

P6KE Series

Features

- plastic package has underwriters laboratory flammability classification 94v-0
- 600w surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to bv_{min}
- High temperature soldering guaranteed: 260 °C / 10s / .375" (9.5mm) lead length / 5lbs., (2.3kg) tension
- Typical T_R less than 1µs above 10V

Mechanical Data

- Case: Molded plastic
- Terminals: Axial leads solderable per MIL-STD-202, Method 208
- Polarity : color band denoted cathode except
- Weight: 0.014 oz., 0.4 g



Maximum Ratings and Electrical Characteristics @ TA = 25 °C unless otherwise specified

| RATINGS | SYMBOL | VALUE | UNITS |
|--|-----------------------------------|---------------|-------|
| PEAK POWER DISSIPATION AT TA=25 °C, TP=1ms(NOTE 1) | P _{PK} | 600 | WATTS |
| STEADY STATE POWER DISSIPATION AT TL=75 °C LEAD LENGTHS .375"(9.5mm) (NOTE 2) | PD | 5.0 | WATTS |
| PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF SINE-WAVE SUPERIMPOSED ON RATED LOAD (JEDEC METHOD) (NOTE 3) | I _{FSM} | 100 | Amps |
| OPERATING AND STORAGE TEMPERATURE RANGE | T _J , T _{STG} | - 55 TO + 175 | °C |

NOTE :

1. NON-REPETITIVE CURRENT PULSE, PER FIG.3 AND DERATED ABOVE TA=25 °C PER FIG 2.
2. MOUNTED ON COPPER LEAT AREA OF 1.57 IN² (40mm²)
3. 8.3ms SINGLE HALF SINE-WAVE, DUTY CYCLE=4 PULSES PER MINUTES MAXIMUM
4. FOR BIDIRECTIONAL USE C SUFFIX FOR 10% TOLERANCE, CA SUFFIX FOR 5% TOLERANCE

