



## TVS Diodes Axial Leaded - 15kA > KD Series

### Description

The KD Series of high power TVS diode is specially designed for meeting severe surge test environment of both AC and DC line protection applications. It features a very fast response and ultra low clamping characteristics over traditional metal oxide (MOV) solutions. They can be connected in series and / or parallel to create a very high surge current protection solution..

- Very low clamping voltage
- Ultra compact: less than one-tenth the size of traditional discrete solutions
- Sharp breakdown voltage
- Low slope resistance
- Bi-directional
- Foldbak technology for superior clamping factor
- Symmetric in leads width for easier soldering during assembly.
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Halogen-free
- RoHS compliant
- Glass passivated junction
- Pb-free E4 means 2nd level interconnect is Pb-free and the terminal finish material is Silver



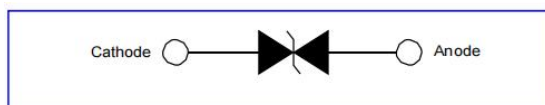
### Maximum Ratings and Thermal Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                        | Symbol         | Value        | Unit               |
|--------------------------------------------------|----------------|--------------|--------------------|
| Operating Junction and Storage Temperature Range | $T_J, T_{STG}$ | (-)55 to 125 | $^{\circ}\text{C}$ |
| Current Rating1                                  | $I_{PP}$       | 15           | kA                 |

Note:

1. Rated  $I_{PP}$  with 8/20 $\mu\text{s}$  pulse.

### Functional Diagram



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

| Part Number | Reverse Stand-Off Voltage |                 | Breakdown Voltage          | Test Current  | Current Rating                     | Maximum Clamping Voltage | Reverse Leakage                     |
|-------------|---------------------------|-----------------|----------------------------|---------------|------------------------------------|--------------------------|-------------------------------------|
|             | $V_{AC}$<br>(V)           | $V_{DC}$<br>(V) | Min. $V_{BR} @ I_T$<br>(V) | $I_T$<br>(mA) | $I_{PP} @ 8/20\mu\text{s}$<br>(kA) | $V_C @ I_{PP}$<br>(V)    | $I_R @ V_{DC}$<br>( $\mu\text{A}$ ) |
| KD-025C     | 17                        | 25              | 28                         | 10            | 15                                 | 95                       | 2                                   |
| KD-030C     | 21                        | 30              | 33                         | 10            | 15                                 | 100                      | 2                                   |
| KD-042C     | 30                        | 42              | 47                         | 10            | 15                                 | 105                      | 2                                   |
| KD-058C     | 40                        | 58              | 64                         | 10            | 15                                 | 110                      | 2                                   |
| KD-066C     | 45                        | 66              | 70                         | 10            | 15                                 | 120                      | 2                                   |
| KD-076C     | 54                        | 76              | 85                         | 10            | 15                                 | 140                      | 2                                   |
| KD-150C     | 105                       | 150             | 165                        | 10            | 15                                 | 240                      | 2                                   |
| KD-170C     | 130                       | 170             | 180                        | 10            | 15                                 | 260                      | 2                                   |
| KD-190C     | 145                       | 190             | 200                        | 10            | 15                                 | 290                      | 2                                   |
| KD-200C     | 150                       | 200             | 222                        | 10            | 15                                 | 330                      | 2                                   |



### Physical Specifications

|          |                                                             |
|----------|-------------------------------------------------------------|
| Weight   | Contact manufacturer                                        |
| Case     | Epoxy encapsulated                                          |
| Terminal | Silver plated leads, solderable per MIL-STD-750 Method 2026 |

### Flow/Wave Soldering (Solder Dipping)

|                    |            |
|--------------------|------------|
| Peak Temperature : | 265°C      |
| Dipping Time :     | 10 seconds |
| Soldering :        | 1 time     |

