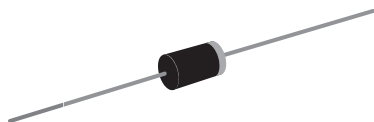


## TRANSZORB® Transient Voltage Suppressors



DO-204AC (DO-15)

### PRIMARY CHARACTERISTICS

|                                  |                |
|----------------------------------|----------------|
| $V_{BR}$ uni-directional         | 6.8 V to 540 V |
| $V_{BR}$ bi-directional          | 6.8 V to 440 V |
| $P_{PPM}$                        | 600 W          |
| $P_D$                            | 5.0 W          |
| $I_{FSM}$ (uni-directional only) | 100 A          |
| $T_J$ max.                       | 175 °C         |

### DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional types, use C or CA suffix (e.g. P6KE440CA).

Electrical characteristics apply in both directions.

### FEATURES

- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 600 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

### MECHANICAL DATA

**Case:** DO-204AC, molded epoxy over passivated chip  
Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade  
Base P/NHE3 - RoHS compliant, high reliability/automotive grade (AEC Q101 qualified)

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

#### Note:

- P6KE250 ~ P6KE540A and P6KE250C ~ P6KE440CA for commercial grade only

**Polarity:** For uni-directional types the color band denotes cathode end, no marking on bi-directional types

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                             | SYMBOL         | VALUE          | UNIT |
|---------------------------------------------------------------------------------------|----------------|----------------|------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup> (Fig. 1)        | $P_{PPM}$      | 600            | W    |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                     | $I_{PPM}$      | See next table | A    |
| Power dissipation on infinite heatsink at $T_L = 75$ °C (Fig. 5)                      | $P_D$          | 5.0            | W    |
| Peak forward surge current, 8.3 ms single half sine-wave <sup>(2)</sup>               | $I_{FSM}$      | 100            | A    |
| Maximum instantaneous forward voltage at 50 A for uni-directional only <sup>(3)</sup> | $V_F$          | 3.5/5.0        | V    |
| Operating junction and storage temperature range                                      | $T_J, T_{STG}$ | - 55 to + 175  | °C   |

#### Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25$  °C per Fig. 2

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 per minute maximum

(3)  $V_F = 3.5$  V for P6KE220(A) and below;  $V_F = 5.0$  V for P6KE250(A) and above

