

**GPP TRANSIENT VOLTAGE SUPPRESSOR**  
**600 WATT PEAK POWER 5.0 WATTS STEADY STATE**

**FEATURES**

- \* Plastic package has underwriters laboratory
- \* Glass passivated chip construction
- \* 600 watt surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

Ratings at 25 °C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

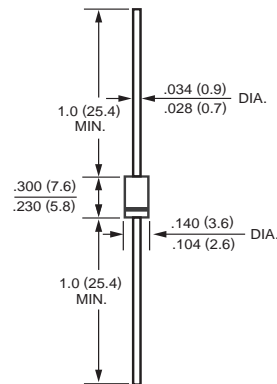
Ratings at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load,

For capacitive load, derate current by 20%.



**DO-15**



**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix for types P6KE6.8 thru P6KE400

Electrical characteristics apply in both direction

**MAXIMUM RATINGS** (At TA = 25°C unless otherwise noted)

| RATINGS   | SYMBOL   | VALUE        | UNITS |
|---|----------|--------------|-------|
| Peak power dissipation with a 10/1000uS (NOTES 1, FIG.1)  | PPPM     | Minimum 600  | Watts |
| Steady state power dissipation at TL = 75°C lead lengths, .375" ( 9.5 mm ) ( NOTES 2 )                          | PM(AV)   | 5.0          | Watts |
| Peak forward surge current, 8.3ms single half sine wave- superimposed on rated load( JEDEC METHOD ) ( NOTES 3 ) | IFSM     | 100          | Amps  |
| Maximum instantaneous forward voltage at 50A for unidirectional only ( NOTES 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"( 40X40 mm) per Fig. 5  
 3. Measured on 8.3ms single half sine-wave or equivalent square wave duty cycle = 4 pulses per minute maximum.  
 4. VF = 3.0V max. for devices of V(BR) < 200V and VF = 5.0 Volts for devices of V(BR) ≥ 200V.

