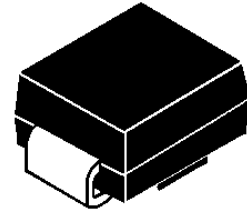


## Thyristor Surge Protection Devices

### Features

- SMA or SMB Package
- Bi-directional Configurations
- Low Leakage <5 uA
- Quick Response to Surge Voltage
- RoHS Compliant in Lead-Free Versions



### Applications

- T1/E1 Trunk & Line Card
- RS-485/RS-232/RS-422
- Video/audio line

### Absolute Maximum Ratings

| Parameter                            | Symbol           | Value             | Units |
|--------------------------------------|------------------|-------------------|-------|
| Surge Ratings (10/700us)             |                  | See surge ratings | V     |
| Storage Temperature Range            | T <sub>STG</sub> | -55 to 150        | °C    |
| Operating Junction Temperature Range | T <sub>J</sub>   | -55 to 150        | °C    |

### Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Device   | V <sub>RWM</sub><br>(V) | V <sub>S</sub> (V)<br>@ I <sub>S</sub> | V <sub>T</sub> (V)<br>@ I <sub>T</sub> | I <sub>DRM</sub> (uA)<br>@ V <sub>RWM</sub> | I <sub>S</sub><br>(mA) | I <sub>T</sub><br>(A) | I <sub>H</sub><br>(mA) | Co(pF) @VR=2V<br>F = 1 MHz |
|----------|-------------------------|--|--|---|------------------------|-----------------------|------------------------|----------------------------|
|          | Max                     | Max                                    | Max                                    | Max   |                        |                       |                        | Max                        |
| KP0080S_ | 6                       | 25                                     | 4                                      | 5.0   | 800                    | 2.2                   | 50                     | 100                        |
| KP0300S_ | 25                      | 40                                     | 4                                      | 5.0   | 800                    | 2.2                   | 50                     | 110                        |
| KP0640S_ | 58                      | 77                                     | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 50                         |
| KP0720S_ | 65                      | 88                                     | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 50                         |
| KP1800S_ | 160                     | 220                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 40                         |
| KP2300S_ | 190                     | 260                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 30                         |
| KP2600S_ | 220                     | 300                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 30                         |
| KP3100S_ | 275                     | 350                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 30                         |
| KP3500S_ | 320                     | 400                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 30                         |
| KP4200S_ | 390                     | 500                                    | 4                                      | 5.0   | 800                    | 2.2                   | 150                    | 30                         |

\*For individual "SA", "SB", "SC" surge ratings, see table below.

\*\*Co" is a typical value for "SA" and "SB" product. "SC" capacitance is approximately 2x the listed value.

"Co" of KP0080SB is equal to the "SC" device.

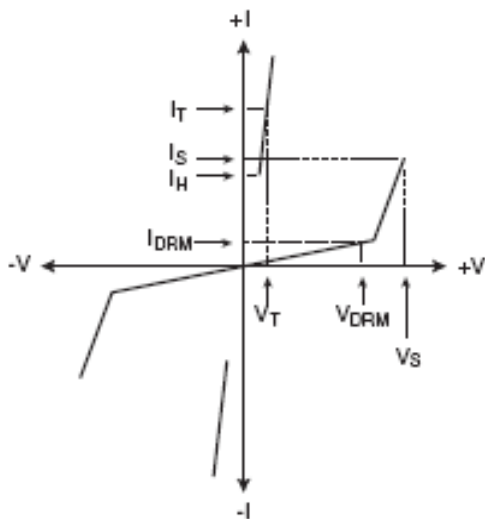
## Surge Ratings

| Series | $I_{PP}(A)$<br>2x10us | $I_{PP}(A)$<br>8x20us | $I_{PP}(A)$<br>10x160us | $I_{PP}(A)$<br>10x560us | $I_{PP}(A)$<br>10x1000us | $I_{TSM}(A)$<br>60Hz | di/dt<br>(A/us) |
|--------|-----------------------|-----------------------|-------------------------|-------------------------|--------------------------|----------------------|-----------------|
| A      | 150                   | 150                   | 90                      | 50                      | 45                       | 20                   | 500             |
| B      | 250                   | 250                   | 150                     | 100                     | 80                       | 30                   | 500             |
| C      | 500                   | 400                   | 200                     | 150                     | 100                      | 30                   | 500             |