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| DEVICE TYPE | BREAKDOWN VOLTAGE<br>$V_{BR}$ AT $I_T$ <sup>(1)</sup><br>(V) |      | TEST CURRENT<br>$I_T$<br>(mA) | STAND-OFF VOLTAGE $V_{WM}$<br>(V) | MAXIMUM REVERSE LEAKAGE<br>AT $V_{WM}$ <sup>(3)</sup> $I_D$<br>( $\mu\text{A}$ ) | PEAK PULSE CURRENT<br>$I_{PPM}$ <sup>(2)</sup> (A) | MAXIMUM CLAMPING VOLTAGE AT<br>$I_{PPM}$ $V_C$ (V) | MAXIMUM TEMPERATURE COEFFICIENT OF $V_{BR}$ (%/ $^\circ\text{C}$ ) |
|-------------|--------------------------------------------------------------|------|-------------------------------|-----------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------|
|             | MIN.                                                         | MAX. |                               |                                   |                                                                                  |                                                    |                                                    |                                                                    |
| (+)P6KE6.8  | 6.12                                                         | 7.48 | 10                            | 5.50                              | 1000                                                                             | 55.6                                               | 10.8                                               | 0.057                                                              |
| (+)P6KE6.8A | 6.45                                                         | 7.14 | 10                            | 5.80                              | 1000                                                                             | 57.1                                               | 10.5                                               | 0.057                                                              |
| (+)P6KE7.5  | 6.75                                                         | 8.25 | 10                            | 6.05                              | 500                                                                              | 51.3                                               | 11.7                                               | 0.061                                                              |
| (+)P6KE7.5A | 7.13                                                         | 7.88 | 10                            | 6.40                              | 500                                                                              | 53.1                                               | 11.3                                               | 0.061                                                              |
| (+)P6KE8.2  | 7.38                                                         | 9.02 | 10                            | 6.63                              | 200                                                                              | 48.0                                               | 12.5                                               | 0.065                                                              |
| (+)P6KE8.2A | 7.79                                                         | 8.61 | 10                            | 7.02                              | 200                                                                              | 49.6                                               | 12.1                                               | 0.065                                                              |
| (+)P6KE9.1  | 8.19                                                         | 10.0 | 1.0                           | 7.37                              | 50                                                                               | 43.5                                               | 13.8                                               | 0.068                                                              |
| (+)P6KE9.1A | 8.65                                                         | 9.55 | 1.0                           | 7.78                              | 50                                                                               | 44.8                                               | 13.4                                               | 0.068                                                              |
| (+)P6KE10   | 9.00                                                         | 11.0 | 1.0                           | 8.10                              | 10                                                                               | 40.0                                               | 15.0                                               | 0.073                                                              |
| (+)P6KE10A  | 9.50                                                         | 10.5 | 1.0                           | 8.55                              | 10                                                                               | 41.4                                               | 14.5                                               | 0.073                                                              |
| (+)P6KE11   | 9.90                                                         | 12.1 | 1.0                           | 8.92                              | 5.0                                                                              | 37.0                                               | 16.2                                               | 0.075                                                              |
| (+)P6KE11A  | 10.5                                                         | 11.6 | 1.0                           | 9.40                              | 5.0                                                                              | 38.5                                               | 15.6                                               | 0.075                                                              |
| (+)P6KE12   | 10.8                                                         | 13.2 | 1.0                           | 9.72                              | 5.0                                                                              | 34.7                                               | 17.3                                               | 0.078                                                              |
| (+)P6KE12A  | 11.4                                                         | 12.6 | 1.0                           | 10.2                              | 5.0                                                                              | 35.9                                               | 16.7                                               | 0.078                                                              |
| (+)P6KE13   | 11.7                                                         | 14.3 | 1.0                           | 10.5                              | 5.0                                                                              | 31.6                                               | 19.0                                               | 0.081                                                              |
| (+)P6KE13A  | 12.4                                                         | 13.7 | 1.0                           | 11.1                              | 5.0                                                                              | 33.0                                               | 18.2                                               | 0.081                                                              |
| (+)P6KE15   | 13.5                                                         | 16.5 | 1.0                           | 12.1                              | 1.0                                                                              | 27.3                                               | 22.0                                               | 0.084                                                              |
