



P6KE SERIES

TRANSIENT VOLTAGE SUPPRESSOR DIODES

Voltage Range
6.8 to 400 Volts
600 Watts Peak Power
2.0 Watts Steady State

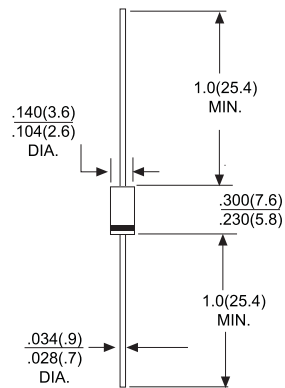
Features

- *Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- *Exceeds environmental standards of MIL-STD-19500
- *600W surge capability at 10 x 100us waveform, duty cycle: 0.01%
- *Excellent clamping capability
- *Low zener impedance
- *Fast response time: Typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0 ns for bidirectional
- *Typical IR less than 1uA above 10V
- *High temperature soldering guaranteed: 250°C/ 10 seconds/ .375", (9.5mm) lead length / 5lbs., (2.3kg) tension

Mechanical Data

- *Cases: Molded plastic
- *Lead: Axial leads, solderable per MIL-STD-202, Method 208
- *Polarity: Color band denotes cathode except bipolar
- *Weight: 0.34 gram

DO-15



Dimensions in inches and (millimeters)

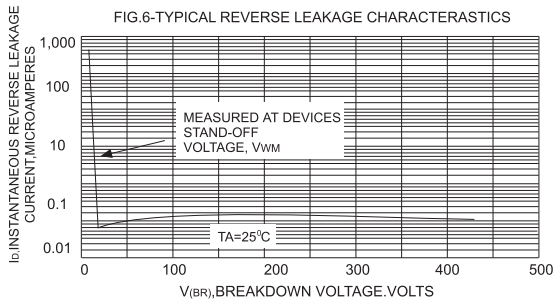
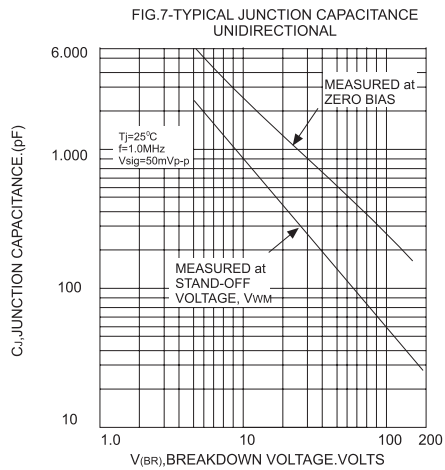
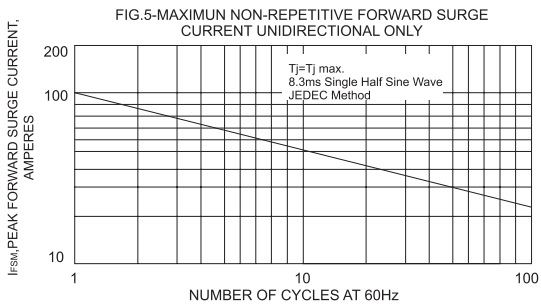
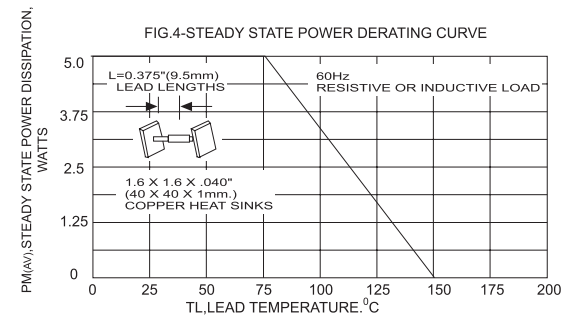
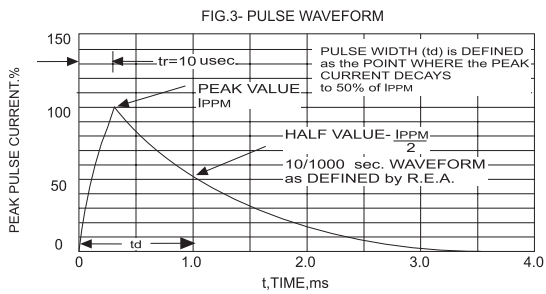
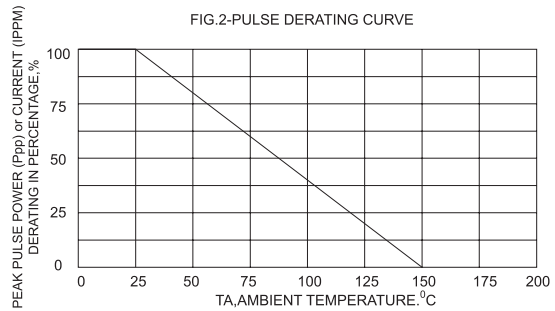
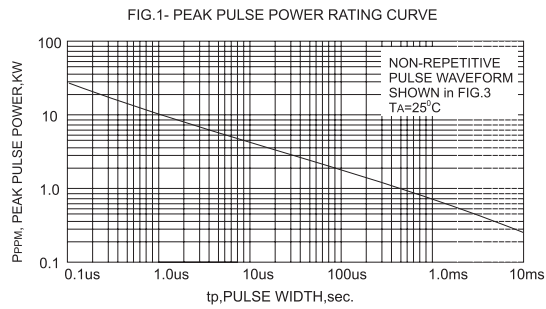
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

