

### Features

- Ultra low capacitance: 0.3pF(IO to IO)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Protects one power line and four data lines
- Flow-through package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 25\text{kV}$   
Contact discharge:  $\pm 20\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 5A (8/20 $\mu\text{s}$ )
- RoHS Compliant

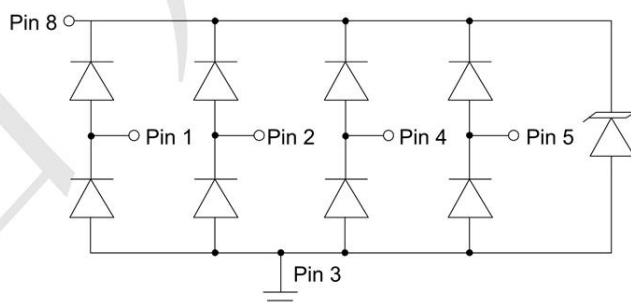
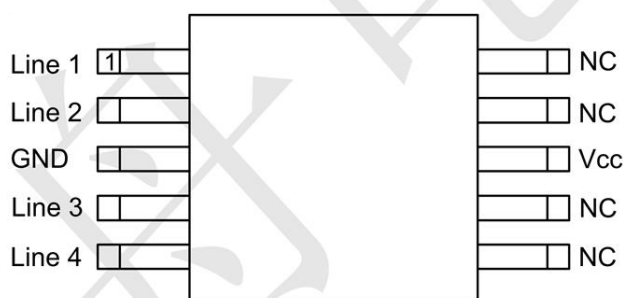
### Mechanical Characteristics

- Package: MSOP-10
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Shipping Qty :3000pcs/13Inch Tape & Reel

### Applications

- DVI Ports
- HDMI Ports
- Set Top Box
- Projection TV
- Notebook Computers
- 10/100/1000 Ethernet

### Dimensions and Pin Configuration



### Marking:



**Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

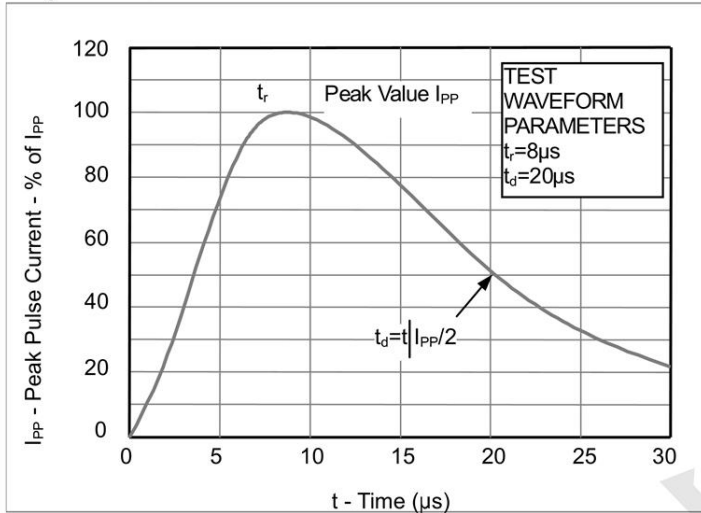
| Parameter                                                      | Symbol           | Value                | Unit |
|----------------------------------------------------------------|------------------|----------------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                         | Ppk              | 100                  | W    |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | I <sub>PP</sub>  | 5                    | A    |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | V <sub>ESD</sub> | $\pm 25$<br>$\pm 20$ | kV   |
| Operating Temperature Range                                    | T <sub>J</sub>   | -55 to +125          | °C   |
| Storage Temperature Range                                      | T <sub>stg</sub> | -55 to +150          | °C   |

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

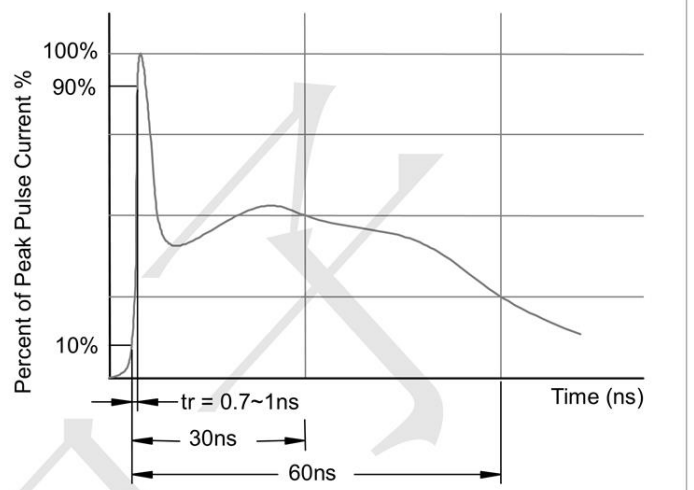
| Parameter               | Symbol           | Min | Typ | Max | Unit          | Test Condition                                                           |
|-------------------------|------------------|-----|-----|-----|---------------|--------------------------------------------------------------------------|
| Reverse Working Voltage | V <sub>RWM</sub> |     |     | 5   | V             | Any I/O pin to ground                                                    |
| Breakdown Voltage       | V <sub>BR</sub>  | 6   |     |     | V             | I <sub>T</sub> = 1mA, any I/O pin to ground                              |
| Reverse Leakage Current | I <sub>R</sub>   |     |     | 1   | $\mu\text{A}$ | V <sub>RWM</sub> = 5V, any I/O pin to ground                             |
| Clamping Voltage        | V <sub>C</sub>   |     |     | 14  | V             | I <sub>PP</sub> = 1A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground |
| Clamping Voltage        | V <sub>C</sub>   |     |     | 20  | V             | I <sub>PP</sub> = 5A (8 x 20 $\mu\text{s}$ pulse), any I/O pin to ground |
| Junction Capacitance    | C <sub>J</sub>   |     | 0.7 | 1   | pF            | V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground                     |
| Junction Capacitance    | C <sub>J</sub>   |     | 0.3 | 0.6 | pF            | V <sub>R</sub> = 0V, f = 1MHz, between I/O pins                          |

**Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)**

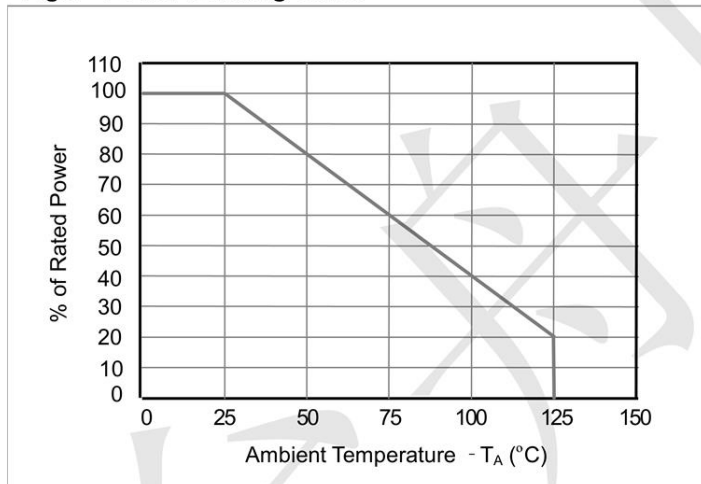
**Fig1. 8/20 $\mu\text{s}$  Pulse Waveform**



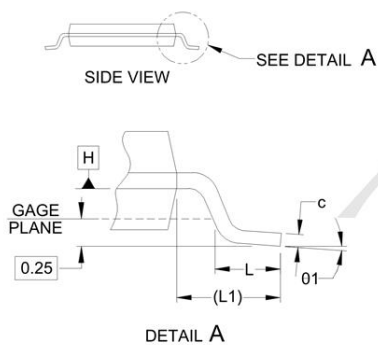
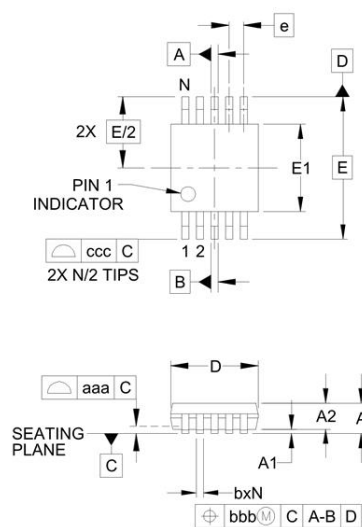
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**

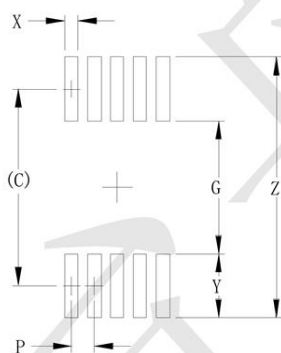


## Outline Drawing -MSOP10



| DIM | INCHES   |      |      | MILLIMETERS |      |      |
|-----|----------|------|------|-------------|------|------|
|     | MIN      | NOM  | MAX  | MIN         | NOM  | MAX  |
| A   | -        | -    | .043 | -           | -    | 1.10 |
| A1  | .000     | -    | .006 | 0.00        | -    | 0.15 |
| A2  | .030     | -    | .037 | 0.75        | -    | 0.95 |
| b   | .007     | -    | .011 | 0.17        | -    | 0.27 |
| c   | .003     | -    | .009 | 0.08        | -    | 0.23 |
| D   | .114     | .118 | .122 | 2.90        | 3.00 | 3.10 |
| E   | .114     | .118 | .122 | 2.90        | 3.00 | 3.10 |
| E1  | .193 BSC | -    | -    | 4.90 BSC    | -    | -    |
| e   | .020 BSC | -    | -    | 0.50 BSC    | -    | -    |
| L   | .016     | .024 | .032 | 0.40        | 0.60 | 0.80 |
| L1  | (.037)   | -    | -    | (.95)       | -    | -    |
| N   | 10       | -    | -    | 10          | -    | -    |
| 01  | 0°       | -    | 8°   | 0°          | -    | 8°   |
| aaa | .004     | -    | -    | 0.10        | -    | -    |
| bbb | .003     | -    | -    | 0.08        | -    | -    |
| ccc | .010     | -    | -    | 0.25        | -    | -    |

## Land Pattern -MSOP-10



| DIM | DIMENSIONS |             |
|-----|------------|-------------|
|     | INCHES     | MILLIMETERS |
| C   | (.161)     | (4.10)      |
| G   | .098       | 2.50        |
| P   | .020       | 0.50        |
| X   | .011       | 0.30        |
| Y   | .063       | 1.60        |
| Z   | .224       | 5.70        |