

600 WATT TRANSIENT VOLTAGE SUPPRESSORS

FEATURES

- PROPRIETARY **SOFT GLASS[®]** JUNCTION PASSIVATION FOR SUPERIOR RELIABILITY AND PERFORMANCE
- VOID FREE VACUUM DIE SOLDERING FOR MAXIMUM MECHANICAL STRENGTH AND HEAT DISSIPATION
- 600 Watt peak power capability on 10/1000 μ S waveform
- Excellent clamping capability
- Repetition rate (Duty Cycle): 0.01%
- Low incremental surge resistance
- Fast response time (0 to BV Volts)

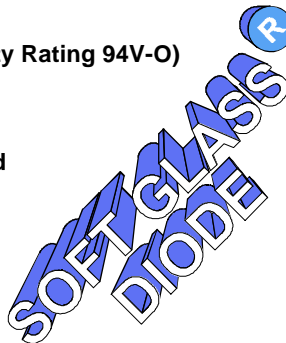
Unidirectional - typically less than 1pS

Bidirectional - typically less than 5nS

- Typical Reverse Leakage (I_D) less than 1 μ A above 10 Volts

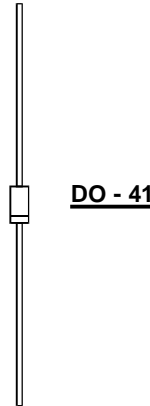
MECHANICAL DATA

- Case: JEDEC DO-41 molded epoxy (UL Flammability Rating 94V-O)
- Terminals: Plated Axial Leads
- Soldering: Per MIL-STD 202 Method 208 guaranteed
- Mounting Position: Any
- Polarity: Color band denotes cathode
- Weight: 0.012 Ounces (0.34 Grams)

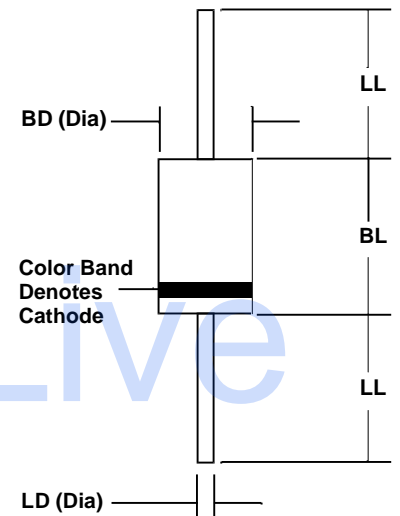


MECHANICAL SPECIFICATION

ACTUAL SIZE OF DO-41 PACKAGE



SERIES P6KE6.8 - P6KE400CA



| Sym | Minimum | | Maximum | |
|-----|---------|------|---------|------|
| | In | mm | In | mm |
| BL | 0.160 | 4.1 | 0.205 | 5.2 |
| BD | 0.103 | 2.6 | 0.107 | 2.7 |
| LL | 1.00 | 25.4 | | |
| LD | 0.028 | 0.71 | 0.034 | 0.86 |

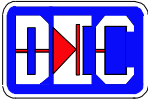
MAXIMUM RATINGS & ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified. Resistive or inductive load.

| PARAMETER (TEST CONDITIONS) | SYMBOL | RATINGS | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak Pulse Power Dissipation on 10/1000 μ S Waveform (Note 1, Fig 1) | PPPM | Minimum 600 | WATTS |
| Peak Pulse Current on 10/1000mS Waveform (Note 1, Fig 1) | IPPM | See Table 1 | AMPS |
| Steady State Power Dissipation at $T_L = 75$ °C With Lead Length = 0.375" (9.5mm) (Note 2) | PM(AV) | 5.0 | WATTS |
| Peak Forward Surge Current (8.3mS Single Half Sine Wave Superimposed on Rated Load - JEDEC Method) Unidirectional Only. (Note 2) | IFSM | 100 | AMPS |
| Maximum Instantaneous Forward Voltage at 50A; Unidirectional Only (Note 2) | V _F | 3.5 | VOLTS |
| Junction Operating & Storage Temperature Range | T _J , T _{STG} | -65 to +175 | °C/W |

Notes:

- 1) Non-Repetitive Current Pulse Per Fig. 3 and Derated Above $T_A = 25$ °C Per Fig 2.
- 2) Mounted on Copper Leaf Area of 1.58 in² (40mm²) Per Fig 5.
- 3) 8.3mS Single Half Sine Wave or Equivalent Square Wave. Duty Cycle = 4 Pulses Per Minute Maximum.