| Type Number | | Value | Units |
|--|----------|-------------|-------|
| Peak Power Dissipation at TA=25°C, Tp=1ms (Note 1) | PPK | Minimum 600 | Watts |
| Steady State Power Dissipation at TL=25°C Lead Lengths .375", 9.5mm (Note 2) | PD | 2.0 | Watts |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)(Note 3) | IFSM | 100 | Amps |
| Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only (Note 4) | VF | 3.5/5.0 | Volts |
| Operating and Storage Temperature Range | TJ, TSTG | -55 to +175 | °C |

- NOTES: 1. Non-repetitive Current Pulse Per Fig.3 and Derated above TA=25°C Per Fig.2.
2. Mounted on Copper Pad Area of 1.6 x 1.6" (40 x 40 mm) Per Fig.4
3. 8.3ms Single Half Sine-Wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.
4. VF=3.5V for Devices of VBR≤200V and VF=5.0V Max. for Devices VBR>200V.
- Devices for Bipolar Applications
1. For Bidirectional Use C or CA Suffix for Types P4KE6.8 through Types P6KE400.
2. Electrical Characteristics Apply in Both Directions.

RATING AND CHARACTERISTIC CURVES P6KE SERIES





ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Device | Nominal Voltage (Volts) | Breakdown Voltage | | Test Current @IT (mA) | Stand-off voltage VWM (Volts) | Maximun Reverse Leakage at VWM ID(uA) | Maximun Peak Pulse Current IPPM (Note 2)(Amps) | Maximun Clamping Voltage at IPPM Vc(Volts) | Maximun Temperature Coefficient of VBR(%/°C) |
|----------|-------------------------|----------------------|-------|-----------------------|-------------------------------|---------------------------------------|--|--|--|
| | | VBR (Volts) (Note 1) | | | | | | | |
| | | Min | Max | | | | | | |
| P6KE6.8 | 6.8 | 6.12 | 7.48 | 10 | 5.50 | 1000 | 58 | 10.8 | 0.057 |
| P6KE6.8A | 6.8 | 6.46 | 7.14 | 10 | 5.80 | 1000 | 60 | 10.5 | 0.057 |
| P6KE7.5 | 7.5 | 6.75 | 8.25 | 10 | 6.05 | 500 | 53 | 11.7 | 0.061 |
| P6KE7.5A | 7.5 | 7.13 | 7.88 | 10 | 6.40 | 500 | 55 | 11.3 | 0.061 |
| P6KE8.2 | 8.2 | 7.38 | 9.02 | 10 | 6.63 | 200 | 50 | 12.5 | 0.065 |
| P6KE8.2A | 8.2 | 7.79 | 8.61 | 10 | 7.02 | 200 | 52 | 12.1 | 0.065 |
| P6KE9.1 | 9.1 | 8.19 | 10.0 | 1.0 | 7.37 | 50 | 45 | 13.8 | 0.068 |
| P6KE9.1A | 9.1 | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 47 | 13.4 | 0.068 |
| P6KE10 | 10 | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 42 | 15.0 | 0.073 |
| P6KE10A | 10 | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 43 | 14.5 | 0.073 |
| P6KE11 | 11 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 38 | 16.2 | 0.075 |
| P6KE11A | 11 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 40 | 15.6 | 0.075 |
| P6KE12 | 12 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 36 | 17.3 | 0.078 |
| P6KE12A | 12 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 37 | 16.7 | 0.078 |
| P6KE13 | 13 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 33 | 19.0 | 0.081 |
| P6KE13A | 13 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 34 | 18.2 | 0.081 |
