

### Features

- Reverse stand-off voltage: 5V max.
- Transient protection for each line according to IEC61000-4-2 (ESD):  $\pm 30\text{kV}$  (contact discharge)  
IEC61000-4-5 (surge): 5A (8/20 $\mu\text{s}$ )
- Low capacitance:  $C_{\text{I/O-GND}} = 0.65\text{pF typ.}$  ( $V_{\text{CC}} = \text{floated}$ )  
 $C_{\text{I/O-GND}} = 0.35\text{pF typ.}$  ( $V_{\text{CC}} = 5\text{V}$ )
- Ultra-low leakage current:  $I_{\text{R}} < 1\text{nA typ.}$
- Low clamping voltage:  $V_{\text{CL}} = 16.5\text{V @ } I_{\text{PP}} = 16\text{A (TLP)}$
- Solid-state silicon technology

### Mechanical Characteristics

- JEDEC SOT23-6L package
- Molding compound flammability rating: UL 94V-0

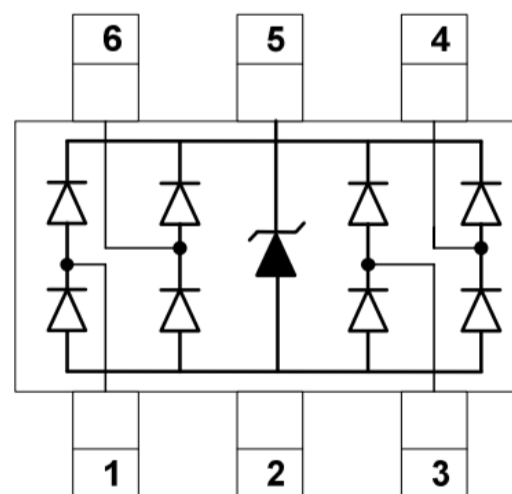
### Applications

- USB 2.0
- HDMI 1.3
- SATA and eSATA
- DVI
- IEEE 1394
- PCI Express
- Portable Electronics
- Notebooks

### Ordering Information

| Part Number   | Qty per Reel | Reel Size |
|---------------|--------------|-----------|
| TPESD0504S6-A | 3000         | 7"        |

### Dimensions and Pin Configuration



**Marking: C16PJ**

**Absolute Maximum Ratings** (Tamb=25°C unless otherwise specified)

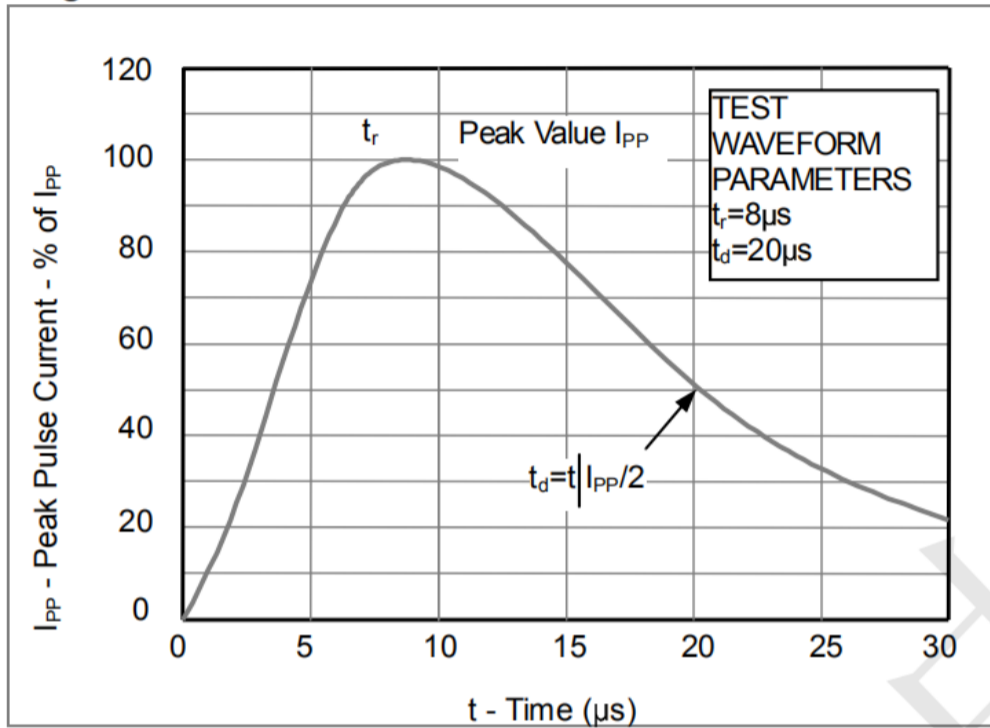
| Parameter                                       | Symbol    | Rating  | Unit |
|---|-----------|---------|------|
| Peak pulse power ( $t_p = 8/20\mu s$ )          | $P_{pk}$  | 150     | W    |
| Peak pulse current ( $t_p = 8/20\mu s$ )        | $I_{PP}$  | 5       | A    |
| ESD according to IEC61000-4-2 air discharge     | $V_{ESD}$ | ±30     | kV   |
| ESD according to IEC61000-4-2 contact discharge |           | ±30     |      |
| Junction temperature                            | $T_J$     | 125     | °C   |
| Operating temperature                           | $T_{OP}$  | -40~85  | °C   |
| Lead temperature                                | $T_L$     | 260     | °C   |
| Storage temperature                             | $T_{STG}$ | -55~150 | °C   |

