

# 15KP SERIES

**V<sub>R</sub> : 17 - 240 Volts**  
**P<sub>PK</sub> : 15,000 Watts**

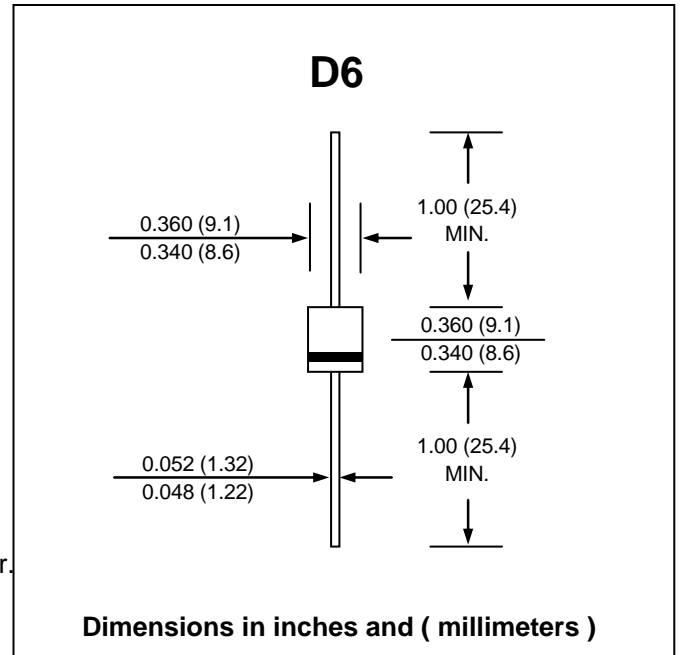
### FEATURES :

- \* Excellent Clamping Capability
- \* Fast Response Time
- \* Low Zener Impedance
- \* Low Leakage Current
- \* Pb / RoHS Free

### MECHANICAL DATA

- \* Case : Void-free molded plastic body
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- \* Polarity : Color band denotes cathode end except Bipolar.
- \* Mounting position : Any
- \* Weight : 2.1 grams

## TRANSIENT VOLTAGE SUPPRESSOR

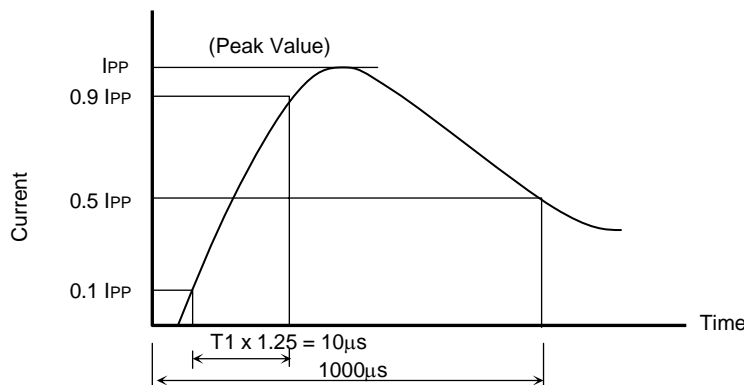


### MAXIMUM RATINGS (T<sub>a</sub> = 25 °C)

| Rating   | Symbol                            | Value         | Unit |
|--|-----------------------------------|---------------|------|
| Peak Pulse Power Dissipation (10X1000µs, see Fig.1 )                                   | P <sub>PK</sub>                   | 15,000        | W    |
| Steady State Power Dissipation   | P <sub>D</sub>                    | 7.0           | W    |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Uni-directional devices only) | I <sub>FSM</sub>                  | 200           | A    |
| Operating and Storage Temperature Range  | T <sub>J</sub> , T <sub>STG</sub> | - 55 to + 175 | °C   |

This pulse is a standard test waveform used for protection devices.