| P6KE15 | 15 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 28 | 22.0 | 0.084 |
| P6KE15A | 15 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 29 | 21.2 | 0.084 |
| P6KE16 | 16 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 26 | 23.5 | 0.086 |
| P6KE16A | 16 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 28 | 22.5 | 0.086 |
| P6KE18 | 18 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 23 | 26.5 | 0.088 |
| P6KE18A | 18 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 25 | 25.5 | 0.088 |
| P6KE20 | 20 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 21 | 29.1 | 0.090 |
| P6KE20A | 20 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 22 | 27.7 | 0.090 |
| P6KE22 | 22 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 19 | 31.9 | 0.092 |
| P6KE22A | 22 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 20 | 30.6 | 0.092 |
| P6KE24 | 24 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 18 | 34.7 | 0.094 |
| P6KE24A | 24 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 19 | 33.2 | 0.094 |
| P6KE27 | 27 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 16 | 39.1 | 0.096 |
| P6KE27A | 27 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 16.8 | 37.5 | 0.096 |
| P6KE30 | 30 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 14 | 43.5 | 0.097 |
| P6KE30A | 30 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 15 | 41.4 | 0.097 |
| P6KE33 | 33 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 13.0 | 47.7 | 0.098 |
| P6KE33A | 33 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 13.8 | 45.7 | 0.098 |
| P6KE36 | 36 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 12 | 52.0 | 0.099 |
| P6KE36A | 36 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 12.6 | 49.9 | 0.099 |
| P6KE39 | 39 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 11.1 | 56.4 | 0.100 |
| P6KE39A | 39 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 11.6 | 53.9 | 0.100 |
| P6KE43 | 43 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 10.0 | 61.9 | 0.101 |
| P6KE43A | 43 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 10.6 | 59.3 | 0.101 |
| P6KE47 | 47 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 9.2 | 67.8 | 0.101 |
| P6KE47A | 47 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 9.7 | 64.8 | 0.101 |
| P6KE51 | 51 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 8.5 | 73.5 | 0.102 |
| P6KE51A | 51 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 8.9 | 70.1 | 0.102 |
| P6KE56 | 56 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 7.8 | 80.5 | 0.103 |
| P6KE56A | 56 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 8.1 | 77.0 | 0.103 |
| P6KE62 | 62 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 7.0 | 89.0 | 0.104 |
| P6KE62A | 62 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 7.4 | 85.0 | 0.104 |
| P6KE68 | 68 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 6.4 | 98.0 | 0.104 |
