

## Ultra low Bi-directional Capacitance Snapback TVS

### Features:

- Ultra low leakage: nA level
- Operating voltage: 24V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 15\text{kV}$
    - Contact discharge:  $\pm 15\text{KV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 5A (8/20  $\mu\text{s}$ )
- RoHS Compliant

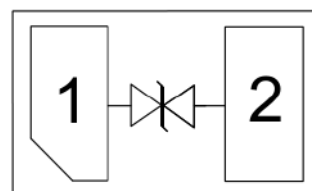
### DFN0603



### Applications:

- Smart phones
- Display Ports
- MDDI Ports
- USB Ports
- Digital Video Interface (DVI)
- PCI Express and Serial SATA Ports

### Pin Configuration



## Mechanical Characteristics

- Package: DFN0603
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 10,000pcs
- Reel Size: 7 inch
- Device Marking: CR

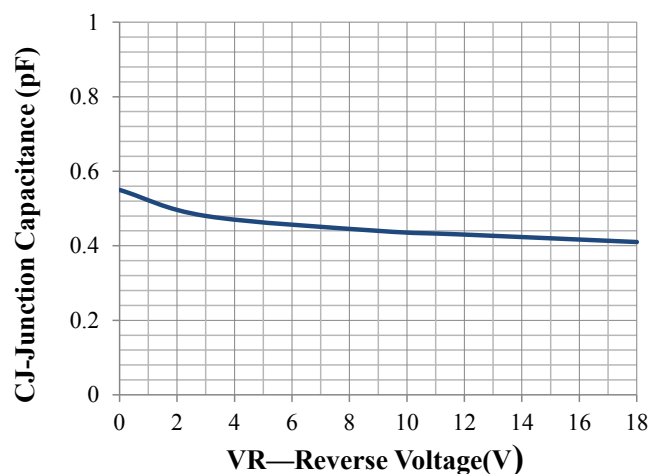
## Absolute Maximum Ratings (T<sub>amb</sub>=25°C unless otherwise specified)

| Parameter                              | Symbol           | Value       | Unit |
|----------------------------------------|------------------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ ) | P <sub>pp</sub>  | 35          | W    |
| ESD per IEC 61000-4-2 (Air)            | V <sub>ESD</sub> | $\pm 15$    | Kv   |
| ESD per IEC 61000-4-2 (Contact)        |                  | $\pm 15$    |      |
| Operating Temperature Range            | T <sub>J</sub>   | -55 to +125 | °C   |
| Storage Temperature Range              | T <sub>STJ</sub> | -55 to +150 | °C   |

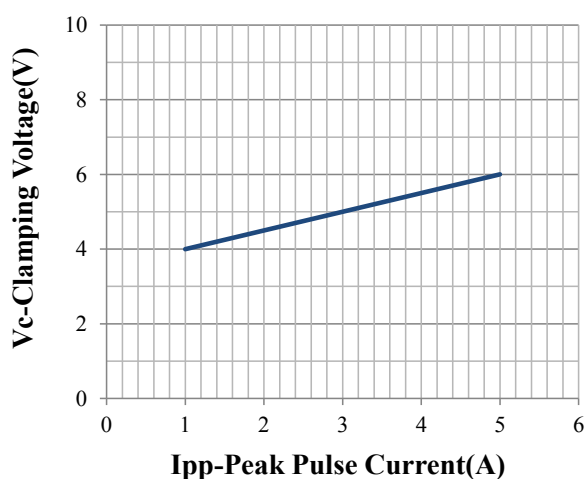
## Electrical Characteristics (TA=25°C unless otherwise specified)