| (+)P6KE15A  | 14.3                                                         | 15.8 | 1.0                           | 12.8                              | 1.0                                                                              | 28.3                                               | 21.2                                               | 0.084                                                              |
| (+)P6KE16   | 14.4                                                         | 17.6 | 1.0                           | 12.9                              | 1.0                                                                              | 25.5                                               | 23.5                                               | 0.086                                                              |
| (+)P6KE16A  | 15.2                                                         | 16.8 | 1.0                           | 13.6                              | 1.0                                                                              | 26.7                                               | 22.5                                               | 0.086                                                              |
| (+)P6KE18   | 16.2                                                         | 19.8 | 1.0                           | 14.5                              | 1.0                                                                              | 22.6                                               | 26.5                                               | 0.088                                                              |
| (+)P6KE18A  | 17.1                                                         | 18.9 | 1.0                           | 15.3                              | 1.0                                                                              | 23.8                                               | 25.2                                               | 0.088                                                              |
| (+)P6KE20   | 18.0                                                         | 22.0 | 1.0                           | 16.2                              | 1.0                                                                              | 20.6                                               | 29.1                                               | 0.090                                                              |
| (+)P6KE20A  | 19.0                                                         | 21.0 | 1.0                           | 17.1                              | 1.0                                                                              | 21.7                                               | 27.7                                               | 0.090                                                              |
| (+)P6KE22   | 19.8                                                         | 24.2 | 1.0                           | 17.8                              | 1.0                                                                              | 18.8                                               | 31.9                                               | 0.092                                                              |
| (+)P6KE22A  | 20.9                                                         | 23.1 | 1.0                           | 18.8                              | 1.0                                                                              | 19.6                                               | 30.6                                               | 0.092                                                              |
| (+)P6KE24   | 21.6                                                         | 26.4 | 1.0                           | 19.4                              | 1.0                                                                              | 17.3                                               | 34.7                                               | 0.094                                                              |
| (+)P6KE24A  | 22.8                                                         | 25.2 | 1.0                           | 20.5                              | 1.0                                                                              | 18.1                                               | 33.2                                               | 0.094                                                              |
| (+)P6KE27   | 24.3                                                         | 29.7 | 1.0                           | 21.8                              | 1.0                                                                              | 15.3                                               | 39.1                                               | 0.096                                                              |
| (+)P6KE27A  | 25.7                                                         | 28.4 | 1.0                           | 23.1                              | 1.0                                                                              | 16.0                                               | 37.5                                               | 0.096                                                              |
| (+)P6KE30   | 27.0                                                         | 33.0 | 1.0                           | 24.3                              | 1.0                                                                              | 13.8                                               | 43.5                                               | 0.097                                                              |
| (+)P6KE30A  | 28.5                                                         | 31.5 | 1.0                           | 25.6                              | 1.0                                                                              | 14.5                                               | 41.4                                               | 0.097                                                              |
| (+)P6KE33   | 29.7                                                         | 36.3 | 1.0                           | 26.8                              | 1.0                                                                              | 12.6                                               | 47.7                                               | 0.098                                                              |
| (+)P6KE33A  | 31.4                                                         | 34.7 | 1.0                           | 28.2                              | 1.0                                                                              | 13.1                                               | 45.7                                               | 0.098                                                              |
| (+)P6KE36   | 32.4                                                         | 39.6 | 1.0                           | 29.1                              | 1.0                                                                              | 11.5                                               | 52.0                                               | 0.099                                                              |
| (+)P6KE36A  | 34.2                                                         | 37.8 | 1.0                           | 30.8                              | 1.0                                                                              | 12.0                                               | 49.9                                               | 0.099                                                              |
| (+)P6KE39   | 35.1                                                         | 42.9 | 1.0                           | 31.6                              | 1.0                                                                              | 10.6                                               | 56.4                                               | 0.100                                                              |