| P6KE68A | 68 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 6.8 | 92.0 | 0.104 |
| P6KE75 | 75 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 5.8 | 108.0 | 0.105 |
| P6KE75A | 75 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 6.1 | 103.0 | 0.105 |
| P6KE82 | 82 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 5.3 | 118.0 | 0.105 |
| P6KE82A | 82 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 5.5 | 113.0 | 0.105 |
| P6KE91 | 91 | 81.9 | 100.0 | 1.0 | 73.7 | 5.0 | 4.8 | 131.0 | 0.106 |
| P6KE91A | 91 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 5.0 | 125.0 | 0.106 |
| P6KE100 | 100 | 90.0 | 110.0 | 1.0 | 81.0 | 5.0 | 4.3 | 144.0 | 0.106 |
| P6KE100A | 100 | 95.0 | 105.0 | 1.0 | 85.5 | 5.0 | 4.5 | 137.0 | 0.106 |
| P6KE110 | 110 | 99.0 | 121.0 | 1.0 | 89.2 | 5.0 | 3.9 | 158.0 | 0.107 |
| P6KE110A | 110 | 105.0 | 116.0 | 1.0 | 94.0 | 5.0 | 4.1 | 152.0 | 0.107 |
| P6KE120 | 120 | 108.0 | 132.0 | 1.0 | 97.2 | 5.0 | 3.6 | 173.0 | 0.107 |
| P6KE120A | 120 | 114.0 | 126.0 | 1.0 | 102.0 | 5.0 | 3.8 | 165.0 | 0.107 |
| P6KE130 | 130 | 117.0 | 143.0 | 1.0 | 105.0 | 5.0 | 3.3 | 187.0 | 0.107 |
| P6KE130A | 130 | 124.0 | 137.0 | 1.0 | 111.0 | 5.0 | 3.5 | 179.0 | 0.107 |
| P6KE150 | 150 | 135.0 | 165.0 | 1.0 | 121.0 | 5.0 | 2.9 | 215.0 | 0.108 |
| P6KE150A | 150 | 143.0 | 158.0 | 1.0 | 128.0 | 5.0 | 3.0 | 207.0 | 0.108 |
| P6KE160 | 160 | 144.0 | 176.0 | 1.0 | 130.0 | 5.0 | 2.7 | 230.0 | 0.108 |
| P6KE160A | 160 | 152.0 | 168.0 | 1.0 | 136.0 | 5.0 | 2.8 | 219.0 | 0.108 |
| P6KE170 | 170 | 153.0 | 187.0 | 1.0 | 138.0 | 5.0 | 2.5 | 244.0 | 0.108 |
| P6KE170A | 170 | 162.0 | 179.0 | 1.0 | 145.0 | 5.0 | 2.6 | 234.0 | 0.108 |
| P6KE180 | 180 | 162.0 | 198.0 | 1.0 | 146.0 | 5.0 | 2.4 | 258.0 | 0.108 |
| P6KE180A | 180 | 171.0 | 189.0 | 1.0 | 154.0 | 5.0 | 2.5 | 246.0 | 0.108 |
| P6KE200 | 200 | 180.0 | 220.0 | 1.0 | 162.0 | 5.0 | 2.1 | 287.0 | 0.108 |
| P6KE200A | 200 | 190.0 | 210.0 | 1.0 | 171.0 | 5.0 | 2.2 | 274.0 | 0.108 |
| P6KE220 | 220 | 198.0 | 242.0 | 1.0 | 175.0 | 5.0 | 1.8 | 344.0 | 0.108 |
| P6KE220A | 220 | 209.0 | 231.0 | 1.0 | 185.0 | 5.0 | 1.9 | 328.0 | 0.108 |
| P6KE250 | 250 | 225.0 | 275.0 | 1.0 | 202.0 | 5.0 | 1.7 | 360.0 | 0.110 |
| P6KE250A | 250 | 237.0 | 263.0 | 1.0 | 214.0 | 5.0 | 1.8 | 344.0 | 0.110 |
| P6KE300 | 300 | 270.0 | 330.0 | 1.0 | 243.0 | 5.0 | 1.4 | 430.0 | 0.110 |
| P6KE300A | 300 | 285.0 | 315.0 | 1.0 | 256.0 | 5.0 | 1.5 | 414.0 | 0.110 |
| P6KE350 | 350 | 315.0 | 385.0 | 1.0 | 284.0 | 5.0 | 1.2 | 504.0 | 0.110 |
| P6KE350A | 350 | 332.0 | 368.0 | 1.0 | 300.0 | 5.0 | 1.3 | 482.0 | 0.110 |
| P6KE400 | 400 | 360.0 | 440.0 | 1.0 | 324.0 | 5.0 | 1.0 | 574.0 | 0.110 |
| P6KE400A | 400 | 380.0 | 420.0 | 1.0 | 342.0 | 5.0 | 1.1 | 548.0 | 0.110 |

Notes:
1. VBR measured after IT applied for 300us. IT=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. For bipolar types having VWMof 10 volts and under the ID limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.