# RATING AND CHARACTERISTIC CURVES ( P6KE6.8 THRU P6KE400CA )

FIG. 1 - PEAK PULSE POWER RATING CURVE

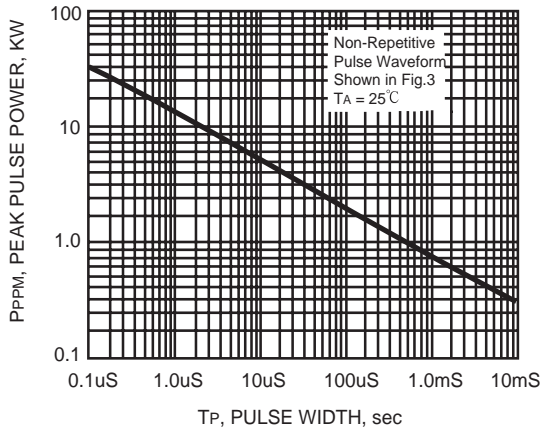


FIG. 2 - PULSE DERATING CURVE

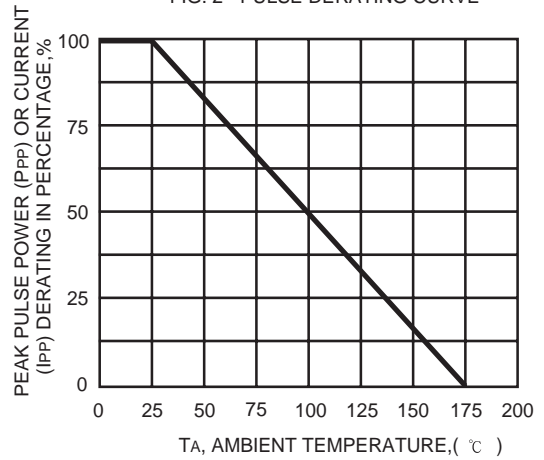


FIG. 3 - PULSE WAVEFORM

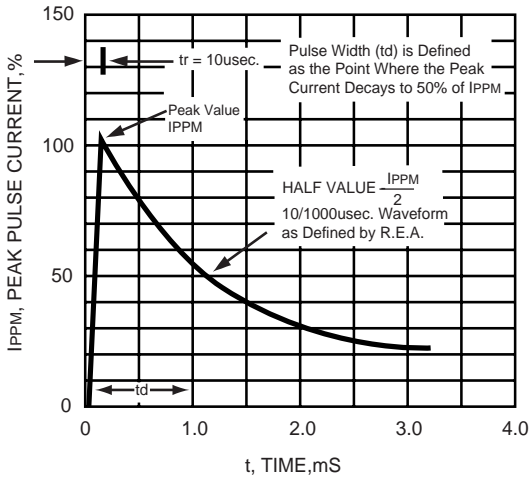
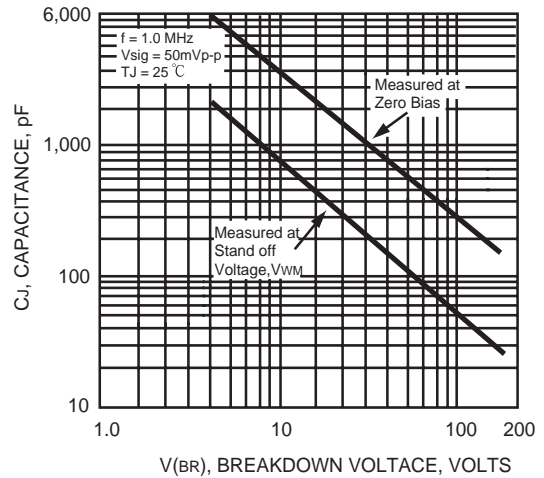


FIG. 4 - TYPICAL JUNCTION CAPACITANCE



# RATING AND CHARACTERISTIC CURVES ( P6KE6.8 THRU P6KE400CA )

FIG. 5 - STEADY STATE POWER DERATING CURVE

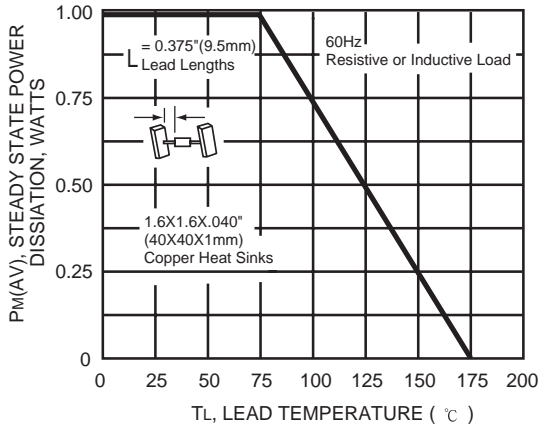


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL

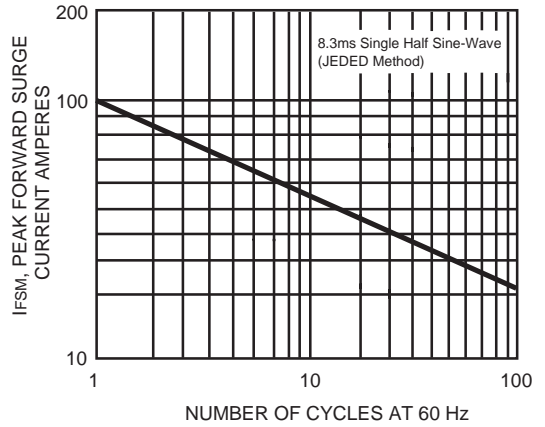
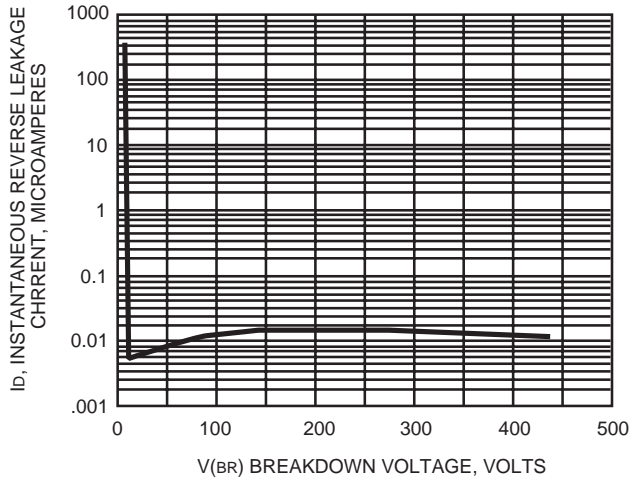