| (+)P6KE39A  | 37.1                                                         | 41.0 | 1.0                           | 33.3                              | 1.0                                                                              | 11.1                                               | 53.9                                               | 0.100                                                              |
| (+)P6KE43   | 38.7                                                         | 47.3 | 1.0                           | 34.8                              | 1.0                                                                              | 9.7                                                | 61.9                                               | 0.101                                                              |
| (+)P6KE43A  | 40.9                                                         | 45.2 | 1.0                           | 36.8                              | 1.0                                                                              | 10.1                                               | 59.3                                               | 0.101                                                              |
| (+)P6KE47   | 42.3                                                         | 51.7 | 1.0                           | 38.1                              | 1.0                                                                              | 8.8                                                | 67.8                                               | 0.101                                                              |
| (+)P6KE47A  | 44.7                                                         | 49.4 | 1.0                           | 40.2                              | 1.0                                                                              | 9.3                                                | 64.8                                               | 0.101                                                              |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| DEVICE TYPE | BREAKDOWN VOLTAGE<br>$V_{BR}$ AT $I_T$ <sup>(1)</sup><br>(V) |      | TEST CURRENT<br>$I_T$<br>(mA) | STAND-OFF VOLTAGE $V_{WM}$<br>(V) | MAXIMUM REVERSE LEAKAGE<br>AT $V_{WM}$ <sup>(3)</sup> $I_D$<br>( $\mu\text{A}$ ) | PEAK PULSE CURRENT<br>$I_{PPM}$ <sup>(2)</sup> (A) | MAXIMUM CLAMPING VOLTAGE AT<br>$I_{PPM}$ $V_C$ (V) | MAXIMUM TEMPERATURE COEFFICIENT OF $V_{BR}$ (%/ $^{\circ}\text{C}$ ) |
|-------------|--------------------------------------------------------------|------|-------------------------------|-----------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------|
|             | MIN.                                                         | MAX. |                               |                                   |                                                                                  |                                                    |                                                    |                                                                      |
| (+)P6KE51   | 45.9                                                         | 56.1 | 1.0                           | 41.3                              | 1.0                                                                              | 8.2                                                | 73.5                                               | 0.102                                                                |
| (+)P6KE51A  | 48.5                                                         | 53.6 | 1.0                           | 43.6                              | 1.0                                                                              | 8.6                                                | 70.1                                               | 0.102                                                                |
| (+)P6KE56   | 50.4                                                         | 61.6 | 1.0                           | 45.4                              | 1.0                                                                              | 7.5                                                | 80.5                                               | 0.103                                                                |
| (+)P6KE56A  | 53.2                                                         | 58.8 | 1.0                           | 47.8                              | 1.0                                                                              | 7.8                                                | 77.0                                               | 0.103                                                                |
| (+)P6KE62   | 55.8                                                         | 68.2 | 1.0                           | 50.2                              | 1.0                                                                              | 6.7                                                | 89.0                                               | 0.104                                                                |
| (+)P6KE62A  | 58.9                                                         | 65.1 | 1.0                           | 53.0                              | 1.0                                                                              | 7.1                                                | 85.0                                               | 0.104                                                                |
| (+)P6KE68   | 61.2                                                         | 74.8 | 1.0                           | 55.1                              | 1.0                                                                              | 6.1                                                | 98.0                                               | 0.104                                                                |
| (+)P6KE68A  | 64.6                                                         | 71.4 | 1.0                           | 58.1                              | 1.0                                                                              | 6.5                                                | 92.0                                               | 0.104                                                                |
| (+)P6KE75   | 67.5                                                         | 82.5 | 1.0                           | 60.7                              | 1.0                                                                              | 5.6                                                | 108                                                | 0.105                                                                |
| (+)P6KE75A  | 71.3                                                         | 78.8 | 1.0                           | 64.1                              | 1.0                                                                              | 5.8                                                | 103                                                | 0.105                                                                |
| (+)P6KE82   | 73.8                                                         | 90.2 | 1.0                           | 66.4                              | 1.0                                                                              | 5.1                                                | 118                                                | 0.105                                                                |
| (+)P6KE82A  | 77.9                                                         | 86.1 | 1.0                           | 70.1                              | 1.0                                                                              | 5.3                                                | 113                                                | 0.105                                                                |
| (+)P6KE91   | 81.9                                                         | 100  | 1.0                           | 73.7                              | 1.0                                                                              | 4.6                                                | 131                                                | 0.106                                                                |