| Parameter               | Symbol           | Test Condition                        | Min  | Typ  | Max | Unit |
|-------------------------|------------------|---------------------------------------|------|------|-----|------|
| Reverse Working Voltage | V <sub>RWM</sub> |                                       |      |      | 24  | V    |
| Breakdown Voltage       | V <sub>BR</sub>  | I <sub>T</sub> = 1mA                  | 26.0 | 30.0 |     | V    |
| Holding Voltage         | V <sub>h</sub>   | I <sub>T</sub> = 100mA                | 2.0  | 2.9  |     | V    |
| Reverse Leakage Current | I <sub>R</sub>   | V <sub>RWM</sub> = 18V                |      |      | 0.2 | μA   |
| Clamping Voltage        | V <sub>C</sub>   | I <sub>PP</sub> = 1A (8 x 20μs pulse) |      | 4.0  |     | V    |
| Clamping Voltage        | V <sub>C</sub>   | I <sub>PP</sub> = 5A (8 x 20μs pulse) |      | 6.0  | 8.0 | V    |
| Clamping Voltage        | V <sub>C</sub>   | TLP = 16A (ESD=8KV)                   |      | 8.2  |     | V    |
| Junction Capacitance    | C <sub>J</sub>   | VR = 0V, f = 1MHz                     |      | 0.5  | 0.7 | pF   |

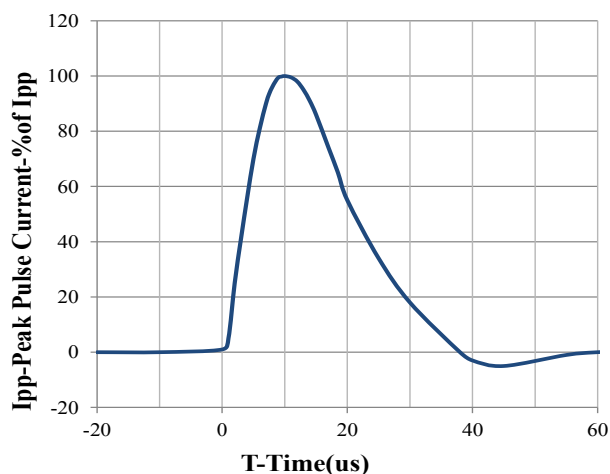
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



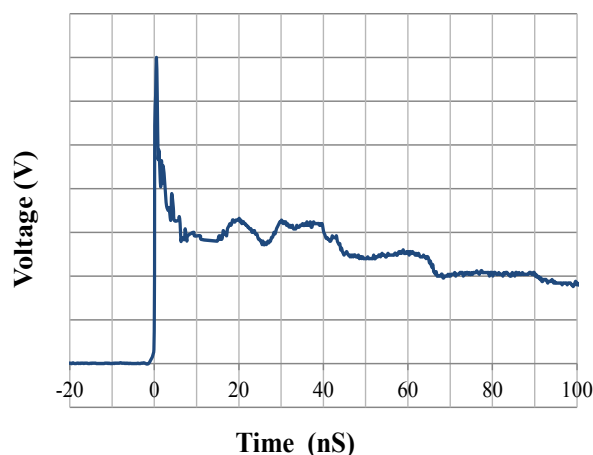
Junction Capacitance vs. Reverse Voltage



