



**DC COMPONENTS CO., LTD.**

RECTIFIER SPECIALISTS

**P6KE6.8  
THRU  
P6KE440CA**

**TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR**

VOLTAGE RANGE - 6.8 to 440 Volts

PEAK PULSE POWER - 600 Watts

**FEATURES**

- \* Glass passivated junction
- \* 600 Watts Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

**MECHANICAL DATA**

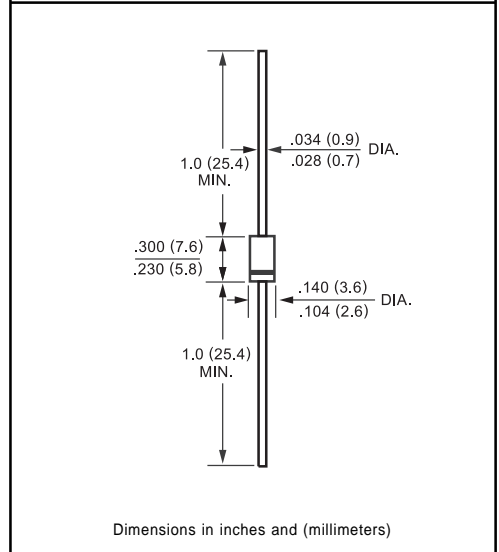
- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: MIL-STD-202E, Method 208 guaranteed
- \* Polarity: Color band denotes positive end (cathode) except bidirectional types
- \* Mounting position: Any
- \* Weight: 0.4 gram

**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 (e.g. P6KE6.8C, P6KE440CA)

Electrical characteristics apply in both directions

|   | SYMBOL                            | VALUE        | UNITS |
|---|-----------------------------------|--------------|-------|
| Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note1, FIG.1)                                       | PPPM                              | Minimum 600  | Watts |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$<br>Lead Lengths .375" ( 9.5 mm ) ( Note 2 )        | PM (AV)                           | 5.0          | Watts |
| Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load( JEDEC Method ) ( Note 3 ) | IFSM                              | 100          | Amps  |
| Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only  | V <sub>F</sub>                    | 3.5/6.5      | Volts |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -65 to + 175 | °C    |

- NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.2.  
2. Mounted on Copper Leaf area of 1.6 X 1.6"(40X40 mm) per Fig. 5  
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.  
4.  $V_F = 3.5\text{V}$  max. for devices of  $V(\text{BR}) \leq 200\text{V}$  and  $V_F = 6.5\text{V}$  for devices of  $V(\text{BR}) > 200\text{V}$ .

# RATING AND CHARACTERISTIC CURVES ( P6KE6.8 THRU P6KE440CA )

FIG. 1 - PEAK PULSE POWER RATING CURVE

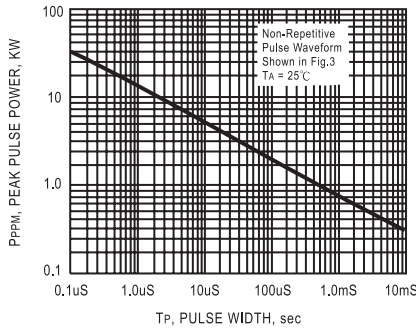


FIG. 2 - PULSE DERATING CURVE

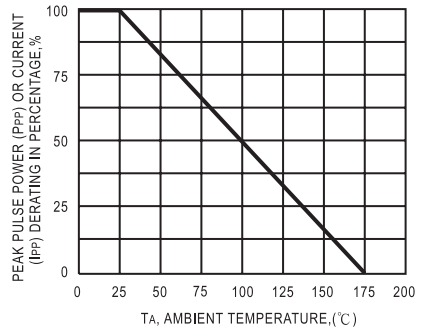


FIG. 3 - PULSE WAVEFORM

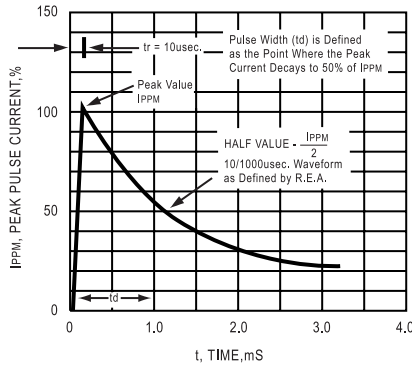


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

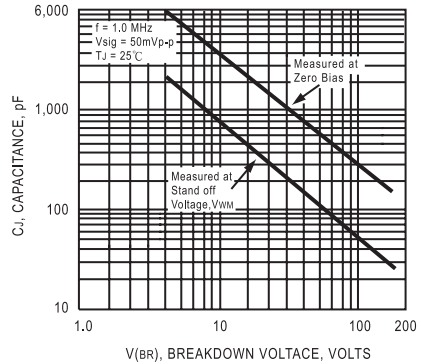


FIG. 5 - STEADY STATE POWER DERATING CURVE

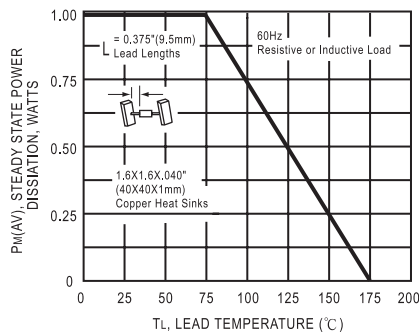


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL

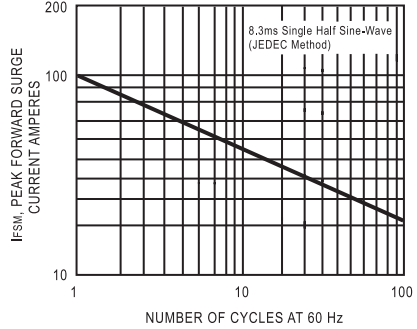
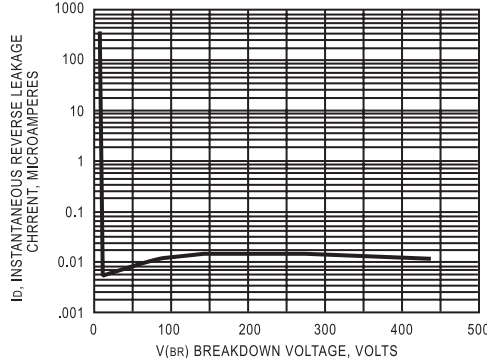


FIG. 7 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS



DC COMPONENTS CO., LTD.

P6KE (600W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

| 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. |              |  |  |   |   |
| 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  |



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| TYPE     | Breakdown Voltage |      |          | Reverse Stand off Voltage VWM (Volts) | Maximum Reverse Leakage at VWM Id(uA) | Maximum Peak Pulse Current IPPM (Amps) | Maximum Clamping Voltage at IPPM Vc (Volts) |
|----------|-------------------|------|----------|---------------------------------------|---------------------------------------|--|---|
|          | VBR (Volts)       |      | @IT (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   |
| P6KE440  | 396               | 484  | 1.0      | 356                                   | 5.0                                   | 0.95                                   | 630   |
| P6KE440A | 418               | 462  | 1.0      | 376                                   | 5.0                                   | 1.00                                   | 600   |

- NOTES : 1.VBR measured after IT applied for 300µs. IT= Square Wave Pulse or equivalent.  
 2.For bidirectional use C or CA suffixs for all types (ex. P6KE6.8C, P6KE440CA).  
 electrical characteristics apply in both directions.  
 3.For bidirectional types having VWM of 10 volts and less, the Id limit is doubled.



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