| (+)P6KE91A  | 86.5                                                         | 95.5 | 1.0                           | 77.8                              | 1.0                                                                              | 4.8                                                | 125                                                | 0.106                                                                |
| (+)P6KE100  | 90.0                                                         | 110  | 1.0                           | 81.0                              | 1.0                                                                              | 4.2                                                | 144                                                | 0.106                                                                |
| (+)P6KE100A | 95.0                                                         | 105  | 1.0                           | 85.5                              | 1.0                                                                              | 4.4                                                | 137                                                | 0.106                                                                |
| (+)P6KE110  | 99.0                                                         | 121  | 1.0                           | 89.2                              | 1.0                                                                              | 3.8                                                | 158                                                | 0.107                                                                |
| (+)P6KE110A | 105                                                          | 116  | 1.0                           | 94.0                              | 1.0                                                                              | 3.9                                                | 152                                                | 0.107                                                                |
| (+)P6KE120  | 108                                                          | 132  | 1.0                           | 97.2                              | 1.0                                                                              | 3.5                                                | 173                                                | 0.107                                                                |
| (+)P6KE120A | 114                                                          | 126  | 1.0                           | 102                               | 1.0                                                                              | 3.6                                                | 165                                                | 0.107                                                                |
| (+)P6KE130  | 117                                                          | 143  | 1.0                           | 105                               | 1.0                                                                              | 3.2                                                | 187                                                | 0.107                                                                |
| (+)P6KE130A | 124                                                          | 137  | 1.0                           | 111                               | 1.0                                                                              | 3.4                                                | 179                                                | 0.107                                                                |
| (+)P6KE150  | 135                                                          | 165  | 1.0                           | 121                               | 1.0                                                                              | 2.8                                                | 215                                                | 0.108                                                                |
| (+)P6KE150A | 143                                                          | 158  | 1.0                           | 128                               | 1.0                                                                              | 2.9                                                | 207                                                | 0.108                                                                |
| (+)P6KE160  | 144                                                          | 176  | 1.0                           | 130                               | 1.0                                                                              | 2.6                                                | 230                                                | 0.108                                                                |
| (+)P6KE160A | 152                                                          | 168  | 1.0                           | 136                               | 1.0                                                                              | 2.7                                                | 219                                                | 0.108                                                                |
| (+)P6KE170  | 153                                                          | 187  | 1.0                           | 138                               | 1.0                                                                              | 2.5                                                | 244                                                | 0.108                                                                |
| (+)P6KE170A | 162                                                          | 179  | 1.0                           | 145                               | 1.0                                                                              | 2.6                                                | 234                                                | 0.108                                                                |
| (+)P6KE180  | 162                                                          | 198  | 1.0                           | 146                               | 1.0                                                                              | 2.3                                                | 258                                                | 0.108                                                                |
| (+)P6KE180A | 171                                                          | 189  | 1.0                           | 154                               | 1.0                                                                              | 2.4                                                | 246                                                | 0.108                                                                |
| (+)P6KE200  | 180                                                          | 220  | 1.0                           | 162                               | 1.0                                                                              | 2.1                                                | 287                                                | 0.108                                                                |
| (+)P6KE200A | 190                                                          | 210  | 1.0                           | 171                               | 1.0                                                                              | 2.2                                                | 274                                                | 0.108                                                                |
| (+)P6KE220  | 198                                                          | 242  | 1.0                           | 175                               | 1.0                                                                              | 1.7                                                | 344                                                | 0.108                                                                |