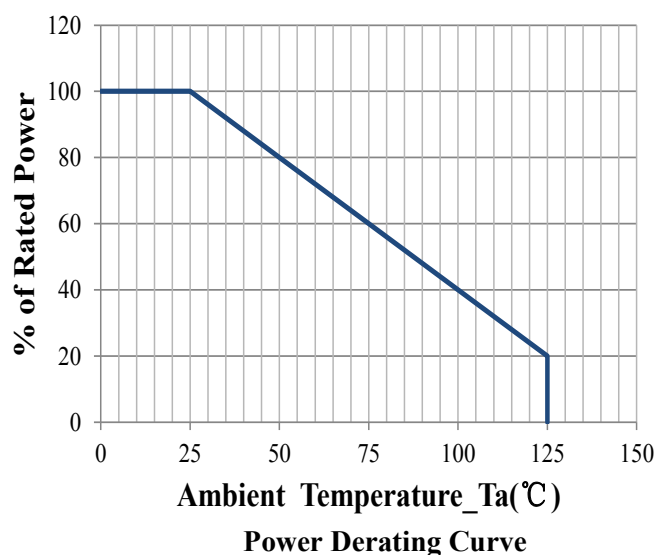
Clamping Voltage vs. Peak Pulse Current



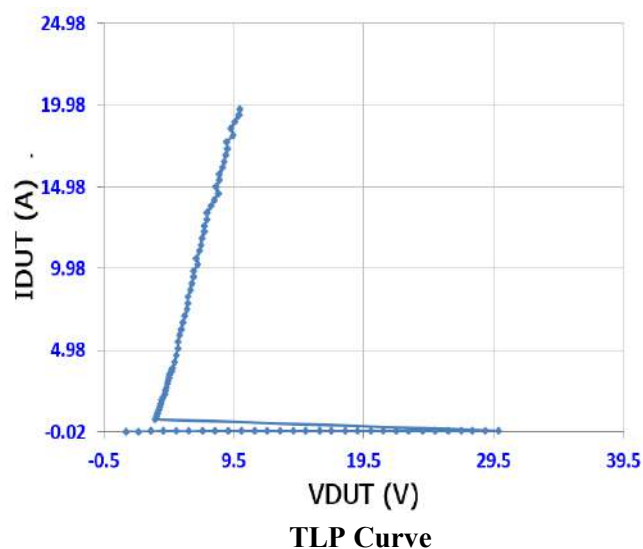
8 X 20us Pulse Waveform



IEC61000-4-2 Pulse Waveform

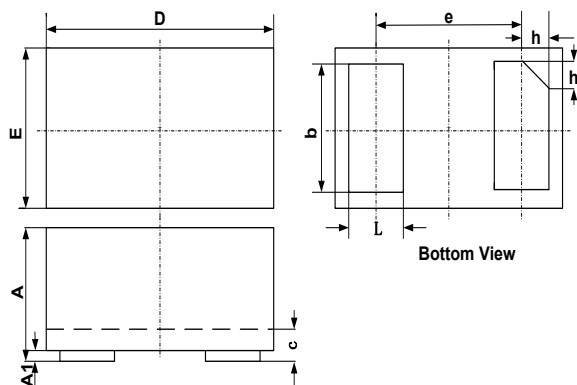


Power Derating Curve



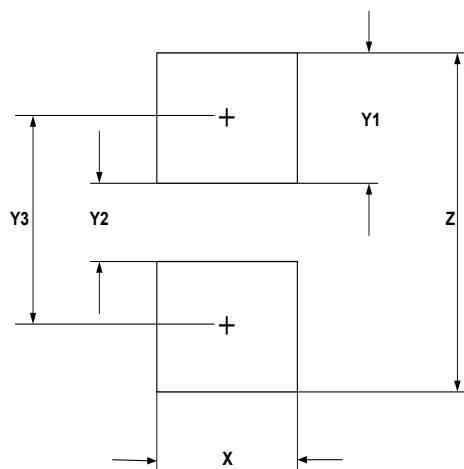
TLP Curve

## DFN0603-2 Package Outline Drawing



| SYM | DIMENSIONS  |       |       |
|-----|-------------|-------|-------|
|     | MILLIMETERS |       |       |
|     | MIN         | NOM   | MAX   |
| A   | 0.230       |       | 0.330 |
| A1  | 0.000       | 0.020 | 0.050 |
| b   | 0.215       | 0.245 | 0.275 |
| c   | 0.120       | 0.150 | 0.180 |
| D   | 0.550       | 0.600 | 0.650 |
| e   | 0.355 BSC   |       |       |
| E   | 0.250       | 0.300 | 0.350 |
| L   | 0.160       | 0.190 | 0.220 |
| h   | 0.079 BSC   |       |       |

## Suggested Land Pattern



| SYM | DIMENSIONS  |        |
|-----|-------------|--------|
|     | MILLIMETERS | INCHES |
| X   | 0.30        | 0.012  |
| Y1  | 0.25        | 0.010  |
| Y2  | 0.15        | 0.006  |
| Y3  | 0.40        | 0.016  |
| Z   | 0.65        | 0.026  |