600w Transient Voltage Suppressor

| DEVICE | BREAKDOWN VOLTAGE | | | WORKING PEAK REVERSE VOLTAGE V _{RWM} (VOLTS) | MAXIMUM REVERSE LEAKAGE AT V _{RWM} IR(μA) | MAXIMUM REVERSE CURRENT I _{RSM} (AMPS) | MAX CLAMPING VOLTAGE V _{RWM} (VOLTS) | MAXIMUM TEMPERATURE COEFFICIENT OF V _{BR} (%C) |
|-------------|-------------------------|-------|-------------|---|--|---|---|---|
| | B _{BR} (VOLTS) | | @IT (mA) | | | | | |
| | MIN | MAX | | | | | | |
| P6KE6.8(C) | 6.12 | 7.48 | 10 | 5.50 | 1000 | 56 | 10.8 | 0.057 |
| P6KE6.8(C)A | 6.45 | 7.14 | 10 | 5.80 | 1000 | 57 | 10.5 | 0.057 |
| P6KE7.5(C) | 6.75 | 8.25 | 10 | 6.05 | 500 | 51 | 11.7 | 0.061 |
| P6KE7.5(C)A | 7.13 | 7.88 | 10 | 6.40 | 500 | 53 | 11.3 | 0.061 |
| P6KE8.2(C) | 7.38 | 9.02 | 10 | 6.63 | 200 | 48 | 12.5 | 0.065 |
| P6KE8.2(C)A | 7.79 | 8.61 | 10 | 7.02 | 200 | 50 | 12.1 | 0.065 |
| P6KE9.1(C) | 8.19 | 10.0 | 1.0 | 7.37 | 50 | 44 | 13.8 | 0.068 |
| P6KE9.1(C)A | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 45 | 13.4 | 0.068 |
| P6KE10(C) | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 40 | 15.0 | 0.073 |
| P6KE10(C)A | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 41 | 14.5 | 0.073 |
| P6KE11(C) | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 37 | 16.2 | 0.075 |
| P6KE11(C)A | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 38 | 15.6 | 0.075 |
| P6KE12(C) | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 35 | 17.3 | 0.078 |
| P6KE12(C)A | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 36 | 16.7 | 0.078 |
| P6KE13(C) | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 32 | 19.0 | 0.081 |
| P6KE13(C)A | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 33 | 18.2 | 0.081 |
| P6KE15(C) | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 27 | 22.0 | 0.084 |
| P6KE15(C)A | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 28 | 21.2 | 0.084 |
| P6KE16(C) | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 26 | 23.5 | 0.086 |
| P6KE16(C)A | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 27 | 22.5 | 0.086 |
| P6KE18(C) | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 23 | 26.5 | 0.088 |
| P6KE18(C)A | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 24 | 25.2 | 0.088 |
| P6KE20(C) | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 21 | 29.1 | 0.090 |
| P6KE20(C)A | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 22 | 27.7 | 0.090 |
| P6KE22(C) | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 19 | 31.9 | 0.092 |
| P6KE22(C)A | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 20 | 30.6 | 0.092 |
| P6KE24(C) | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 17 | 34.7 | 0.094 |
| P6KE24(C)A | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 18 | 33.2 | 0.094 |
| P6KE27(C) | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 15 | 39.1 | 0.096 |
| P6KE27(C)A | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 16 | 37.5 | 0.096 |
| P6KE30(C) | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 14 | 43.5 | 0.097 |
| P6KE30(C)A | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 14.4 | 41.4 | 0.097 |
| P6KE33(C) | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 12.6 | 47.7 | 0.098 |
| P6KE33(C)A | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 13.2 | 45.7 | 0.098 |
| P6KE36(C) | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 11.6 | 52.0 | 0.099 |
| P6KE36(C)A | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 12.0 | 49.9 | 0.099 |
| P6KE39(C) | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 10.6 | 56.4 | 0.100 |
| P6KE39(C)A | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 11.2 | 53.9 | 0.100 |
| P6KE43(C) | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 9.6 | 61.9 | 0.101 |
| P6KE43(C)A | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 10.1 | 59.3 | 0.101 |
| P6KE47(C) | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 8.9 | 67.8 | 0.101 |
| P6KE47(C)A | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 9.3 | 64.8 | 0.101 |
| P6KE51(C) | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 8.2 | 73.5 | 0.102 |
| P6KE51(C)A | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 8.6 | 70.1 | 0.102 |
| P6KE56(C) | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 7.4 | 80.5 | 0.103 |
| P6KE56(C)A | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 7.8 | 77.0 | 0.103 |
| P6KE62(C) | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 6.8 | 89.0 | 0.104 |
| P6KE62(C)A | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 7.1 | 85.0 | 0.104 |
| P6KE68(C) | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 6.1 | 98.0 | 0.104 |
| P6KE68(C)A | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 6.5 | 92.0 | 0.104 |
| P6KE75(C) | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 5.5 | 108.0 | 0.105 |
| P6KE75(C)A | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 5.8 | 103.0 | 0.105 |
| P6KE82(C) | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 5.1 | 118.0 | 0.105 |
| P6KE82(C)A | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 5.3 | 113.0 | 0.105 |
| P6KE91(C) | 81.9 | 100.0 | 1.0 | 73.7 | 5.0 | 4.5 | 131.8 | 0.106 |
| P6KE91(C)A | 86.5 | 95.50 | 1.0 | 77.8 | 5.0 | 4.8 | 125.0 | 0.106 |
| P6KE100(C) | 90.0 | 110.0 | 1.0 | 81.0 | 5.0 | 4.2 | 144.0 | 0.106 |
| P6KE100(C)A | 95.0 | 105.0 | 1.0 | 85.5 | 5.0 | 4.4 | 137.0 | 0.106 |