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RATINGS AND CHARACTERISTIC CURVES FOR SERIES P6KE6.8 - P6KE400CA

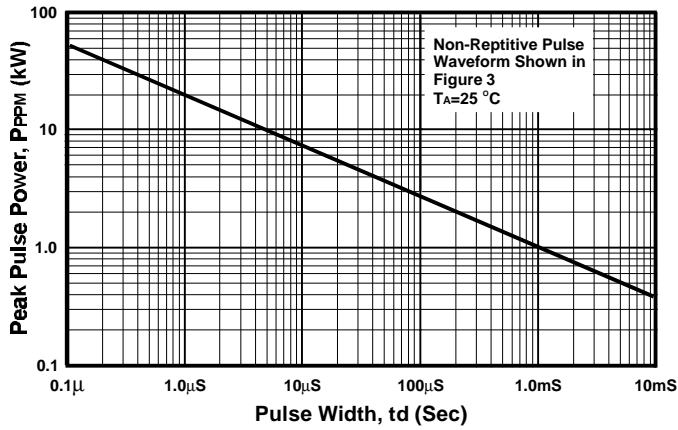


FIGURE 1. PEAK PULSE POWER RATING CURVE

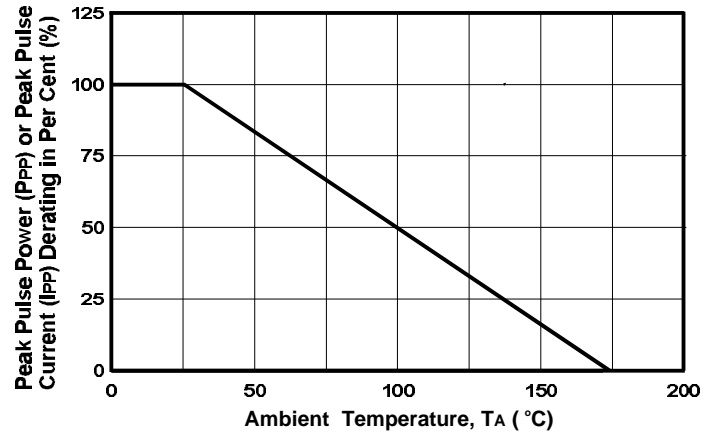


FIGURE 2. PULSE DERATING CURVE

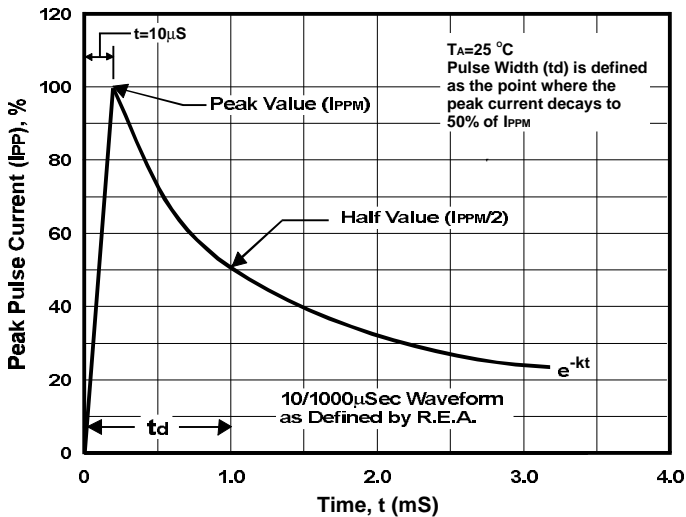


FIGURE 3. PULSE WAVEFORM

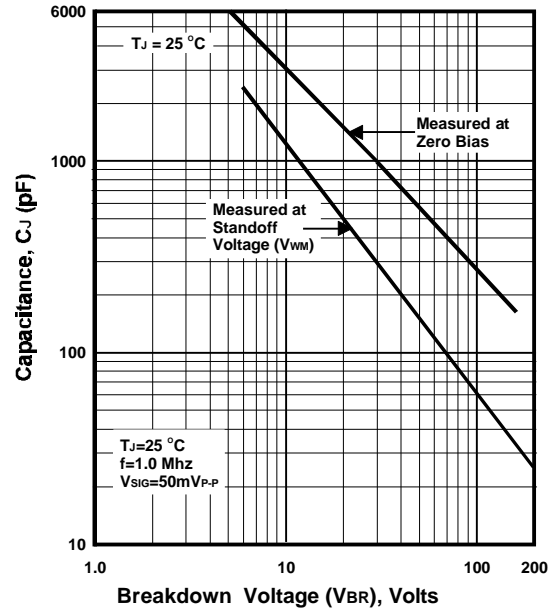


FIGURE 4. TYPICAL JUNCTION CAPACITANCE-UNIDIRECTIONAL

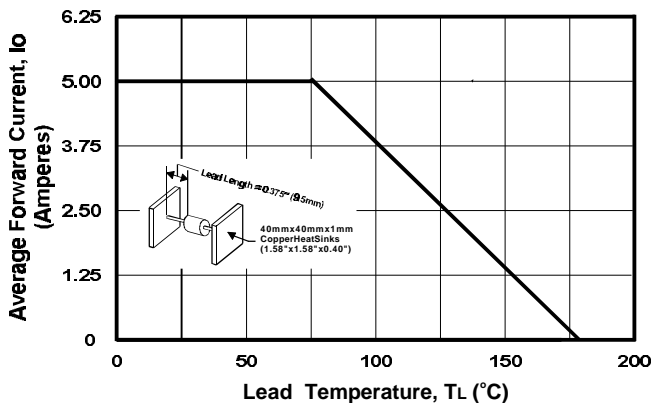


