

P6KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR
VOLTAGE – 6.8 to 440 Volts
600 Watt Peak Power 5.0 Watt Steady State

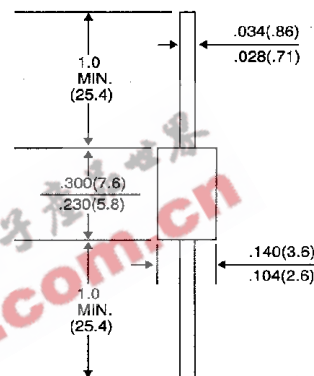
FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction in DO-15 package
- 600W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: JEDEC DO-15 Molded plastic
 Terminals: Axial leads, solderable per MIL-STD-202, Method 208
 Polarity: Color band denoted cathode except Bipolar
 Mounting Position: Any
 Weight: 0.015 ounce, 0.4 gram

DO-15



Dimensions in inches and (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6KE6.8 thru types P6KE440.
 Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
 Single phase, half wave, 60 Hz, resistive or inductive load.
 For capacitive load, derate current by 20%.

| RATING | SYMBOL | VALUE | UNITS |
|--|----------------|-------------|-------|
| Peak Power Dissipation at $T_A = 25^\circ C$, $T_P = 1ms$ (NOTE 1) | P_{PK} | Minimum 600 | Watts |
| Steady State Power Dissipation at $T_L = 75^\circ C$ 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} | -65 to +175 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ C$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in² (40mm²).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.