| (+)P6KE220A | 209                                                          | 231  | 1.0                           | 185                               | 1.0                                                                              | 1.8                                                | 328                                                | 0.108                                                                |
| (+)P6KE250  | 225                                                          | 275  | 1.0                           | 202                               | 1.0                                                                              | 1.7                                                | 360                                                | 0.110                                                                |
| (+)P6KE250A | 237                                                          | 263  | 1.0                           | 214                               | 1.0                                                                              | 1.7                                                | 344                                                | 0.110                                                                |
| (+)P6KE300  | 270                                                          | 330  | 1.0                           | 243                               | 1.0                                                                              | 1.4                                                | 430                                                | 0.110                                                                |
| (+)P6KE300A | 285                                                          | 315  | 1.0                           | 256                               | 1.0                                                                              | 1.4                                                | 414                                                | 0.110                                                                |
| (+)P6KE350  | 315                                                          | 385  | 1.0                           | 284                               | 1.0                                                                              | 1.2                                                | 504                                                | 0.110                                                                |
| (+)P6KE350A | 333                                                          | 368  | 1.0                           | 300                               | 1.0                                                                              | 1.2                                                | 482                                                | 0.110                                                                |
| (+)P6KE400  | 360                                                          | 440  | 1.0                           | 324                               | 1.0                                                                              | 1.0                                                | 574                                                | 0.110                                                                |
| (+)P6KE400A | 380                                                          | 420  | 1.0                           | 342                               | 1.0                                                                              | 1.1                                                | 548                                                | 0.110                                                                |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| DEVICE TYPE  | BREAKDOWN VOLTAGE<br>$V_{BR}$ AT $I_T$ <sup>(1)</sup><br>(V) |      | TEST CURRENT<br>$I_T$<br>(mA) | STAND-OFF VOLTAGE $V_{WM}$<br>(V) | MAXIMUM REVERSE LEAKAGE<br>AT $V_{WM}$ <sup>(3)</sup> $I_D$<br>( $\mu\text{A}$ ) | PEAK PULSE CURRENT<br>$I_{PPM}$ <sup>(2)</sup> (A) | MAXIMUM CLAMPING VOLTAGE AT<br>$I_{PPM}$ $V_C$ (V) | MAXIMUM TEMPERATURE COEFFICIENT OF $V_{BR}$ (%/ $^{\circ}\text{C}$ ) |
|--------------|--------------------------------------------------------------|------|-------------------------------|-----------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------|
|              | MIN.                                                         | MAX. |                               |                                   |                                                                                  |                                                    |                                                    |                                                                      |
| (+)-P6KE440  | 396                                                          | 484  | 1.0                           | 356                               | 1.0                                                                              | 0.95                                               | 631                                                | 0.110                                                                |
| (+)-P6KE440A | 418                                                          | 462  | 1.0                           | 376                               | 1.0                                                                              | 1.00                                               | 602                                                | 0.110                                                                |
| P6KE480      | 432                                                          | 528  | 1.0                           | 389                               | 1.0                                                                              | 0.88                                               | 686                                                | 0.110                                                                |
| P6KE480A     | 456                                                          | 504  | 1.0                           | 408                               | 1.0                                                                              | 0.91                                               | 658                                                | 0.110                                                                |
| P6KE510      | 459                                                          | 561  | 1.0                           | 413                               | 1.0                                                                              | 0.82                                               | 729                                                | 0.110                                                                |
| P6KE510A     | 485                                                          | 535  | 1.0                           | 434                               | 1.0                                                                              | 0.86                                               | 698                                                | 0.110                                                                |
| P6KE540      | 486                                                          | 594  | 1.0                           | 437                               | 1.0                                                                              | 0.78                                               | 772                                                | 0.110                                                                |
| P6KE540A     | 513                                                          | 567  | 1.0                           | 459                               | 1.0                                                                              | 0.81                                               | 740                                                | 0.110                                                                |