**Fig. 1**



## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Part Number<br>(Uni-directional) | Part Number<br>(Bi-directional) | Reverse Stand Off Voltage | Breakdown Voltage @ $I_T$ |              |      | Maximum Reverse Leakage @ $V_R$ | Maximum Clamping Voltage @ $I_{CP}$ | Maximum Peak Pulse Current | Max. Voltage Variation of $V_{BR}$ |
|----------------------------------|---------------------------------|---------------------------|---------------------------|--------------|------|---------------------------------|-------------------------------------|----------------------------|------------------------------------|
|                                  |                                 |                           | $V_R$                     | $V_{BR}$ (V) |      |                                 |                                     |                            |                                    |
|                                  |                                 | (V)                       | Min.                      | Max.         | (mA) | $I_R$                           | $V_C$                               | $I_{PP}$                   | (mV/°C)                            |
| 15KP17                           | 15KP17C                         | 17                        | 18.9                      | 23.1         | 50   | 5,000                           | 32.2                                | 464                        | 19                                 |
| 15KP17A                          | 15KP17CA                        | 17                        | 18.9                      | 20.9         | 50   | 5,000                           | 29.3                                | 512                        | 17                                 |
| 15KP18                           | 15KP18C                         | 18                        | 20.0                      | 24.4         | 50   | 5,000                           | 34.2                                | 439                        | 20                                 |
| 15KP18A                          | 15KP18CA                        | 18                        | 20.0                      | 22.1         | 50   | 5,000                           | 30.9                                | 485                        | 18                                 |
| 15KP20                           | 15KP20C                         | 20                        | 22.2                      | 27.1         | 20   | 1,500                           | 37.9                                | 396                        | 24                                 |
| 15KP20A                          | 15KP20CA                        | 20                        | 22.2                      | 24.5         | 20   | 1,500                           | 34.3                                | 437                        | 21                                 |
| 15KP22                           | 15KP22C                         | 22                        | 24.4                      | 29.8         | 10   | 500                             | 41.1                                | 365                        | 27                                 |
| 15KP22A                          | 15KP22CA                        | 22                        | 24.4                      | 26.9         | 10   | 500                             | 37.1                                | 404                        | 24                                 |
| 15KP24                           | 15KP24C                         | 24                        | 26.7                      | 32.6         | 5.0  | 150                             | 45.0                                | 333                        | 30                                 |
| 15KP24A                          | 15KP24CA                        | 24                        | 26.7                      | 29.5         | 5.0  | 150                             | 40.7                                | 369                        | 27                                 |
| 15KP26                           | 15KP26C                         | 26                        | 28.9                      | 35.3         | 5.0  | 50                              | 48.7                                | 308                        | 32                                 |
| 15KP26A                          | 15KP26CA                        | 26                        | 28.9                      | 31.9         | 5.0  | 50                              | 44.0                                | 341                        | 29                                 |
| 15KP28                           | 15KP28C                         | 28                        | 31.1                      | 38.0         | 5.0  | 25                              | 52.4                                | 286                        | 35                                 |
| 15KP28A                          | 15KP28CA                        | 28                        | 31.1                      | 34.4         | 5.0  | 25                              | 47.5                                | 316                        | 31                                 |
| 15KP30                           | 15KP30C                         | 30                        | 33.3                      | 40.7         | 5.0  | 15                              | 56.2                                | 267                        | 37                                 |
| 15KP30A                          | 15KP30CA                        | 30                        | 33.3                      | 36.8         | 5.0  | 15                              | 50.7                                | 296                        | 33                                 |
| 15KP33                           | 15KP33C                         | 33                        | 36.7                      | 44.9         | 5.0  | 10                              | 60.6                                | 248                        | 42                                 |
| 15KP33A                          | 15KP33CA                        | 33                        | 36.7                      | 40.6         | 5.0  | 10                              | 54.8                                | 274                        | 38                                 |
| 15KP36                           | 15KP36C                         | 36                        | 40.0                      | 48.9         | 5.0  | 10                              | 66.0                                | 227                        | 46                                 |
| 15KP36A                          | 15KP36CA                        | 36                        | 40.0                      | 44.2         | 5.0  | 10                              | 59.7                                | 251                        | 41                                 |
| 15KP40                           | 15KP40C                         | 40                        | 44.4                      | 54.3         | 5.0  | 10                              | 72.8                                | 206                        | 51                                 |
