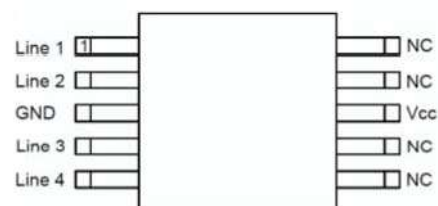


## 4-Line Ultra Low Capacitance TVS Diode Array

### Features:

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
 Air discharge:  $\pm 30\text{kV}$   
 Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 5A (8/20 $\mu\text{s}$ )
- RoHS Compliant

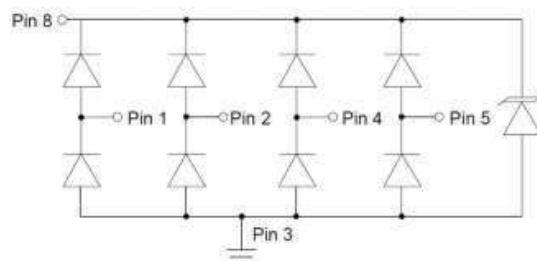
### MSOP-10



### Applications:

- USB 2.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet

### Pin Configuration



## Mechanical Characteristics

- Package: MSOP-10
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000pcs
- Reel Size: 13 inch

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

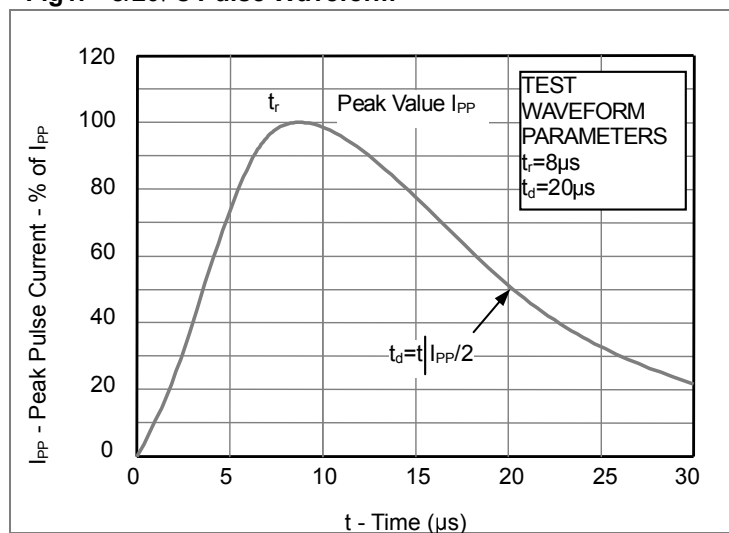
| Parameter                              | Symbol           | Value       | Unit |
|----------------------------------------|------------------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ ) | P <sub>pp</sub>  | 100         | W    |
| ESD per IEC 61000-4-2 (Air)            | V <sub>ESD</sub> | $\pm 30$    | Kv   |
| ESD per IEC 61000-4-2 (Contact)        |                  | $\pm 30$    |      |
| 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)

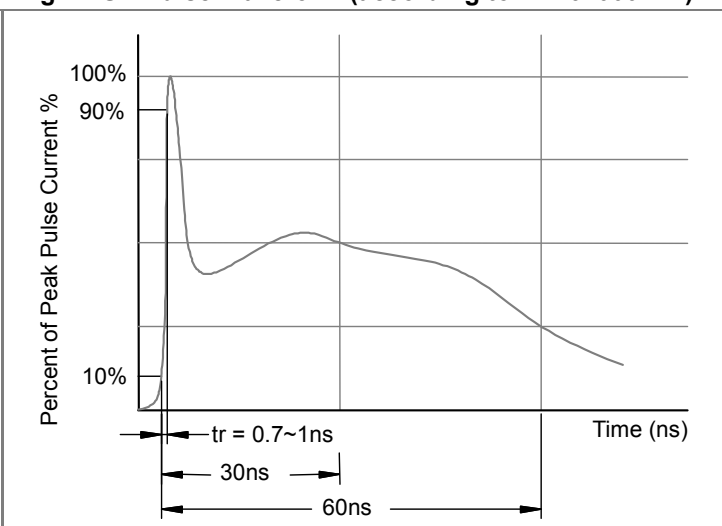
| Part Number | Device Marking | V <sub>RWM</sub><br>(V) | V <sub>BR</sub><br>(V) | I <sub>T</sub><br>(mA) | V <sub>C</sub><br>@1A | V <sub>C</sub> |      | I <sub>R</sub><br>μA<br>(Max) | C<br>(Pf)<br>(Typ.) |
|-------------|----------------|-------------------------|------------------------|------------------------|-----------------------|----------------|------|-------------------------------|---------------------|
|             |                |                         |                        |                        |                       | (Max)          | (@A) |                               |                     |
| KWULC0544M  | 544M           | 5                       | 6                      | 1                      | 12                    | 20             | 5    | 0.5                           | 0.6                 |