**Notes:**(1) Pulse test:  $t_p \leq 50\text{ ms}$ 

(2) Surge current waveform per Fig. 3 and derate per Fig. 2ogm

(3) For bi-directional types with  $V_{WM}$  of 10 V and less, the  $I_D$  limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

(+) Underwriters laboratory recognition for the classification of protectors (QVQG2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                       | SYMBOL          | VALUE | UNIT                 |
|-------------------------------------------------|-----------------|-------|----------------------|
| Typical thermal resistance, junction to lead    | $R_{\theta JL}$ | 20    | $^{\circ}\text{C/W}$ |
| Typical thermal resistance, junction to ambient | $R_{\theta JA}$ | 75    | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PREFERRED P/N                 | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|-------------------------------|-----------------|------------------------|---------------|----------------------------------|
| P6KE6.8A-E3/54                | 0.432           | 54                     | 4000          | 13" diameter paper tape and reel |
| P6KE6.8AHE3/54 <sup>(1)</sup> | 0.432           | 54                     | 4000          | 13" diameter paper tape and reel |

**Note:**

(1) Automotive grade AEC-Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

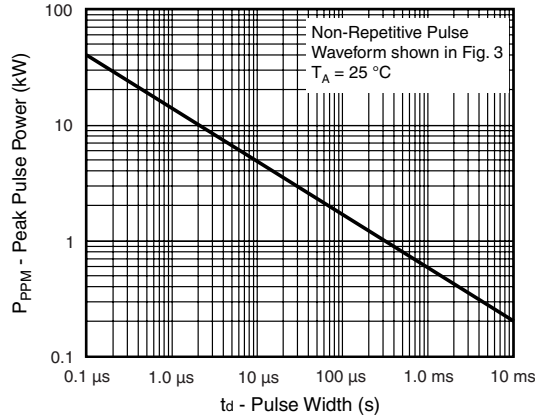


Figure 1. Peak Pulse Power Rating Curve

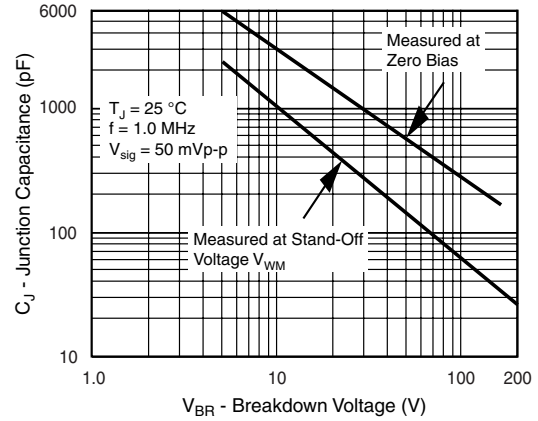


Figure 4. Typical Junction Capacitance Uni-Directional

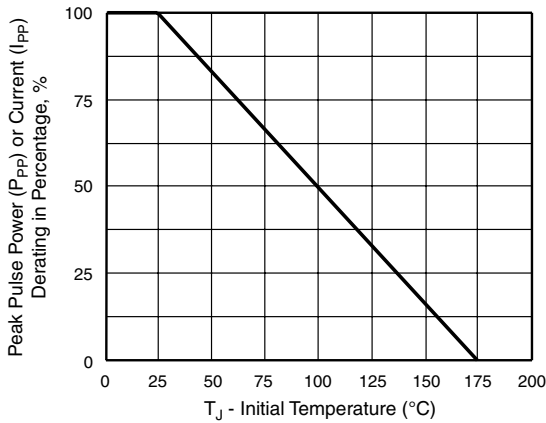


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

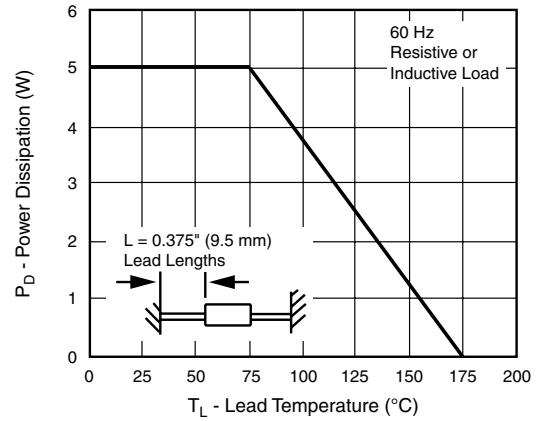


Figure 5. Power Derating Curve

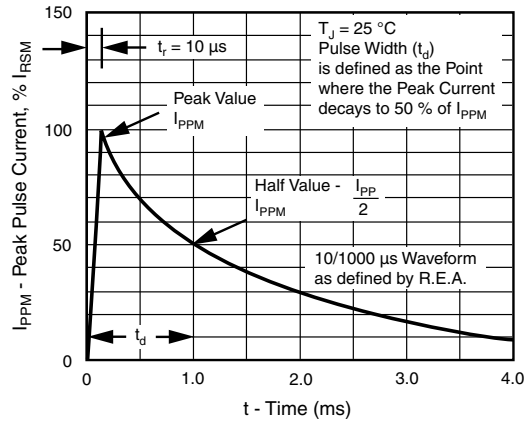