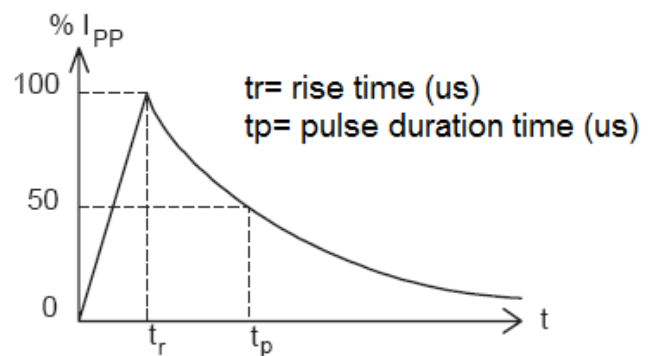
## Package

| Series | Package    |
|--------|------------|
| A      | SMA or SMB |
| B      | SMB        |
| C      | SMB        |

## Characteristics



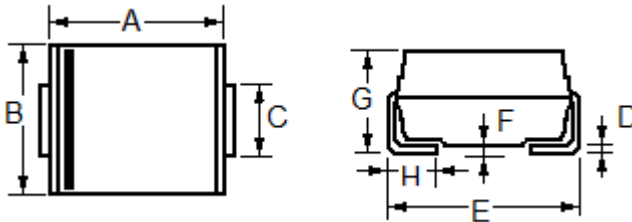
**Fig1. V-I Characteristics**



**Fig2. Pulse Waveform ( $t_r=10\mu s$   $t_p=700\mu s$ )**

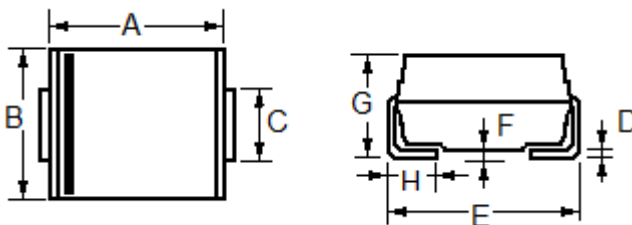
**Package Dimensions**

**DO-214AC(SMA)**



| Dim | Millimeters |       | Inches |       |
|-----|-------------|-------|--------|-------|
|     | Min         | Max   | Min    | Max   |
| A   | 3.99        | 4.57  | 0.157  | 0.180 |
| B   | 2.29        | 2.92  | 0.09   | 0.115 |
| C   | 1.25        | 1.65  | 0.049  | 0.065 |
| D   | 0.152       | 0.405 | 0.006  | 0.016 |
| E   | 4.83        | 5.59  | 0.190  | 0.220 |
| F   | ----        | 0.203 | ----   | 0.008 |
| G   | 1.91        | 2.41  | 0.075  | 0.095 |
| H   | 0.76        | 1.52  | 0.030  | 0.060 |

**DO-214AA (SMB)**



| Dim | Millimeters |      | Inches |       |
|-----|-------------|------|--------|-------|
|     | Min         | Max  | Min    | Max   |
| A   | 4.06        | 4.57 | 0.160  | 0.180 |
| B   | 3.30        | 3.94 | 0.130  | 0.155 |
| C   | 1.95        | 2.20 | 0.077  | 0.086 |
| D   | 0.13        | 0.31 | 0.006  | 0.012 |
| E   | 5.08        | 5.59 | 0.200  | 0.220 |
| F   | -           | 0.20 | -      | 0.008 |
| G   | 2.13        | 2.44 | 0.084  | 0.096 |
| H   | 0.76        | 1.52 | 0.030  | 0.060 |