| 15KP40A                          | 15KP40CA                        | 40                        | 44.4                      | 49.1         | 5.0  | 10                              | 65.8                                | 228                        | 46                                 |
| 15KP43                           | 15KP43C                         | 43                        | 47.8                      | 58.4         | 5.0  | 10                              | 77.1                                | 195                        | 55                                 |
| 15KP43A                          | 15KP43CA                        | 43                        | 47.8                      | 52.8         | 5.0  | 10                              | 69.7                                | 215                        | 50                                 |
| 15KP45                           | 15KP45C                         | 45                        | 50.0                      | 61.1         | 5.0  | 10                              | 80.7                                | 186                        | 57                                 |
| 15KP45A                          | 15KP45CA                        | 45                        | 50.0                      | 55.3         | 5.0  | 10                              | 73.0                                | 205                        | 52                                 |
| 15KP48                           | 15KP48C                         | 48                        | 53.3                      | 65.1         | 5.0  | 10                              | 85.9                                | 175                        | 62                                 |
| 15KP48A                          | 15KP48CA                        | 48                        | 53.3                      | 58.9         | 5.0  | 10                              | 77.7                                | 193                        | 56                                 |
| 15KP51                           | 15KP51C                         | 51                        | 56.7                      | 69.3         | 5.0  | 10                              | 91.5                                | 164                        | 66                                 |
| 15KP51A                          | 15KP51CA                        | 51                        | 56.7                      | 62.7         | 5.0  | 10                              | 82.5                                | 181                        | 60                                 |
| 15KP54                           | 15KP54C                         | 54                        | 60.0                      | 73.3         | 5.0  | 10                              | 96.8                                | 155                        | 70                                 |
| 15KP54A                          | 15KP54CA                        | 54                        | 60.0                      | 66.3         | 5.0  | 10                              | 87.5                                | 171                        | 63                                 |
| 15KP58                           | 15KP58C                         | 58                        | 64.4                      | 78.7         | 5.0  | 10                              | 104                                 | 144                        | 76                                 |
| 15KP58A                          | 15KP58CA                        | 58                        | 64.4                      | 71.2         | 5.0  | 10                              | 94                                  | 160                        | 68                                 |
| 15KP60                           | 15KP60C                         | 60                        | 66.7                      | 81.5         | 5.0  | 10                              | 107                                 | 140                        | 78                                 |
| 15KP60A                          | 15KP60CA                        | 60                        | 66.7                      | 73.7         | 5.0  | 10                              | 97.3                                | 154                        | 70                                 |
| 15KP64                           | 15KP64C                         | 64                        | 71.1                      | 86.9         | 5.0  | 10                              | 115                                 | 130                        | 84                                 |
| 15KP64A                          | 15KP64CA                        | 64                        | 71.1                      | 78.6         | 5.0  | 10                              | 104                                 | 144                        | 76                                 |
| 15KP70                           | 15KP70C                         | 70                        | 77.8                      | 95.1         | 5.0  | 10                              | 126                                 | 119                        | 92                                 |
| 15KP70A                          | 15KP70CA                        | 70                        | 77.8                      | 86.0         | 5.0  | 10                              | 114                                 | 132                        | 83                                 |
| 15KP75                           | 15KP75C                         | 75                        | 83.3                      | 102          | 5.0  | 10                              | 135                                 | 111                        | 100                                |
| 15KP75A                          | 15KP75CA                        | 75                        | 83.3                      | 92.1         | 5.0  | 10                              | 122                                 | 123                        | 89                                 |
| 15KP78                           | 15KP78C                         | 78                        | 86.7                      | 106          | 5.0  | 10                              | 140                                 | 107                        | 104                                |
| 15KP78A                          | 15KP78CA                        | 78                        | 86.7                      | 95.8         | 5.0  | 10                              | 126                                 | 119                        | 93                                 |
| 15KP85                           | 15KP85C                         | 85                        | 94.4                      | 115          | 5.0  | 10                              | 152                                 | 99                         | 113                                |
| 15KP85A                          | 15KP85CA                        | 85                        | 94.4                      | 104          | 5.0  | 10                              | 137                                 | 109                        | 102                                |

