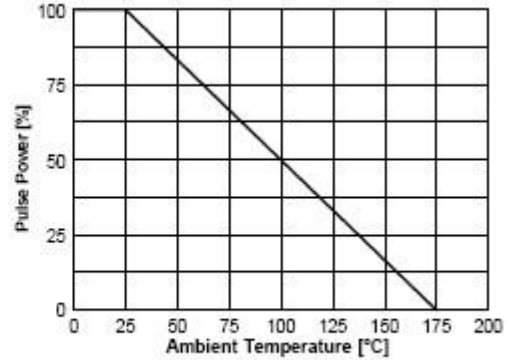


Figure 2. Pulse Derating Curve

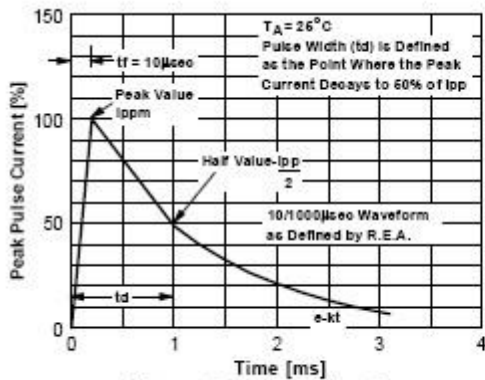


Figure 3. Pulse Waveform

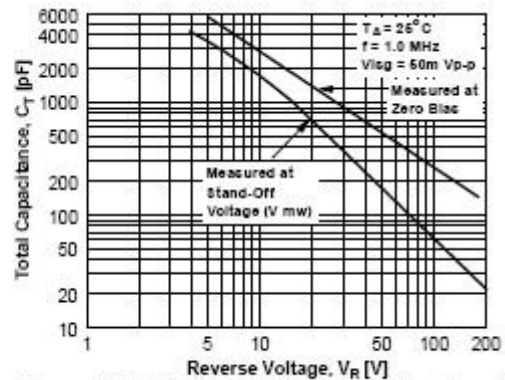


Figure 4. Total Capacitance - Unidirectional

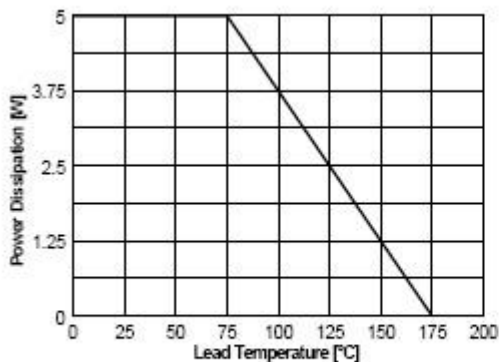


Figure 5. Steady State Power Derating Curve

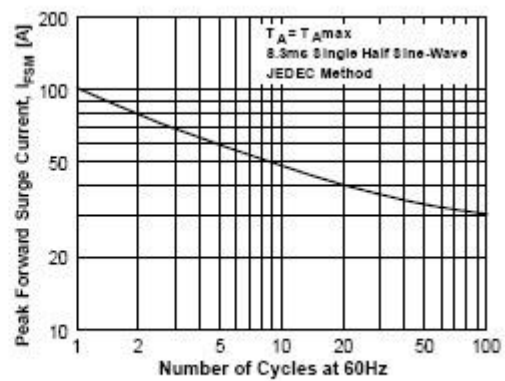


Figure 6. Non-Repertive Surge Current

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