FIG. 7 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS



# TRANSIENT VOLTAGE SUPPRESSORS

600W SERIES TVS DIODES / DO-15 ( CASE 8 ) 600W

| TYPE     | Breakdown Voltage       |      |                      | Reverse Stand off Voltage V <sub>WM</sub> (Volts) | Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (uA) | Maximum Peak Pulse Current IPPM (Amps) | Maximum Clamping Voltage at IPPM V <sub>C</sub> (Volts) |
|----------|-------------------------|------|----------------------|---|--|--|---|
|          | V <sub>BR</sub> (Volts) |      | @I <sub>T</sub> (mA) |   |  |  |   |
|          | MIN.                    | MAX. |                      |   |  |  |   |
| P6KE6.8  | 6.12                    | 7.48 | 10                   | 5.50  | 1000   | 58                                     | 10.8  |
| P6KE6.8A | 6.45                    | 7.14 | 10                   | 5.80  | 1000   | 60                                     | 10.5  |
| P6KE7.5  | 6.75                    | 8.25 | 10                   | 6.05  | 500  | 53                                     | 11.7  |
| P6KE7.5A | 7.13                    | 7.88 | 10                   | 6.40  | 500  | 55                                     | 11.3  |
| P6KE8.2  | 7.38                    | 9.02 | 10                   | 6.63  | 200  | 50                                     | 12.5  |
| P6KE8.2A | 7.79                    | 8.61 | 10                   | 7.02  | 200  | 52                                     | 12.1  |
| P6KE9.1  | 8.19                    | 10.0 | 1.0                  | 7.37  | 50   | 45                                     | 13.8  |
| P6KE9.1A | 8.69                    | 9.55 | 1.0                  | 7.78  | 50   | 47                                     | 13.4  |
| P6KE10   | 9.00                    | 11.0 | 1.0                  | 8.10  | 10   | 42                                     | 15.0  |
| P6KE10A  | 9.50                    | 10.5 | 1.0                  | 8.55  | 10   | 43                                     | 14.5  |
| P6KE11   | 9.90                    | 12.1 | 1.0                  | 8.92  | 5.0  | 38                                     | 16.2  |
| P6KE11A  | 10.5                    | 11.6 | 1.0                  | 9.40  | 5.0  | 40                                     | 15.6  |
| P6KE12   | 10.8                    | 13.2 | 1.0                  | 9.72  | 5.0  | 36                                     | 17.3  |
| P6KE12A  | 11.4                    | 12.6 | 1.0                  | 10.2  | 5.0  | 37                                     | 16.7  |
| P6KE13   | 11.7                    | 14.3 | 1.0                  | 10.5  | 5.0  | 33                                     | 19.0  |
| P6KE13A  | 12.4                    | 13.7 | 1.0                  | 11.1  | 5.0  | 34                                     | 18.2  |
| P6KE15   | 13.5                    | 16.5 | 1.0                  | 12.1  | 5.0  | 28                                     | 22.0  |
| P6KE15A  | 14.3                    | 15.8 | 1.0                  | 12.8  | 5.0  | 29                                     | 21.2  |
| P6KE16   | 14.4                    | 17.6 | 1.0                  | 12.9  | 5.0  | 26                                     | 23.5  |
| P6KE16A  | 15.2                    | 16.8 | 1.0                  | 13.6  | 5.0  | 28                                     | 22.5  |