Figure 3. Pulse Waveform

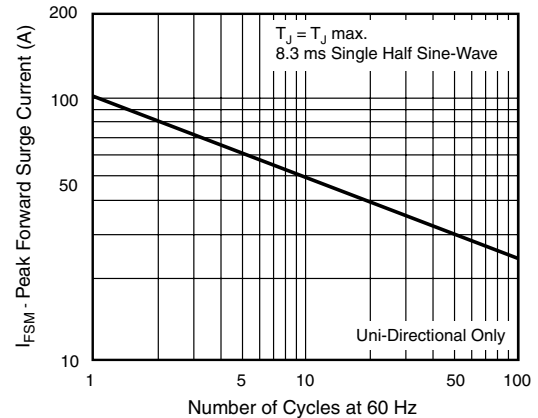


Figure 6. Maximum Non-Repetitive Forward Surge Current

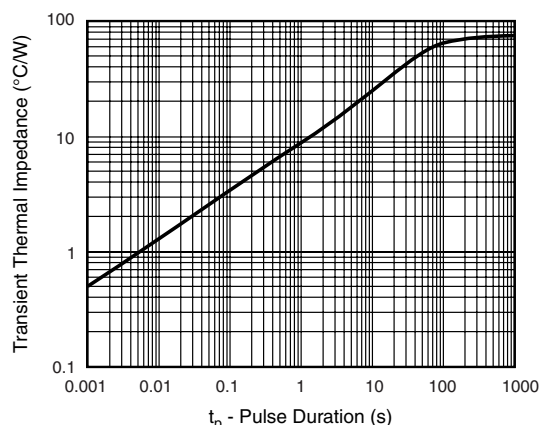
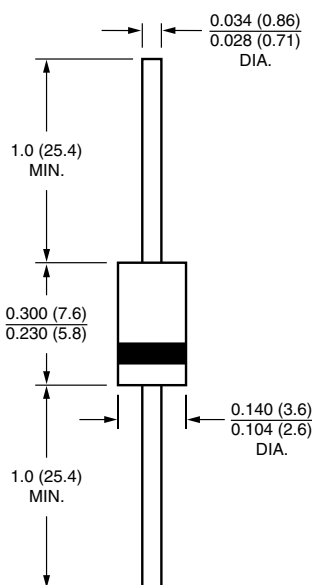


Figure 7. Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AC (DO-15)



### APPLICATION NOTE

This P6KE TVS series is a low cost commercial product for use in applications where large voltage transients can permanently damage voltage-sensitive components.

The P6KE series device types are designed in a small package size where power and space is a consideration. They are characterized by their high surge capability, extremely fast response time, and low impedance, ( $R_{on}$ ). Because of the unpredictable nature of transients, and the variation of the impedance with respect to these transients, impedance, per se, is not specified as a parametric value. However, a minimum voltage at low current conditions ( $BV$ ) and a maximum clamping voltage ( $V_C$ ) at a maximum peak pulse current is specified.

In some instances, the thermal effect (see  $V_C$  Clamping Voltage) may be responsible for 50 % to 70 % of the observed voltage differential when subjected to high current pulses for several duty cycles, thus making a maximum impedance specification insignificant.

In case of a severe current overload or abnormal transient beyond the maximum ratings, the Transient Voltage Suppressor will initially fail 'short' thus tripping the system's circuit breaker or fuse while protecting the entire circuit. Curves depicting clamping voltage vs. various current pulses are available from the factory. Extended power curves vs. pulse time are also available.



### Disclaimer

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