

## 30KP SERIES

**$V_R$  : 22 - 400 Volts**

**$P_{PK}$  : 30,000 Watts**

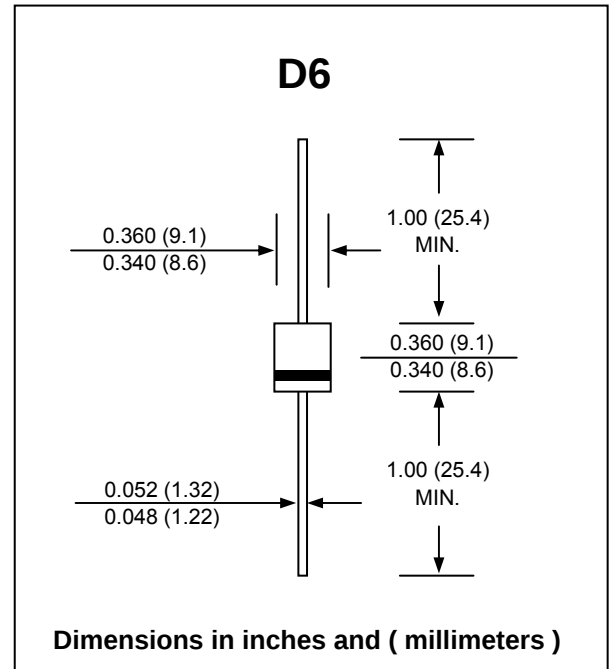
### FEATURES :

- \* Glass passivated junction chip
- \* Excellent Clamping Capability
- \* Fast Response Time
- \* Low Leakage Current
- \* **Pb / RoHS Free**

### MECHANICAL DATA

- \* Case : Void-free molded plastic body
- \* Epoxy : UL94V-0 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

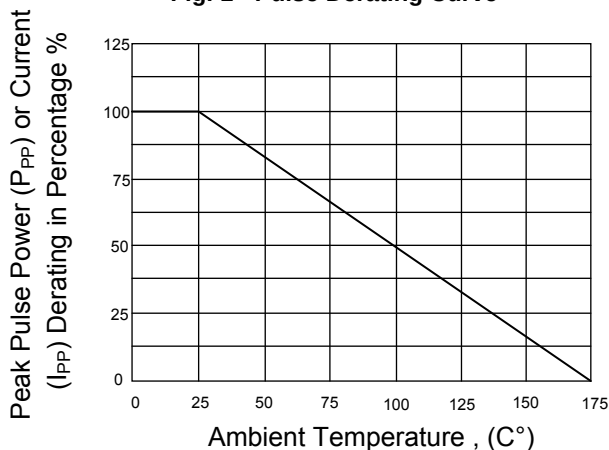
## TRANSIENT VOLTAGE SUPPRESSOR



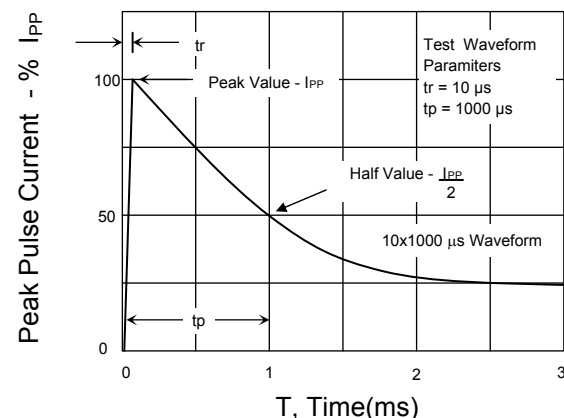
### MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

| Rating                                                                                 | Symbol         | Value         | Unit             |
|----------------------------------------------------------------------------------------|----------------|---------------|------------------|
| Peak Pulse Power Dissipation (10 x 1000 $\mu\text{s}$ , see Fig.2 )                    | $P_{PK}$       | 30,000        | W                |
| Steady State Power Dissipation                                                         | $P_D$          | 7             | W                |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Uni-directional devices only) | $I_{FSM}$      | 250           | A                |
| Operating and Storage Temperature Range                                                | $T_J, T_{STG}$ | - 55 to + 175 | $^\circ\text{C}$ |

**Fig. 1 - Pulse Derating Curve**



**Fig. 2 - Pulse Wave Form**



## 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 @ $I_{(BR)}$ |      |            | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Maximum $V_{(BR)}$ Temperature Coefficient |
|----------------------------------|---------------------------------|---------------------------|--------------------------------|------|------------|------------------------------------|-------------------------------------|----------------------------|--------------------------------------------|
|                                  |                                 | $V_{WM}$                  | $V_{BR}$ (V)                   |      | $I_{(BR)}$ | $I_D$                              | $V_C$                               | $I_{PP}$                   | $\alpha_{V(BR)}$                           |
|                                  |                                 | (V)                       | Min.                           | Max. | (mA)       | ( $\mu A$ )                        | (V)                                 | (A)                        | (mV/°C)                                    |
| 30KP22                           | 30KP22C                         | 22                        | 24.4                           | 29.8 | 50         | 10000                              | 41.1                                | 730                        | 27                                         |
| 30KP22A                          | 30KP22CA                        | 22                        | 24.4                           | 26.9 | 50         | 10000                              | 37.1                                | 808                        | 24                                         |
| 30KP24                           | 30KP24C                         | 24                        | 26.7                           | 32.6 | 50         | 10000                              | 45.0                                | 666                        | 30                                         |
| 30KP24A                          | 30KP24CA                        | 24                        | 26.7                           | 29.5 | 50         | 10000                              | 40.7                                | 738                        | 27                                         |
| 30KP26                           | 30KP26C                         | 26                        | 28.9                           | 35.3 | 50         | 10000                              | 48.7                                | 616                        | 32                                         |
| 30KP26A                          | 30KP26CA                        | 26                        | 28.9                           | 31.9 | 50         | 10000                              | 44.0                                | 682                        | 29                                         |
| 30KP28                           | 30KP28C                         | 28                        | 31.1                           | 38.0 | 50         | 8000                               | 52.4                                | 572                        | 35                                         |
| 30KP28A                          | 30KP28CA                        | 28                        | 31.1                           | 34.4 | 50         | 8000                               | 47.5                                | 632                        | 31                                         |
| 30KP30                           | 30KP30C                         | 30                        | 33.3                           | 40.7 | 50         | 8000                               | 56.2                                | 534                        | 37                                         |
| 30KP30A                          | 30KP30CA                        | 30                        | 33.3                           | 36.9 | 50         | 8000                               | 50.7                                | 592                        | 33                                         |
| 30KP33                           | 30KP33C                         | 33                        | 36.7                           | 44.9 | 50         | 5000                               | 64.6                                | 496                        | 42                                         |
| 30KP33A                          | 30KP33CA                        | 33                        | 36.7                           | 40.6 | 50         | 5000                               | 58.6                                | 548                        | 38                                         |
| 30KP36                           | 30KP36C                         | 36                        | 40.0                           | 48.9 | 50         | 5000                               | 68.2                                | 454                        | 46                                         |
| 30KP36A                          | 30KP36CA                        | 36                        | 40.0                           | 44.2 | 50         | 5000                               | 61.8                                | 502                        | 41                                         |
| 30KP40                           | 30KP40C                         | 40                        | 44.4                           | 54.3 | 20         | 1500                               | 75.8                                | 412                        | 51                                         |
| 30KP40A                          | 30KP40CA                        | 40                        | 44.4                           | 49.1 | 20         | 1500                               | 68.6                                | 456                        | 46                                         |
| 30KP43                           | 30KP43C                         | 43                        | 47.8                           | 58.4 | 10         | 500                                | 79.0                                | 380                        | 55                                         |
| 30KP43A                          | 30KP43CA                        | 43                        | 47.8                           | 52.8 | 10         | 500                                | 71.0                                | 430                        | 50                                         |
| 30KP45                           | 30KP45C                         | 45                        | 50.0                           | 61.1 | 5          | 150                                | 80.7                                | 372                        | 57                                         |
| 30KP45A                          | 30KP45CA                        | 45                        | 50.0                           | 55.3 | 5          | 150                                | 73.0                                | 410                        | 52                                         |
| 30KP48                           | 30KP48C                         | 48                        | 53.3                           | 65.1 | 5          | 150                                | 85.9                                | 350                        | 62                                         |
| 30KP48A                          | 30KP48CA                        | 48                        | 53.3                           | 58.9 | 5          | 150                                | 77.7                                | 386                        | 56                                         |
| 30KP51                           | 30KP51C                         | 51                        | 56.7                           | 69.3 | 5          | 50                                 | 91.5                                | 328                        | 66                                         |
| 30KP51A                          | 30KP51CA                        | 51                        | 56.7                           | 62.7 | 5          | 50                                 | 82.8                                | 362                        | 60                                         |
| 30KP54                           | 30KP54C                         | 54                        | 60.0                           | 73.3 | 5          | 25                                 | 96.8                                | 310                        | 70                                         |
| 30KP54A                          | 30KP54CA                        | 54                        | 60.0                           | 66.3 | 5          | 25                                 | 87.5                                | 342                        | 63                                         |
| 30KP58                           | 30KP58C                         | 58                        | 64.4                           | 78.7 | 5          | 15                                 | 104                                 | 288                        | 76                                         |
| 30KP58A                          | 30KP58CA                        | 58                        | 64.4                           | 71.2 | 5          | 15                                 | 94                                  | 320                        | 68                                         |
| 30KP60                           | 30KP60C                         | 60                        | 66.7                           | 81.5 | 5          | 15                                 | 107                                 | 280                        | 78                                         |
| 30KP60A                          | 30KP60CA                        | 60                        | 66.7                           | 73.7 | 5          | 15                                 | 97.3                                | 304                        | 71                                         |
| 30KP64                           | 30KP64C                         | 64                        | 71.1                           | 86.9 | 5          | 10                                 | 115                                 | 260                        | 84                                         |
| 30KP64A                          | 30KP64CA                        | 64                        | 71.1                           | 78.6 | 5          | 10                                 | 104                                 | 288                        | 76                                         |
| 30KP70                           | 30KP70C                         | 70                        | 77.8                           | 95.1 | 5          | 10                                 | 126                                 | 238                        | 92                                         |
| 30KP70A                          | 30KP70CA                        | 70                        | 77.8                           | 86.0 | 5          | 10                                 | 114                                 | 264                        | 83                                         |
| 30KP75                           | 30KP75C                         | 75                        | 83.3                           | 102  | 5          | 10                                 | 135                                 | 222                        | 100                                        |
| 30KP75A                          | 30KP75CA                        | 75                        | 83.3                           | 92.1 | 5          | 10                                 | 122                                 | 246                        | 89                                         |
| 30KP78                           | 30KP78C                         | 78                        | 86.7                           | 106  | 5          | 10                                 | 140                                 | 214                        | 104                                        |
| 30KP78A                          | 30KP78CA                        | 78                        | 86.7                           | 95.8 | 5          | 10                                 | 126                                 | 238                        | 93                                         |
| 30KP85                           | 30KP85C                         | 85                        | 94.4                           | 115  | 5          | 10                                 | 152                                 | 198                        | 113                                        |
| 30KP85A                          | 30KP85CA                        | 85                        | 94.4                           | 104  | 5          | 10                                 | 137                                 | 218                        | 102                                        |
| 30KP90                           | 30KP90C                         | 90                        | 100                            | 122  | 5          | 10                                 | 160                                 | 188                        | 120                                        |
| 30KP90A                          | 30KP90CA                        | 90                        | 100                            | 111  | 5          | 10                                 | 146                                 | 206                        | 109                                        |
| 30KP100                          | 30KP100C                        | 100                       | 111                            | 136  | 5          | 10                                 | 179                                 | 168                        | 134                                        |
| 30KP100A                         | 30KP100CA                       | 100                       | 111                            | 123  | 5          | 10                                 | 162                                 | 186                        | 121                                        |

## 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 @ $I_{(BR)}$ |      |            | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Maximum $V_{(BR)}$ Temperature Coefficient |
|----------------------------------|---------------------------------|---------------------------|--------------------------------|------|------------|------------------------------------|-------------------------------------|----------------------------|--------------------------------------------|
|                                  |                                 | $V_{WM}$                  | $V_{BR}$ (V)                   |      | $I_{(BR)}$ | $I_D$                              | $V_C$                               | $I_{PP}$                   | $\alpha_{V(BR)}$                           |
|                                  |                                 | (V)                       | Min.                           | Max. | (mA)       | ( $\mu$ A)                         | (V)                                 | (A)                        | (mV/°C)                                    |
| 30KP110                          | 30KP110C                        | 110                       | 122                            | 149  | 5          | 10                                 | 196                                 | 154                        | 147                                        |
| 30KP110A                         | 30KP110CA                       | 110                       | 122                            | 135  | 5          | 10                                 | 178                                 | 168                        | 133                                        |
| 30KP120                          | 30KP120C                        | 120                       | 133                            | 163  | 5          | 10                                 | 214                                 | 140                        | 161                                        |
| 30KP120A                         | 30KP120CA                       | 120                       | 133                            | 147  | 5          | 10                                 | 193                                 | 156                        | 145                                        |
| 30KP130                          | 30KP130C                        | 130                       | 144                            | 176  | 5          | 10                                 | 231                                 | 130                        | 174                                        |
| 30KP130A                         | 30KP130CA                       | 130                       | 144                            | 159  | 5          | 10                                 | 209                                 | 142                        | 157                                        |
| 30KP150                          | 30KP150C                        | 150                       | 167                            | 204  | 5          | 10                                 | 268                                 | 112                        | 202                                        |
| 30KP150A                         | 30KP150CA                       | 150                       | 167                            | 185  | 5          | 10                                 | 243                                 | 124                        | 183                                        |
| 30KP160                          | 30KP160C                        | 160                       | 178                            | 218  | 5          | 10                                 | 287                                 | 104                        | 216                                        |
| 30KP160A                         | 30KP160CA                       | 160                       | 178                            | 197  | 5          | 10                                 | 259                                 | 116                        | 195                                        |
| 30KP170                          | 30KP170C                        | 170                       | 189                            | 231  | 5          | 10                                 | 304                                 | 98                         | 229                                        |
| 30KP170A                         | 30KP170CA                       | 170                       | 189                            | 209  | 5          | 10                                 | 275                                 | 110                        | 207                                        |
| 30KP180                          | 30KP180C                        | 180                       | 200                            | 244  | 5          | 10                                 | 321                                 | 94                         | 242                                        |
| 30KP180A                         | 30KP180CA                       | 180                       | 200                            | 221  | 5          | 10                                 | 291                                 | 104                        | 219                                        |
| 30KP200                          | 30KP200C                        | 200                       | 222                            | 271  | 5          | 10                                 | 356                                 | 84                         | 269                                        |
| 30KP200A                         | 30KP200CA                       | 200                       | 222                            | 245  | 5          | 10                                 | 322                                 | 94                         | 243                                        |
| 30KP220                          | 30KP220C                        | 220                       | 245                            | 299  | 5          | 10                                 | 393                                 | 76                         | 297                                        |
| 30KP220A                         | 30KP220CA                       | 220                       | 245                            | 271  | 5          | 10                                 | 356                                 | 84                         | 269                                        |
| 30KP250A                         | 30KP250CA                       | 250                       | 278                            | 308  | 5          | 10                                 | 403                                 | 74                         | 306                                        |
| 30KP260A                         | 30KP260CA                       | 260                       | 289                            | 320  | 5          | 10                                 | 419                                 | 71                         | 318                                        |
| 30KP280A                         | 30KP280CA                       | 280                       | 311                            | 345  | 5          | 10                                 | 451                                 | 66                         | 344                                        |
| 30KP300A                         | 30KP300CA                       | 300                       | 333                            | 369  | 5          | 10                                 | 483                                 | 62                         | 368                                        |
| 30KP350A                         | 30KP350CA                       | 350                       | 389                            | 431  | 5          | 10                                 | 564                                 | 53                         | 430                                        |
| 30KP400A                         | 30KP400CA                       | 400                       | 444                            | 492  | 5          | 10                                 | 644                                 | 46                         | 490                                        |

Note:

- (1) For bidirectional type having  $V_{WM}$  of 60 volts and less, the  $I_D$  limit is double.

Fig. 3 - Peak Pulse Power vs. Pulse Time

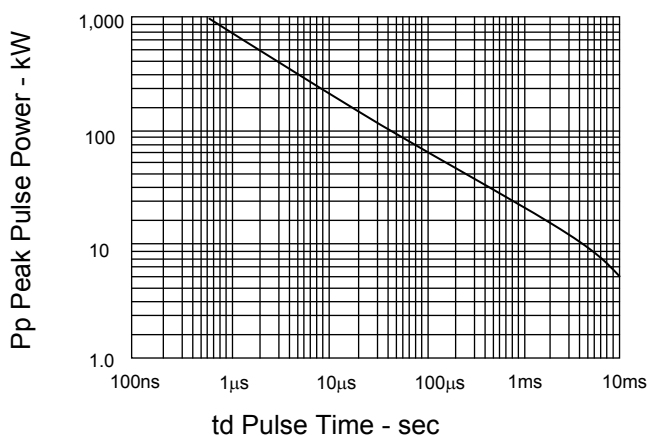


Fig. 4 - Typical Capacitance vs. Breakdown Voltage