| P6KE18   | 16.2                    | 19.8 | 1.0                  | 14.5  | 5.0  | 23                                     | 26.5  |
| P6KE18A  | 17.1                    | 18.9 | 1.0                  | 15.3  | 5.0  | 25                                     | 25.2  |
| P6KE20   | 18.0                    | 22.0 | 1.0                  | 16.2  | 5.0  | 21                                     | 29.1  |
| P6KE20A  | 19.0                    | 21.0 | 1.0                  | 17.1  | 5.0  | 22                                     | 27.7  |
| P6KE22   | 19.8                    | 24.2 | 1.0                  | 17.8  | 5.0  | 19                                     | 31.9  |
| P6KE22A  | 20.9                    | 23.1 | 1.0                  | 18.8  | 5.0  | 20                                     | 30.6  |
| P6KE24   | 21.6                    | 26.4 | 1.0                  | 19.4  | 5.0  | 18                                     | 34.7  |
| P6KE24A  | 22.8                    | 25.2 | 1.0                  | 20.5  | 5.0  | 19                                     | 33.2  |
| P6KE27   | 24.3                    | 29.7 | 1.0                  | 21.8  | 5.0  | 16                                     | 39.1  |
| P6KE27A  | 25.7                    | 28.4 | 1.0                  | 23.1  | 5.0  | 16.8                                   | 37.5  |
| P6KE30   | 27.0                    | 33.0 | 1.0                  | 24.3  | 5.0  | 14                                     | 43.5  |
| P6KE30A  | 28.5                    | 31.5 | 1.0                  | 25.6  | 5.0  | 15                                     | 41.4  |
| P6KE33   | 29.7                    | 36.3 | 1.0                  | 26.8  | 5.0  | 13                                     | 47.7  |
| P6KE33A  | 31.4                    | 34.7 | 1.0                  | 28.2  | 5.0  | 13.8                                   | 45.7  |
| P6KE36   | 32.4                    | 39.6 | 1.0                  | 29.1  | 5.0  | 12                                     | 52.0  |
| P6KE36A  | 34.2                    | 37.8 | 1.0                  | 30.8  | 5.0  | 12.6                                   | 49.9  |
| P6KE39   | 35.1                    | 42.9 | 1.0                  | 31.6  | 5.0  | 11.1                                   | 56.4  |
| P6KE39A  | 37.1                    | 41.0 | 1.0                  | 33.3  | 5.0  | 11.6                                   | 53.9  |
| P6KE43   | 38.7                    | 47.3 | 1.0                  | 34.8  | 5.0  | 10.0                                   | 61.9  |
| P6KE43A  | 40.9                    | 45.2 | 1.0                  | 36.8  | 5.0  | 10.6                                   | 59.3  |
| P6KE47   | 42.3                    | 51.7 | 1.0                  | 38.1  | 5.0  | 9.2                                    | 67.8  |
| P6KE47A  | 44.7                    | 49.4 | 1.0                  | 40.2  | 5.0  | 9.7                                    | 64.8  |
| P6KE51   | 45.9                    | 56.1 | 1.0                  | 41.3  | 5.0  | 8.5                                    | 73.5  |
| P6KE51A  | 48.5                    | 53.6 | 1.0                  | 43.6  | 5.0  | 8.9                                    | 70.1  |
| P6KE56   | 50.4                    | 61.6 | 1.0                  | 45.4  | 5.0  | 7.8                                    | 80.5  |
| P6KE56A  | 53.2                    | 58.8 | 1.0                  | 47.8  | 5.0  | 8.1                                    | 77.0  |