FIGURE 5. STEADY STATE POWER DERATING CURVE

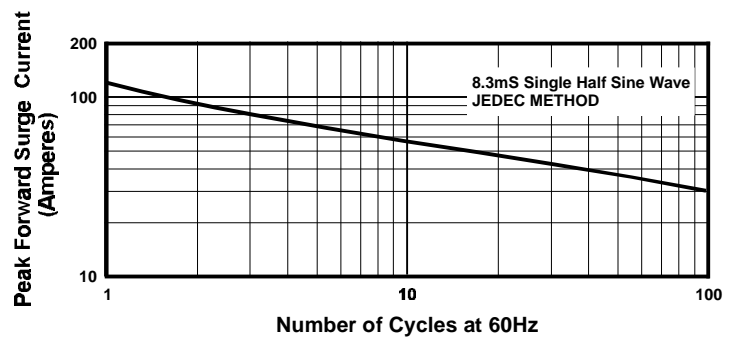
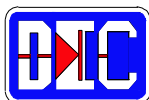


FIGURE 6. MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT - UNIDIRECTIONAL



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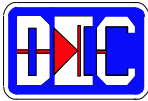
FOR BIDIRECTIONAL APPLICATIONS: USE "C" OR "CA" FOR TYPES P6KE6.8-PKE440. FOR EXAMPLE: P6KE6.8C OR P6KE400CA.
 ELECTRICAL CHARACTERISTICS APPLY IN BOTH DIRECTIONS.