## Characteristic Curves

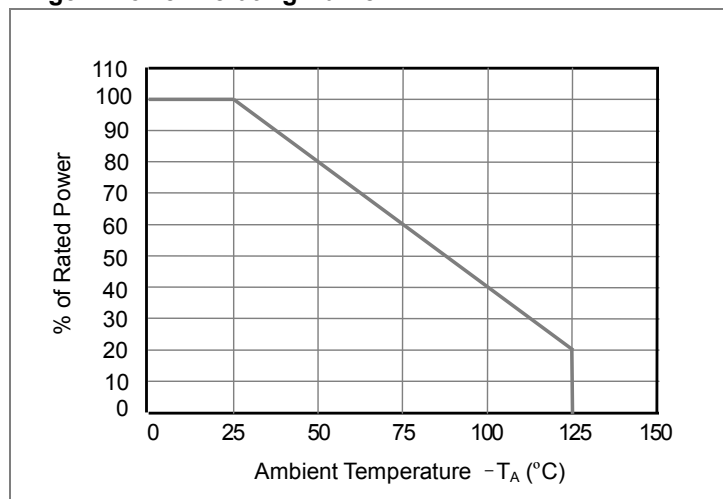
**Fig1. 8/20μs Pulse Waveform**



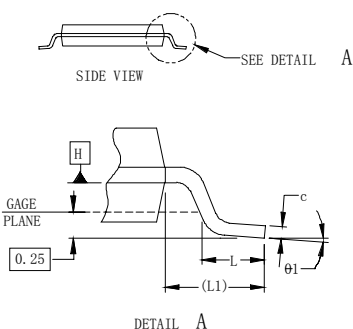
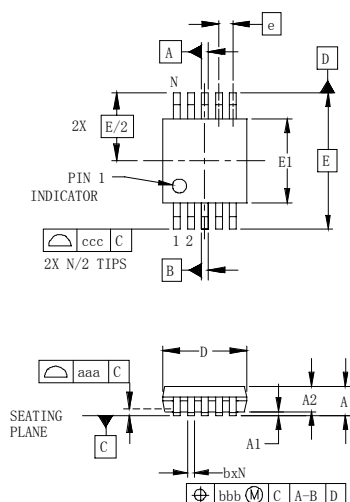
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**



## MSOP-10 Package Outline Drawing

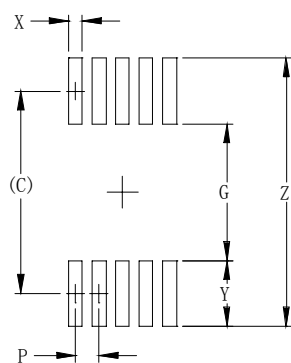


| DIM | INCHES |        |      | MILLIMETERS |       |      |
|-----|--------|--------|------|-------------|-------|------|
|     | MIN    | NOM    | MAX  | MIN         | NOM   | MAX  |
| A   | —      | —      | .043 | —           | —     | 1.10 |
| A1  | .000   | —      | .006 | 0.00        | —     | 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 |
| E1  | .114   | .118   | .122 | 2.90        | 3.00  | 3.10 |
| E   | .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          | —     | —    |
| θ1  | 0°     | —      | 8°   | 0°          | —     | 8°   |
| aaa | .004   | —      | —    | 0.10        | —     | —    |
| bbb | .003   | —      | —    | 0.08        | —     | —    |
| ccc | .010   | —      | —    | 0.25        | —     | —    |

### NOTES:

- CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
- DATUMS  $\square$ -A $\square$  AND  $\square$ -B $\square$  TO BE  $\square$ -H $\square$ .
- DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
- REFERENCE JEDEC STD MO-187, VARIATION BA.

## Suggested Land Pattern



| DIMENSIONS |        |             |
|------------|--------|-------------|
| DIM        | 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        |

### NOTES:

- THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.