# TRANSIENT VOLTAGE SUPPRESSORS

600W SERIES TVS DIODES / DO-15 ( CASE 8 ) 600W

| TYPE     | Breakdown Voltage |      |              | Reverse Stand off Voltage $V_{WM}$ (Volts) | Maximum Reverse Leakage at $V_{WM}$ $I_D$ ( $\mu$ A) | Maximum Peak Pulse Current $I_{PPM}$ (Amps) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (Volts) |
|----------|-------------------|------|--------------|--|--|---|---|
|          | $V_{BR}$ (Volts)  |      | @ $I_T$ (mA) |  |  |   |   |
|          | MIN.              | MAX. |              |  |  |   |   |
| P6KE62   | 55.8              | 68.2 | 1.0          | 50.2                                       | 5.0  | 7.0   | 89.0  |
| P6KE62A  | 58.9              | 65.1 | 1.0          | 53.0                                       | 5.0  | 7.4   | 85.0  |
| P6KE68   | 61.2              | 74.8 | 1.0          | 55.1                                       | 5.0  | 6.4   | 98.0  |
| P6KE68A  | 64.6              | 71.4 | 1.0          | 58.1                                       | 5.0  | 6.8   | 92.0  |
| P6KE75   | 67.5              | 82.5 | 1.0          | 60.7                                       | 5.0  | 5.8   | 108   |
| P6KE75A  | 71.3              | 78.8 | 1.0          | 64.1                                       | 5.0  | 6.1   | 103   |
| P6KE82   | 73.8              | 90.2 | 1.0          | 66.4                                       | 5.0  | 5.3   | 118   |
| P6KE82A  | 77.9              | 86.1 | 1.0          | 70.1                                       | 5.0  | 5.5   | 113   |
| P6KE91   | 81.9              | 100  | 1.0          | 73.7                                       | 5.0  | 4.8   | 131   |
| P6KE91A  | 86.5              | 95.5 | 1.0          | 77.8                                       | 5.0  | 5.0   | 125   |
| P6KE100  | 90.0              | 110  | 1.0          | 81.0                                       | 5.0  | 4.3   | 144   |
| P6KE100A | 95.0              | 105  | 1.0          | 85.5                                       | 5.0  | 4.5   | 137   |
| P6KE110  | 99.0              | 121  | 1.0          | 89.2                                       | 5.0  | 3.9   | 158   |
| P6KE110A | 105               | 116  | 1.0          | 94.0                                       | 5.0  | 4.1   | 152   |
| P6KE120  | 108               | 132  | 1.0          | 97.2                                       | 5.0  | 3.6   | 173   |
| P6KE120A | 114               | 126  | 1.0          | 102  | 5.0  | 3.8   | 165   |
| P6KE130  | 117               | 143  | 1.0          | 105  | 5.0  | 3.3   | 187   |
| P6KE130A | 124               | 137  | 1.0          | 111  | 5.0  | 3.5   | 179   |
| P6KE150  | 135               | 165  | 1.0          | 121  | 5.0  | 2.9   | 215   |
| P6KE150A | 143               | 158  | 1.0          | 128  | 5.0  | 3.0   | 207   |
| P6KE160  | 144               | 176  | 1.0          | 130  | 5.0  | 2.7   | 230   |
| P6KE160A | 152               | 168  | 1.0          | 136  | 5.0  | 2.8   | 219   |
| P6KE170  | 153               | 187  | 1.0          | 138  | 5.0  | 2.5   | 244   |
| P6KE170A | 162               | 179  | 1.0          | 145  | 5.0  | 2.6   | 234   |
| P6KE180  | 162               | 198  | 1.0          | 146  | 5.0  | 2.4   | 258   |
| P6KE180A | 171               | 189  | 1.0          | 154  | 5.0  | 2.5   | 246   |
| P6KE200  | 180               | 220  | 1.0          | 162  | 5.0  | 2.2   | 287   |
| P6KE200A | 190               | 210  | 1.0          | 171  | 5.0  | 2.1   | 274   |
| P6KE220  | 198               | 242  | 1.0          | 175  | 5.0  | 1.8   | 344   |
| P6KE220A | 209               | 231  | 1.0          | 185  | 5.0  | 1.9   | 328   |
| P6KE250  | 225               | 275  | 1.0          | 202  | 5.0  | 1.7   | 360   |
| P6KE250A | 237               | 263  | 1.0          | 214  | 5.0  | 1.8   | 344   |
| P6KE300  | 270               | 330  | 1.0          | 243  | 5.0  | 1.4   | 430   |
| P6KE300A | 285               | 315  | 1.0          | 256  | 5.0  | 1.5   | 414   |
| P6KE350  | 315               | 385  | 1.0          | 284  | 5.0  | 1.2   | 504   |
| P6KE350A | 332               | 368  | 1.0          | 300  | 5.0  | 1.3   | 482   |
| P6KE400  | 360               | 440  | 1.0          | 324  | 5.0  | 1.9   | 574   |
| P6KE400A | 380               | 420  | 1.0          | 342  | 5.0  | 1.1   | 548   |

- NOTES :
1.  $V_{BR}$  measured after  $I_T$  applied for 300ms.  $I_T$  = square pluse or equivalent.
  2. For bidirectional use C or CA suffixs for all types (ex. P6KE6.8C,P6KE400CA) electrical characteristics apply in both directions.
  3. For bidirectional types having  $V_{WM}$  of 10 volts and less, the  $I_D$  limit is doubled.