| PART NO. | BREAKDOWN VOLTAGE (V _{BR}) (NOTE 1) | | | V _{WM} (VOLTS) | MAX. I _D @ V _{WM} (μA) (Note 3) | MAX. I _{PPM} (AMPS) (Note 2) | V _C @ I _{PPM} (VOLTS) | MAX. TEMPERATURE COEFFICIENT OF V _{BR} (% °C) |
|----------|---|------|-----------------------|-------------------------|---|---------------------------------------|---|--|
| | VOLTS | | @ I _T (mA) | | | | | |
| | MIN | MAX | | | | | | |
| P6KE6.8 | 6.12 | 7.48 | 10 | 5.50 | 1000 | 56 | 10.8 | 0.057 |
| P6KE6.8A | 6.45 | 7.14 | 10 | 5.80 | 1000 | 57 | 10.5 | 0.057 |
| P6KE7.5 | 6.75 | 8.25 | 10 | 6.05 | 500 | 51 | 11.7 | 0.061 |
| P6KE7.5A | 7.13 | 7.88 | 10 | 6.40 | 500 | 53 | 11.3 | 0.061 |
| P6KE8.2 | 7.38 | 9.02 | 10 | 6.63 | 200 | 48 | 12.5 | 0.065 |
| P6KE8.2A | 7.79 | 8.61 | 10 | 7.02 | 200 | 50 | 12.1 | 0.065 |
| P6KE9.1 | 8.19 | 10.0 | 1.0 | 7.37 | 50 | 44 | 13.8 | 0.068 |
| P6KE9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 45 | 13.4 | 0.068 |
| P6KE10 | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 40 | 15.0 | 0.073 |
| P6KE10A | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 41 | 14.5 | 0.073 |
| P6KE11 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 37 | 16.2 | 0.075 |
| P6KE11A | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 38 | 15.6 | 0.075 |
| P6KE12 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 35 | 17.3 | 0.078 |
| P6KE12A | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 36 | 16.7 | 0.078 |
| P6KE13 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 32 | 19.0 | 0.061 |
| P6KE13A | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 33 | 18.2 | 0.081 |
| P6KE15 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 27 | 22.0 | 0.084 |
| P6KE15A | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 28 | 21.2 | 0.084 |
| P6KE16 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 26 | 23.5 | 0.086 |
| P6KE16A | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 27 | 22.5 | 0.086 |
| P6KE18 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 23 | 26.5 | 0.088 |
| P6KE18A | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 24 | 25.2 | 0.088 |
| P6KE20 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 21 | 29.1 | 0.090 |
| P6KE20A | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 22 | 27.7 | 0.090 |
| P6KE22 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 19 | 31.9 | 0.092 |
| P6KE22A | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 20 | 30.6 | 0.092 |
| P6KE24 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 17 | 34.7 | 0.094 |
| P6KE24A | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 18 | 33.2 | 0.094 |
| P6KE27 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 15 | 39.1 | 0.096 |
| P6KE27A | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 16 | 37.5 | 0.096 |
| P6KE30 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 14 | 43.5 | 0.097 |
| P6KE30A | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 14.4 | 41.4 | 0.097 |
| P6KE33 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 12.6 | 47.7 | 0.098 |
| P6KE33A | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 13.2 | 45.7 | 0.098 |
| P6KE36 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 11.6 | 52.0 | 0.099 |
| P6KE36A | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 12.0 | 49.9 | 0.099 |
| P6KE39 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 10.6 | 56.4 | 0.100 |
| P6KE39A | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 11.2 | 53.9 | 0.100 |
| P6KE43 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 9.6 | 61.9 | 0.101 |
| P6KE43A | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 10.1 | 59.3 | 0.101 |
| P6KE47 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 8.9 | 67.8 | 0.101 |
| P6KE47A | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 9.3 | 64.8 | 0.101 |

Table Symbols:

- V_{BR} measured after I_T applied for 300μS, I_T=square wave pulse or equivalent
- Surge current waveform per Figure 3 and derate per Figure 2.
- For Bidirectional types with V_R of 10 Volts and less, the I_T limit is doubled
- All Terms and Symbols are consistent with ANSI/IEEE C62.35

- I_D - Reverse Leakage Current
- IPPM - Maximum Peak Pulse Current
- I_T - Test Current (To Determine V_{BR})
- mA - Milliamperes
- Max. - Maximum
- Min - Minimum
- V_{BR} - Breakdown Voltage
- V_C - Clamping Voltage
- V_{WM} - Reverse Standoff Voltage
- % - Per Cent
- °C - Degrees Celsius