| DEVICE | BREAKDOWN VOLTAGE | | | WORKING PEAK REVERSE VOLTAGE V_{RWM} (VOLTS) | MAXIMUM REVERSE LEAKAGE AT V_{RWM} I_R (μ A) | MAXIMUM REVERSE CURRENT I_{RSM} (AMPS) | MAX CLAMPING VOLTAGE V_{RWM} (VOLTS) | MAXIMUM TEMPERATURE COEFFICIENT OF V_{RR} (%C) |
|-------------|-------------------|-------|-----------------|--|---|--|--|--|
| | B_{BR} (VOLTS) | | @ I_T (mA) | | | | | |
| | MIN | MAX | | | | | | |
| P6KE110(C) | 99.0 | 121.0 | 1.0 | 89.2 | 5.0 | 3.8 | 158.0 | 0.107 |
| P6KE110(C)A | 105.0 | 116.0 | 1.0 | 94.0 | 5.0 | 4.0 | 152.0 | 0.107 |
| P6KE120(C) | 108.0 | 132.0 | 1.0 | 97.2 | 5.0 | 3.5 | 173.0 | 0.107 |
| P6KE120(C)A | 114.0 | 126.0 | 1.0 | 102.0 | 5.0 | 3.6 | 165.0 | 0.107 |
| P6KE130(C) | 117.0 | 143.0 | 1.0 | 105.0 | 5.0 | 3.2 | 187.0 | 0.107 |
| P6KE130(C)A | 124.0 | 137.0 | 1.0 | 111.0 | 5.0 | 3.3 | 179.0 | 0.107 |
| P6KE150(C) | 135.0 | 165.0 | 1.0 | 121.0 | 5.0 | 2.8 | 215.0 | 0.108 |
| P6KE150(C)A | 143.0 | 158.0 | 1.0 | 128.0 | 5.0 | 2.9 | 207.0 | 0.108 |
| P6KE160(C) | 144.0 | 176.0 | 1.0 | 130.0 | 5.0 | 2.6 | 230.0 | 0.108 |
| P6KE160(C)A | 152.0 | 168.0 | 1.0 | 136.0 | 5.0 | 2.7 | 219.0 | 0.108 |
| P6KE170(C) | 153.0 | 187.0 | 1.0 | 138.0 | 5.0 | 2.5 | 244.0 | 0.108 |
| P6KE170(C)A | 162.0 | 179.0 | 1.0 | 145.0 | 5.0 | 2.6 | 234.0 | 0.108 |
| P6KE180(C) | 162.0 | 198.0 | 1.0 | 146.0 | 5.0 | 2.3 | 258.0 | 0.108 |
| P6KE180(C)A | 171.0 | 189.0 | 1.0 | 154.0 | 5.0 | 2.4 | 246.0 | 0.108 |
| P6KE200(C) | 180.0 | 220.0 | 1.0 | 162.0 | 5.0 | 2.1 | 287.0 | 0.108 |
| P6KE200(C)A | 190.0 | 210.0 | 1.0 | 171.0 | 5.0 | 2.2 | 274.0 | 0.108 |
| P6KE220(C) | 198.0 | 242.0 | 1.0 | 175.0 | 5.0 | 1.75 | 344.0 | 0.108 |
| P6KE220(C)A | 209.0 | 231.0 | 1.0 | 185.0 | 5.0 | 1.83 | 328.0 | 0.108 |
| P6KE250(C) | 225.0 | 275.0 | 1.0 | 202.0 | 5.0 | 1.67 | 360.0 | 0.110 |
| P6KE250(C)A | 237.0 | 263.0 | 1.0 | 214.0 | 5.0 | 1.75 | 344.0 | 0.110 |
| P6KE300(C) | 270.0 | 330.0 | 1.0 | 243.0 | 5.0 | 1.4 | 430.0 | 0.110 |
| P6KE300(C)A | 285.0 | 315.0 | 1.0 | 256.0 | 5.0 | 1.45 | 414.0 | 0.110 |
| P6KE350(C) | 315.0 | 385.0 | 1.0 | 284.0 | 5.0 | 1.2 | 504.0 | 0.110 |
| P6KE350(C)A | 332.0 | 368.0 | 1.0 | 300.0 | 5.0 | 1.25 | 482.0 | 0.110 |
| P6KE400(C) | 360.0 | 440.0 | 1.0 | 324.0 | 5.0 | 1.05 | 574.0 | 0.110 |
| P6KE400(C)A | 380.0 | 420.0 | 1.0 | 342.0 | 5.0 | 1.1 | 548.0 | 0.110 |
| P6KE440(C) | 396.0 | 484.0 | 1.0 | 356.0 | 5.0 | 0.95 | 630.0 | 0.113 |
| P6KE440(C)A | 418.0 | 462.0 | 1.0 | 376.0 | 5.0 | 1.00 | 600.0 | 0.113 |

NOTES :