### Wave Solder Profile

Figure 1 - Non Lead-free Profile

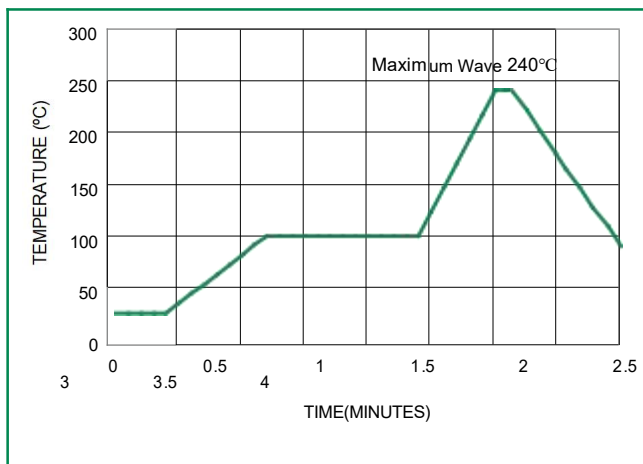
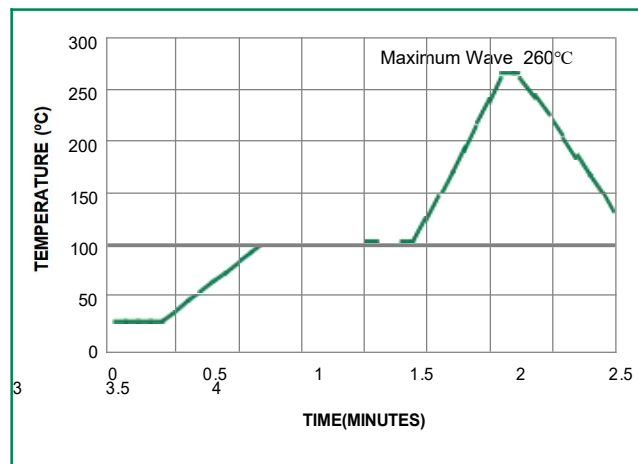


Figure 2 - Lead-free Profile



### Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 3 - Peak Power Derating

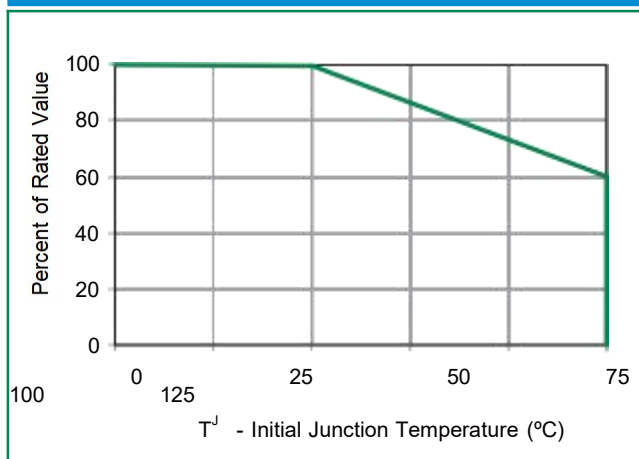


Figure 4 - Surge Response

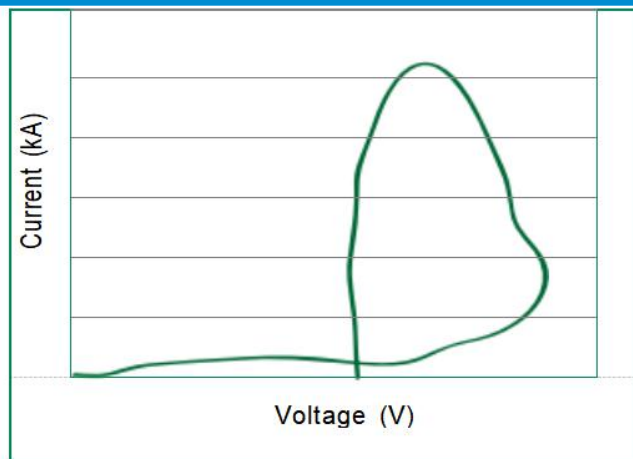


Figure 5 - Typical Peak Pulse Power Rating Curve

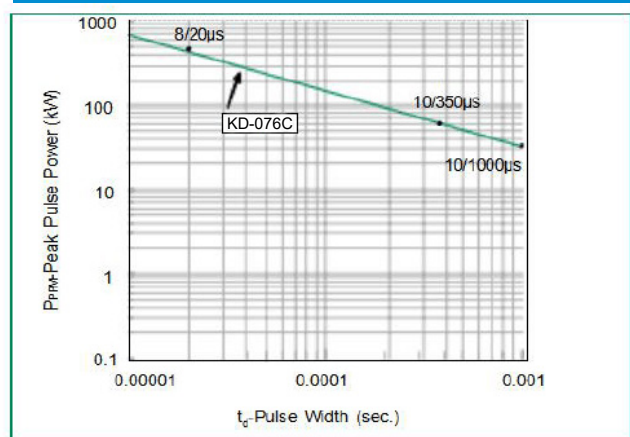
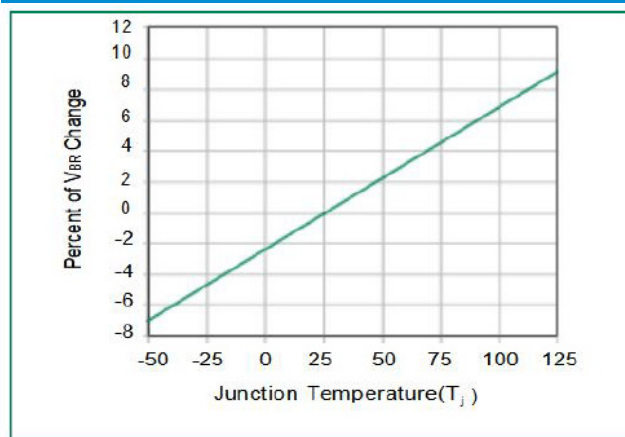