RATING AND CHARACTERISTIC CURVES
P6KE SERIES

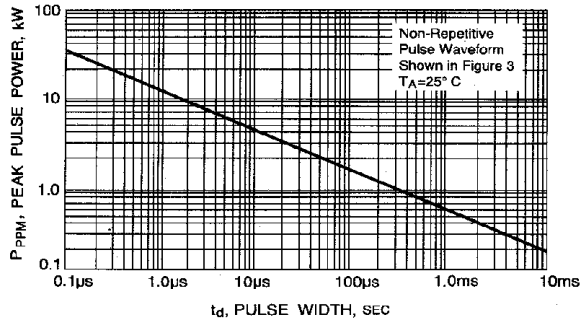


FIG. 1-PEAK PULSE POWER RATING CURVE

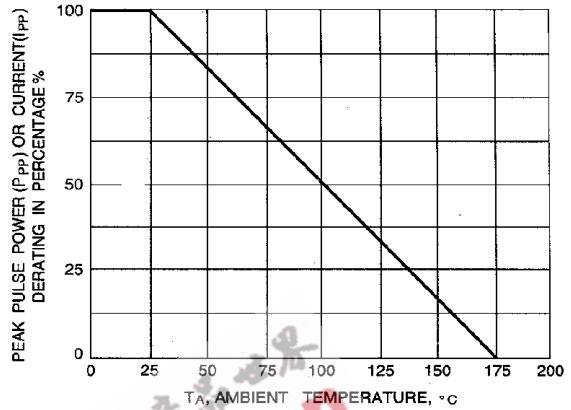


FIGURE 2-PULSE DERATING CURVE

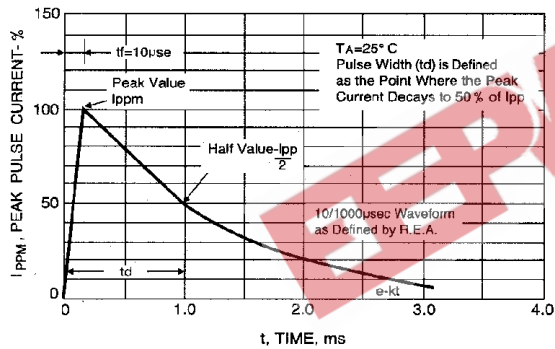


FIGURE 3-PULSE WAVEFORM

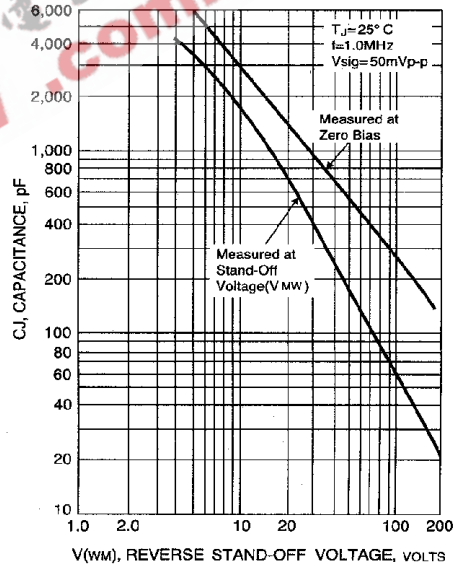


FIG. 4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

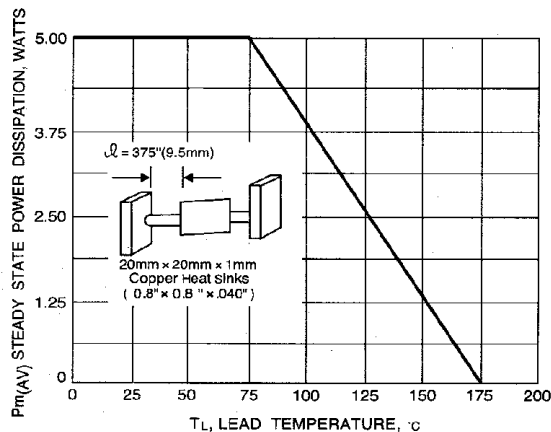


FIG. 5-STEADY STATE POWER DERATING CURVE

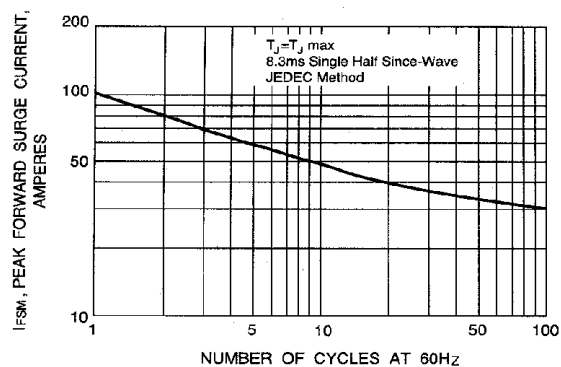


FIG. 6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT UNIDIRECTIONAL



UNI-DIRECTIONAL 600 Watt Axial Lead TVS

| UNI-DIRECTIONAL PART NUMBER | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE (V) MIN. @ IT | BREAKDOWN VOLTAGE (V) MAX. @ IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @ Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR (uA) |
|-----------------------------|------------------------------------|---------------------------------|---------------------------------|----------------------|---------------------------------------|----------------------------|--------------------------------|
| P6KE6.8 | 5.50 | 6.12 | 7.48 | 10 | 10.8 | 58.0 | 1000 |
| P6KE6.8A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 57.0 | 1000 |
| P6KE7.5 | 6.05 | 6.75 | 8.25 | 10 | 11.7 | 51.0 | 500 |
| P6KE7.5A | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 53.0 | 500 |
| P6KE8.2 | 6.63 | 7.38 | 9.02 | 10 | 12.5 | 48.0 | 200 |
| P6KE8.2A | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.0 | 200 |
| P6KE9.1 | 7.37 | 8.19 | 10.00 | 1 | 13.8 | 44.0 | 50 |
| P6KE9.1A | 7.78 | 8.65 | 9.50 | 1 | 13.4 | 45.0 | 50 |
| P6KE10 | 8.10 | 9.00 | 11.00 | 1 | 15.0 | 40.0 | 10 |
| P6KE10A | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 41.0 | 5 |
| P6KE11 | 8.92 | 9.90 | 12.10 | 1 | 16.2 | 37.0 | 5 |
| P6KE11A | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 38.0 | 5 |
| P6KE12 | 9.72 | 10.80 | 13.20 | 1 | 17.3 | 35.0 | 5 |
| P6KE12A | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.0 | 5 |
| P6KE13 | 10.50 | 11.70 | 14.30 | 1 | 19.0 | 32.0 | 5 |
| P6KE13A | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.0 | 5 |
| P6KE15 | 12.10 | 13.50 | 16.50 | 1 | 22.0 | 27.0 | 5 |
| P6KE15A | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 26.0 | 5 |
| P6KE16 | 12.90 | 14.40 | 17.60 | 1 | 23.5 | 25.0 | 5 |
| P6KE16A | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.0 | 5 |
| P6KE18 | 14.50 | 16.20 | 19.80 | 1 | 26.5 | 23.0 | 5 |
| P6KE18A | 15.30 | 17.10 | 18.90 | 1 | 25.2 | 24.0 | 5 |
| P6KE20 | 16.20 | 18.00 | 22.00 | 1 | 29.1 | 21.0 | 5 |
| P6KE20A | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 5 |
| P6KE22 | 17.80 | 19.80 | 24.20 | 1 | 31.9 | 19.0 | 5 |
| P6KE22A | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 20.0 | 5 |
| P6KE24 | 19.40 | 21.60 | 26.40 | 1 | 34.7 | 17.0 | 5 |
| P6KE24A | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.0 | 5 |
| P6KE27 | 21.80 | 24.30 | 29.70 | 1 | 39.1 | 15.0 | 5 |
| P6KE27A | 23.10 | 25.70 | 28.10 | 1 | 37.5 | 16.0 | 5 |
| P6KE30 | 24.30 | 27.00 | 33.00 | 1 | 43.5 | 14.0 | 5 |
| P6KE30A | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.4 | 5 |
| P6KE33 | 26.80 | 29.70 | 36.30 | 1 | 47.7 | 12.6 | 5 |
| P6KE33A | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.2 | 5 |
| P6KE36 | 29.10 | 32.40 | 39.60 | 1 | 52.0 | 11.6 | 5 |
| P6KE36A | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.0 | 5 |
| P6KE39 | 31.60 | 35.10 | 42.90 | 1 | 56.4 | 10.6 | 5 |
| P6KE39A | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.2 | 5 |
| P6KE43 | 34.50 | 38.70 | 47.30 | 1 | 61.9 | 9.6 | 5 |
| P6KE43A | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.1 | 5 |
| P6KE47 | 38.10 | 42.30 | 51.70 | 1 | 67.8 | 8.9 | 5 |
| P6KE47A | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.3 | 5 |
| P6KE51 | 41.30 | 45.90 | 56.10 | 1 | 73.5 | 8.2 | 5 |
| P6KE51A | 43.80 | 48.50 | 53.60 | 1 | 70.1 | 8.6 | 5 |
| P6KE56 | 45.60 | 50.40 | 61.60 | 1 | 80.5 | 7.4 | 5 |
| P6KE56A | 47.60 | 53.20 | 58.80 | 1 | 77.0 | 7.8 | 5 |
| P6KE62 | 50.20 | 55.80 | 68.20 | 1 | 89.0 | 6.8 | 5 |
| P6KE62A | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.1 | 5 |
| P6KE68 | 55.10 | 61.20 | 74.80 | 1 | 98.0 | 6.1 | 5 |
| P6KE68A | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.5 | 5 |
| P6KE75 | 60.70 | 67.50 | 82.50 | 1 | 108.0 | 5.5 | 5 |
| P6KE75A | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.8 | 5 |
| P6KE82 | 66.40 | 73.80 | 90.20 | 1 | 118.0 | 5.1 | 5 |
| P6KE82A | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.3 | 5 |
| P6KE91 | 73.70 | 81.90 | 100.00 | 1 | 131.0 | 4.5 | 5 |
| P6KE91A | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.8 | 5 |
| P6KE100 | 81.00 | 90.00 | 110.00 | 1 | 144.0 | 4.2 | 5 |
| P6KE100A | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.4 | 5 |
| P6KE110 | 89.20 | 99.00 | 121.00 | 1 | 158.0 | 3.8 | 5 |
| P6KE110A | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 5 |
| P6KE120 | 97.20 | 108.00 | 132.00 | 1 | 173.0 | 3.5 | 5 |
| P6KE120A | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.6 | 5 |
| P6KE130 | 105.00 | 117.00 | 143.00 | 1 | 187.0 | 3.2 | 5 |
| P6KE130A | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.3 | 5 |
| P6KE150 | 121.00 | 135.00 | 165.00 | 1 | 215.0 | 2.8 | 5 |
| P6KE150A | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 5 |
| P6KE160 | 130.00 | 144.00 | 176.00 | 1 | 230.0 | 2.6 | 5 |
| P6KE160A | 138.00 | 152.00 | 168.00 | 1 | 219.0 | 2.7 | 5 |
| P6KE170 | 138.00 | 153.00 | 187.00 | 1 | 244.0 | 2.5 | 5 |
| P6KE170A | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 5 |
| P6KE180 | 148.00 | 162.00 | 198.00 | 1 | 258.0 | 2.3 | 5 |
| P6KE180A | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.4 | 5 |
| P6KE200 | 162.00 | 180.00 | 220.00 | 1 | 287.0 | 2.1 | 5 |
| P6KE200A | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 5 |
| P6KE220 | 175.00 | 198.00 | 242.00 | 1 | 344.0 | 1.8 | 5 |
| P6KE220A | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 5 |
| P6KE250 | 202.00 | 225.00 | 275.00 | 1 | 360.0 | 1.7 | 5 |
| P6KE250A | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.8 | 5 |
| P6KE300 | 243.00 | 270.00 | 330.00 | 1 | 430.0 | 1.4 | 5 |
| P6KE300A | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 5 |
| P6KE350 | 284.00 | 315.00 | 385.00 | 1 | 504.0 | 1.2 | 5 |
| P6KE350A | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 5 |
| P6KE400 | 324.00 | 360.00 | 440.00 | 1 | 574.0 | 1.05 | 5 |
| P6KE400A | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.10 | 5 |
| P6KE440 | 356.00 | 396.00 | 484.00 | 1 | 631.0 | 0.99 | 5 |
| P6KE440A | 376.00 | 418.00 | 462.00 | 1 | 600.0 | 1.04 | 5 |