- V_{BR} MEASURED AFTER I_T APPLIED FOR 300 μ S, I_T =SQUARE WAVE PULSE OR EQUIVALENT
- SURGE CURRENT WAVEFORM PER FIGURE 3 AND DERATED PER FIGUE 2.
- $V_F=3.5V$ AT $I_F=50A$ (P6KE6.8 THRU P6KE91A)
 $V_F=5.0V$ AT $I_F=50A$ (P6KE100 THRU P6KE440A) ON 1/2 SQUARE OR EQUIVALENT SINE WAVE.
PW=8.3ms, DUTY CYCLE=4 PULSES PER MINUTE MXIMUM
- FOR BIPOLAR TYPES HAVING V_{RWM} OF 10 VOLTS AND UNDER, THE I_R LIMIT IS DOUBLED

FIG. 1 - PEAK PULSE POWER RATING CURVE



FIG. 2 - PULSE DERATING CURVE



FIG. 3 - PULSE WAVEFORM



FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

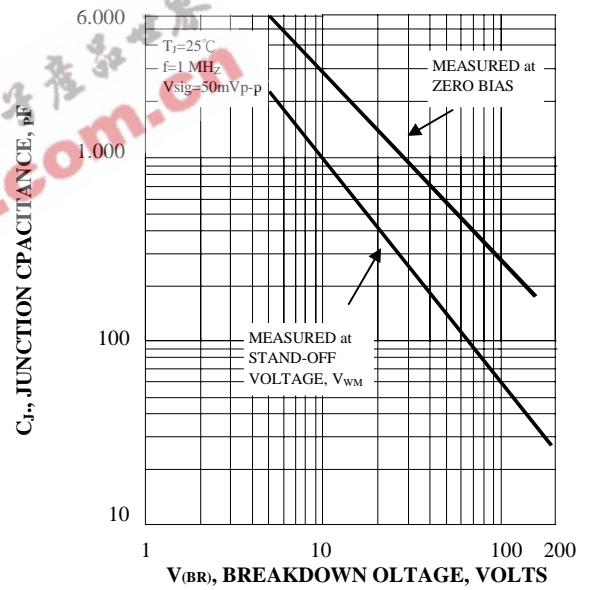


FIG. 5 - STEADY STATE POWER DERATING CURVE

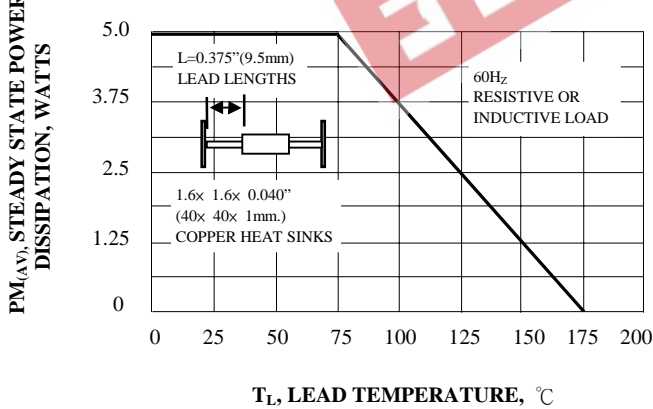
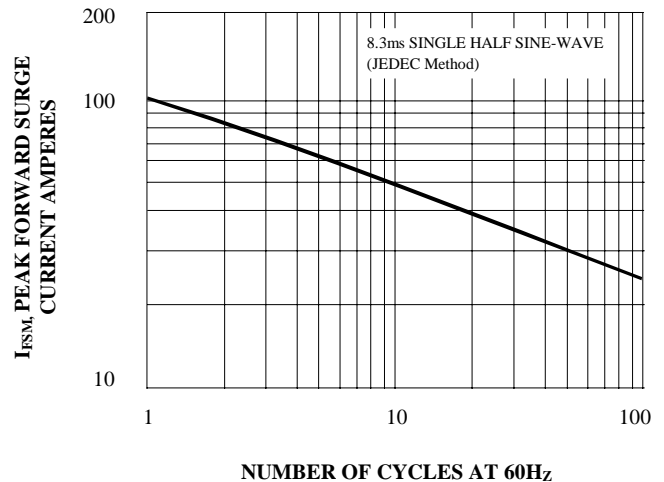


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



IO, INSTANTANEOUS REVERSE LEAKAGE CURRENT, MICROAMPERES

FIG. 7 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS