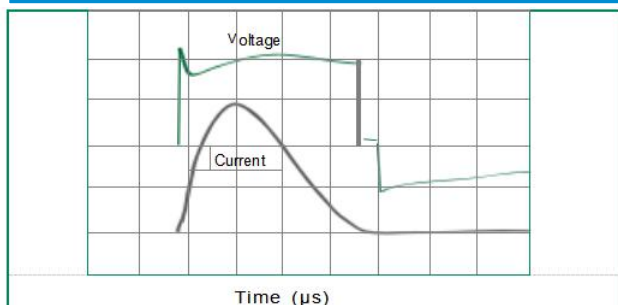
Figure 6 - Typical  $V_{BR}$  Vs Junction Temperature





Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

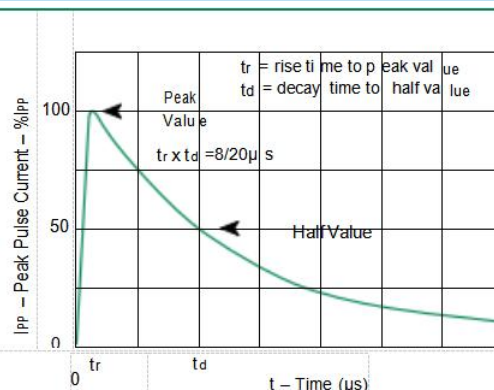
Figure 7 -Surge Response (8/20 Surge current waveform)



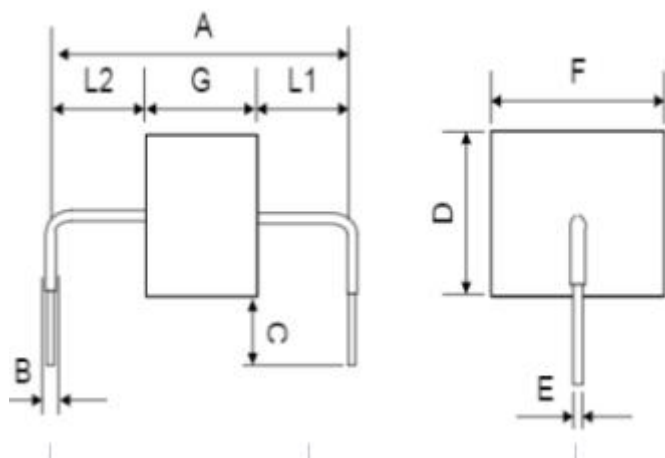
Note:

The power dissipation causes a change in avalanche voltage during the surge and the avalanche voltage eventually returns to the original value when the transient has passed.

Figure 8 - Pulse Waveform

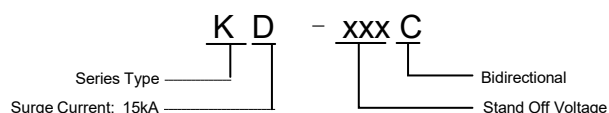


Dimensions



| KD 尺寸图                |             |
|-----------------------|-------------|
| Ref. (mm)             | Millimeters |
| A                     | 24.15±1.00  |
| B                     | 2.4±0.60    |
| C                     | 6.0MIN      |
| D                     | 16.0MAX     |
| E                     | 1.28±0.02   |
| F                     | 16.0MAX     |
| G-030                 | 6.0MAX      |
| G-058/66/076          | 8.0MAX      |
| G150/170/190/200      | 15MAX       |
| L1=L2 tolerance±1.2mm |             |

Part Number System



Order Information

| Part Number | Marking | Package | Qualities |
|-------------|---------|---------|-----------|
| KD Series   | KD-xxx  | BPSS    | 56pcs/Box |