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Part Number<br>(Uni-directional) | Part Number<br>(Bi-directional) | Reverse Stand Off Voltage<br>$V_R$<br>(V) | Breakdown Voltage @ $I_T$ |      |               | Maximum Reverse Leakage @ $V_R$<br>$I_R$<br>( $\mu$ A) | Maximum Clamping Voltage @ $I_{CP}$<br>$V_C$<br>(V) | Maximum Peak Pulse Current<br>$I_{PP}$<br>(A) | Max. Voltage Temperature Variation of $V_{BR}$<br>(mV/°C) |
|----------------------------------|---------------------------------|---|---------------------------|------|---------------|--|---|---|---|
|                                  |                                 |   | $V_{BR}$ (V)              |      | $I_T$<br>(mA) |  |   |   |   |
|                                  |                                 |   | Min.                      | Max. |               |  |   |   |   |
| 15KP90                           | 15KP90C                         | 90  | 100                       | 122  | 5.0           | 10   | 160   | 94  | 120   |
| 15KP90A                          | 15KP90CA                        | 90  | 100                       | 111  | 5.0           | 10   | 146   | 103   | 110   |
| 15KP100                          | 15KP100C                        | 100                                       | 111                       | 136  | 5.0           | 10   | 179   | 84  | 134   |
| 15KP100A                         | 15KP100CA                       | 100                                       | 111                       | 123  | 5.0           | 10   | 162   | 93  | 123   |
| 15KP110                          | 15KP110C                        | 110                                       | 122                       | 149  | 5.0           | 10   | 196   | 77  | 147   |
| 15KP110A                         | 15KP110CA                       | 110                                       | 122                       | 135  | 5.0           | 10   | 178   | 84  | 133   |
| 15KP120                          | 15KP120C                        | 120                                       | 133                       | 163  | 5.0           | 10   | 214   | 70  | 161   |
| 15KP120A                         | 15KP120CA                       | 120                                       | 133                       | 147  | 5.0           | 10   | 193   | 78  | 146   |
| 15KP130                          | 15KP130C                        | 130                                       | 144                       | 176  | 5.0           | 10   | 231   | 65  | 174   |
| 15KP130A                         | 15KP130CA                       | 130                                       | 144                       | 159  | 5.0           | 10   | 209   | 72  | 158   |
| 15KP150                          | 15KP150C                        | 150                                       | 167                       | 204  | 5.0           | 10   | 268   | 56  | 202   |
| 15KP150A                         | 15KP150CA                       | 150                                       | 167                       | 185  | 5.0           | 10   | 243   | 62  | 184   |
| 15KP160                          | 15KP160C                        | 160                                       | 178                       | 218  | 5.0           | 10   | 287   | 52  | 216   |
| 15KP160A                         | 15KP160CA                       | 160                                       | 178                       | 197  | 5.0           | 10   | 259   | 58  | 196   |
| 15KP170                          | 15KP170C                        | 170                                       | 189                       | 231  | 5.0           | 10   | 304   | 49  | 229   |
| 15KP170A                         | 15KP170CA                       | 170                                       | 189                       | 209  | 5.0           | 10   | 275   | 55  | 208   |
| 15KP180                          | 15KP180C                        | 180                                       | 200                       | 244  | 5.0           | 10   | 321   | 47  | 242   |
| 15KP180A                         | 15KP180CA                       | 180                                       | 200                       | 221  | 5.0           | 10   | 287   | 52  | 220   |
| 15KP200                          | 15KP200C                        | 200                                       | 222                       | 271  | 5.0           | 10   | 356   | 42  | 296   |
| 15KP200A                         | 15KP200CA                       | 200                                       | 222                       | 245  | 5.0           | 10   | 325   | 46  | 274   |
| 15KP220                          | 15KP220C                        | 220                                       | 245                       | 299  | 5.0           | 10   | 393   | 38  | 297   |
| 15KP220A                         | 15KP220CA                       | 220                                       | 245                       | 271  | 5.0           | 10   | 347   | 43  | 273   |
| 15KP240                          | 15KP240C                        | 240                                       | 267                       | 326  | 5.0           | 10   | 428   | 35  | 324   |
| 15KP240A                         | 15KP240CA                       | 240                                       | 267                       | 295  | 5.0           | 10   | 387   | 39  | 300   |

**Note:**

- (1) Suffix " A " denotes 5% tolerance device , no suffix denotes a 10% tolerance device.

Fig. 2 - Peak Pulse Power vs. Pulse Time

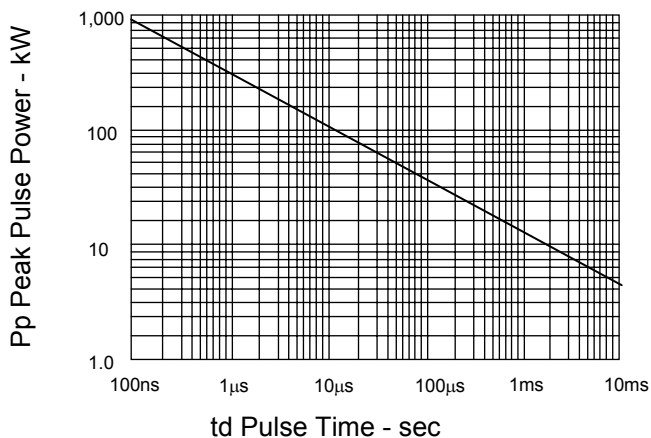


Fig. 3 - Typical Capacitance vs. Breakdown Voltage