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|----------|---|------|-----------------------|-------------------------|---|---------------------------------------|---|--|
| | VOLTS | | @ I _T (mA) | | | | | |
| | MIN | MAX | | | | | | |
| P6KE51 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 8.2 | 73.5 | 0.102 |
| P6KE51A | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 8.6 | 70.1 | 0.102 |
| P6KE56 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 7.4 | 80.5 | 0.103 |
| P6KE56A | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 7.8 | 77.0 | 0.103 |
| P6KE62 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 6.8 | 89.0 | 0.104 |
| P6KE62A | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 7.1 | 85.0 | 0.104 |
| P6KE68 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 6.1 | 98.0 | 0.104 |
| P6KE68A | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 6.5 | 92.0 | 0.104 |
| P6KE75 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 5.5 | 108 | 0.105 |
| P6KE75A | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 5.8 | 103 | 0.105 |
| P6KE82 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 5.1 | 118 | 0.105 |
| P6KE82A | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 5.3 | 113 | 0.105 |
| P6KE91 | 81.9 | 100 | 1.0 | 73.7 | 5.0 | 4.5 | 131 | 0.106 |
| P6KE91A | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 4.8 | 125 | 0.106 |
| P6KE100 | 90.0 | 110 | 1.0 | 81.0 | 5.0 | 4.2 | 144 | 0.106 |
| P6KE100A | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 4.4 | 137 | 0.106 |
| P6KE110 | 99.0 | 121 | 1.0 | 89.2 | 5.0 | 3.8 | 158 | 0.107 |
| P6KE110A | 105 | 116 | 1.0 | 94.0 | 5.0 | 4.0 | 152 | 0.107 |
| P6KE120 | 108 | 132 | 1.0 | 97.2 | 5.0 | 3.5 | 173 | 0.107 |
| P6KE120A | 114 | 126 | 1.0 | 102 | 5.0 | 3.6 | 165 | 0.107 |
| P6KE130 | 117 | 143 | 1.0 | 105 | 5.0 | 3.2 | 187 | 0.107 |
| P6KE130A | 124 | 137 | 1.0 | 111 | 5.0 | 3.3 | 179 | 0.107 |
| P6KE150 | 135 | 165 | 1.0 | 121 | 5.0 | 2.8 | 215 | 0.108 |
| P6KE150A | 143 | 158 | 1.0 | 128 | 5.0 | 2.9 | 207 | 0.108 |
| P6KE160 | 144 | 176 | 1.0 | 130 | 5.0 | 2.6 | 230 | 0.108 |
| P6KE160A | 152 | 168 | 1.0 | 136 | 5.0 | 2.7 | 219 | 0.108 |
| P6KE170 | 153 | 187 | 1.0 | 138 | 5.0 | 2.5 | 244 | 0.108 |
| P6KE170A | 162 | 179 | 1.0 | 145 | 5.0 | 2.6 | 234 | 0.108 |
| P6KE180 | 162 | 198 | 1.0 | 146 | 5.0 | 2.3 | 258 | 0.108 |
| P6KE180A | 171 | 189 | 1.0 | 154 | 5.0 | 2.4 | 246 | 0.108 |
| P6KE200 | 180 | 220 | 1.0 | 162 | 5.0 | 2.1 | 287 | 0.108 |
| P6KE200A | 190 | 210 | 1.0 | 171 | 5.0 | 2.2 | 274 | 0.108 |
| P6KE220 | 198 | 242 | 1.0 | 175 | 5.0 | 1.75 | 344 | 0.108 |
| P6KE220A | 209 | 231 | 1.0 | 185 | 5.0 | 1.83 | 328 | 0.108 |
| P6KE250 | 225 | 275 | 1.0 | 202 | 5.0 | 1.67 | 360 | 0.110 |
| P6KE250A | 237 | 263 | 1.0 | 214 | 5.0 | 1.75 | 344 | 0.110 |
| P6KE300 | 270 | 330 | 1.0 | 243 | 5.0 | 1.40 | 430 | 0.110 |
| P6KE300A | 285 | 315 | 1.0 | 256 | 5.0 | 1.45 | 414 | 0.110 |
| P6KE350 | 315 | 385 | 1.0 | 284 | 5.0 | 1.20 | 504 | 0.110 |
| P6KE350A | 332 | 368 | 1.0 | 300 | 5.0 | 1.25 | 482 | 0.110 |
| P6KE400 | 360 | 440 | 1.0 | 324 | 5.0 | 1.05 | 574 | 0.110 |
| P6KE400A | 380 | 420 | 1.0 | 342 | 5.0 | 1.10 | 548 | 0.110 |
| P6KE440 | 396 | 484 | 1.0 | 356 | 5.0 | 0.95 | 631 | 0.110 |
| P6KE440A | 418 | 462 | 1.0 | 376 | 5.0 | 1.00 | 602 | 0.110 |

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