BI-DIRECTIONAL 600 Watt Axial Lead TVS

| BI-DIRECTIONAL PART NUMBER | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @ IT | BREAKDOWN VOLTAGE VBR (V) MAX. @ IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @ Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR (uA) |
|----------------------------|------------------------------------|-------------------------------------|-------------------------------------|----------------------|---------------------------------------|----------------------------|--------------------------------|
| P6KE6.8C | 5.50 | 6.12 | 7.48 | 10 | 10.8 | 56.0 | 2000 |
| P6KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 57.0 | 2000 |
| P6KE7.5C | 6.05 | 6.75 | 8.25 | 10 | 11.7 | 51.0 | 1000 |
| P6KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 53.0 | 1000 |
| P6KE8.2C | 6.63 | 7.38 | 9.02 | 10 | 12.5 | 48.0 | 400 |
| P6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.0 | 400 |
| P6KE9.1C | 7.37 | 8.19 | 10.00 | 1 | 13.8 | 44.0 | 100 |
| P6KE9.1CA | 7.78 | 8.65 | 9.50 | 1 | 13.4 | 45.0 | 100 |
| P6KE10C | 8.10 | 9.00 | 11.00 | 1 | 15.0 | 40.0 | 20 |
| P6KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 41.0 | 20 |
| P6KE11C | 8.92 | 9.90 | 12.10 | 1 | 16.2 | 37.0 | 10 |
| P6KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 38.0 | 10 |
| P6KE12C | 9.72 | 10.80 | 13.20 | 1 | 17.3 | 35.0 | 5 |
| P6KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.0 | 5 |
| P6KE13C | 10.50 | 11.70 | 14.30 | 1 | 19.0 | 32.0 | 5 |
| P6KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.0 | 5 |
| P6KE15C | 12.10 | 13.50 | 16.50 | 1 | 22.0 | 27.0 | 5 |
| P6KE15CA | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.0 | 5 |
| P6KE16C | 12.90 | 14.40 | 17.60 | 1 | 23.5 | 25.0 | 5 |
| P6KE16CA | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.0 | 5 |
| P6KE18C | 14.50 | 16.20 | 19.80 | 1 | 26.5 | 23.0 | 5 |
| P6KE18CA | 15.30 | 17.10 | 18.90 | 1 | 25.2 | 24.0 | 5 |
| P6KE20C | 16.20 | 18.00 | 22.00 | 1 | 29.1 | 21.0 | 5 |
| P6KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 5 |
| P6KE22C | 17.80 | 19.80 | 24.20 | 1 | 31.9 | 19.0 | 5 |
| P6KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 20.0 | 5 |
| P6KE24C | 19.40 | 21.60 | 26.40 | 1 | 34.7 | 17.0 | 5 |
| P6KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.0 | 5 |
| P6KE27C | 21.80 | 24.30 | 29.70 | 1 | 39.1 | 15.0 | 5 |
| P6KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.0 | 5 |
| P6KE30C | 24.30 | 27.00 | 33.00 | 1 | 43.5 | 14.0 | 5 |
| P6KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.4 | 5 |
| P6KE33C | 26.80 | 29.70 | 36.30 | 1 | 47.7 | 12.8 | 5 |
| P6KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.2 | 5 |
| P6KE36C | 29.10 | 32.40 | 39.60 | 1 | 52.0 | 11.6 | 5 |
| P6KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.0 | 5 |
| P6KE39C | 31.60 | 36.10 | 42.80 | 1 | 56.4 | 10.6 | 5 |
| P6KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.2 | 5 |
| P6KE43C | 34.80 | 38.70 | 47.30 | 1 | 61.9 | 9.6 | 5 |
| P6KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.1 | 5 |
| P6KE47C | 38.10 | 42.30 | 51.70 | 1 | 67.8 | 8.9 | 5 |
| P6KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.3 | 5 |
| P6KE51C | 41.30 | 45.90 | 56.10 | 1 | 73.5 | 8.2 | 5 |
| P6KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.6 | 5 |
| P6KE56C | 45.60 | 50.40 | 61.60 | 1 | 80.5 | 7.4 | 5 |
| P6KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.8 | 5 |
| P6KE62C | 50.20 | 55.80 | 68.20 | 1 | 89.0 | 6.8 | 5 |
| P6KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.1 | 5 |
| P6KE68C | 55.10 | 61.20 | 74.80 | 1 | 98.0 | 6.1 | 5 |
| P6KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.5 | 5 |
| P6KE75C | 60.70 | 67.50 | 82.50 | 1 | 108.0 | 5.5 | 5 |
| P6KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.8 | 5 |
| P6KE82C | 66.40 | 73.80 | 90.20 | 1 | 118.0 | 5.1 | 5 |
| P6KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.3 | 5 |
| P6KE91C | 73.70 | 81.90 | 100.00 | 1 | 131.0 | 4.5 | 5 |
| P6KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.8 | 5 |
| P6KE100C | 81.00 | 90.00 | 110.00 | 1 | 144.0 | 4.2 | 5 |
| P6KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.4 | 5 |
| P6KE110C | 89.20 | 99.00 | 121.00 | 1 | 158.0 | 3.8 | 5 |
| P6KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 5 |
| P6KE120C | 97.20 | 108.00 | 132.00 | 1 | 173.0 | 3.5 | 5 |
| P6KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.6 | 5 |
| P6KE130C | 105.00 | 117.00 | 143.00 | 1 | 187.0 | 3.2 | 5 |
| P6KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.3 | 5 |
| P6KE150C | 121.00 | 135.00 | 165.00 | 1 | 215.0 | 2.8 | 5 |
| P6KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 5 |
| P6KE160C | 130.00 | 144.00 | 176.00 | 1 | 230.0 | 2.6 | 5 |
| P6KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.7 | 5 |
| P6KE170C | 138.00 | 153.00 | 187.00 | 1 | 244.0 | 2.5 | 5 |
| P6KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 5 |
| P6KE180C | 146.00 | 162.00 | 198.00 | 1 | 258.0 | 2.3 | 5 |
| P6KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.4 | 5 |
| P6KE200C | 162.00 | 180.00 | 220.00 | 1 | 287.0 | 2.1 | 5 |
| P6KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 5 |
| P6KE220C | 175.00 | 198.00 | 242.00 | 1 | 344.0 | 1.8 | 5 |
| P6KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 5 |
| P6KE250C | 202.00 | 225.00 | 275.00 | 1 | 360.0 | 1.7 | 5 |
| P6KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.8 | 5 |
| P6KE300C | 243.00 | 270.00 | 330.00 | 1 | 430.0 | 1.4 | 5 |
| P6KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 5 |
| P6KE350C | 284.00 | 315.00 | 385.00 | 1 | 504.0 | 1.2 | 5 |
| P6KE350CA | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 5 |
| P6KE400C | 324.00 | 360.00 | 440.00 | 1 | 574.0 | 1.05 | 5 |
| P6KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.10 | 5 |
| P6KE440C | 356.00 | 396.00 | 484.00 | 1 | 631.0 | 0.99 | 5 |
| P6KE440CA | 376.00 | 418.00 | 462.00 | 1 | 600.0 | 1.04 | 5 |