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

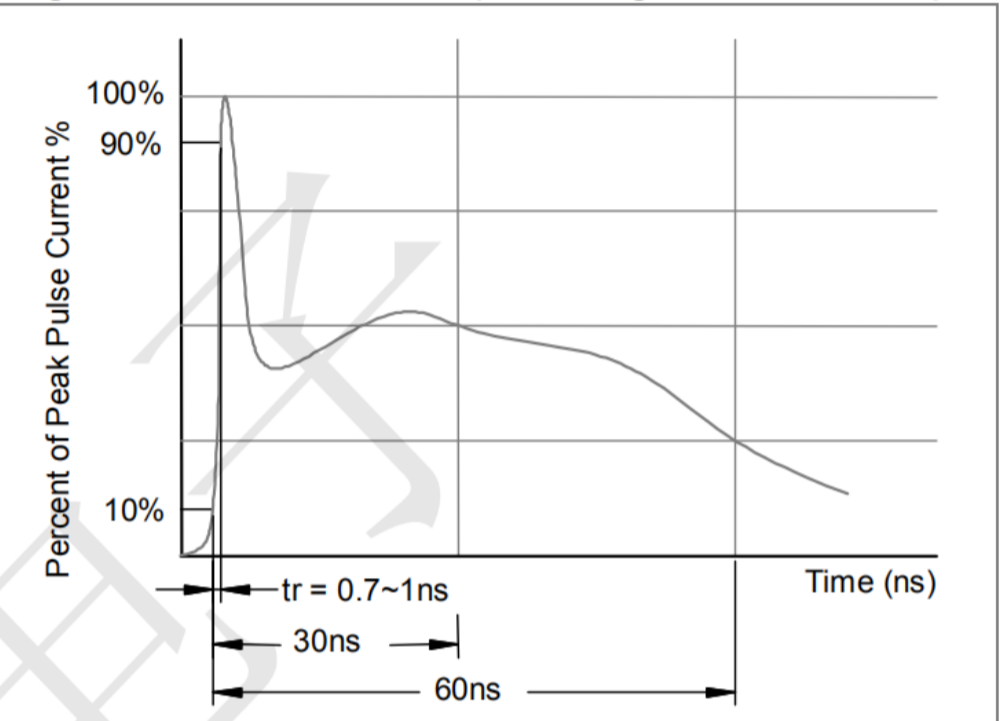
| Parameter                        | Symbol        | Condition  | Min. | Typ. | Max. | Unit |
|----------------------------------|---------------|--|------|------|------|------|
| Reverse stand-off voltage        | $V_{RWM}$     |  |      |      | 5.0  | V    |
| Reverse leakage current          | $I_R$         | $V_{RWM} = 5V$   |      |      | 1    | uA   |
| Reverse breakdown voltage        | $V_{BR}$      | $I_{BR} = 1mA$   | 7.0  | 8.0  | 9.0  | V    |
| Forward voltage                  | $V_F$         | $I_F = 10mA$   | 0.6  | 0.9  | 1.2  | V    |
| Clamping voltage <sup>1)</sup>   | $V_{CL}$      | $I_{PP} = 16A, t_p = 100ns$                                      |      | 16.5 |      | V    |
| Dynamic resistance <sup>1)</sup> | $R_{DYN}$     |  |      | 0.45 |      | Ω    |
| Clamping voltage <sup>2)</sup>   | $V_{CL}$      | $I_{PP} = 1A, t_p = 8/20\mu s$                                   |      |      | 10   | V    |
|                                  |               | $I_{PP} = 5A, t_p = 8/20\mu s$                                   |      |      | 15   | V    |
| Junction capacitance             | $C_{I/O-GND}$ | $V_R = 0V, f = 1MHz, V_{CC} = \text{floated},$<br>Any I/O to GND |      | 0.65 | 1.0  | pF   |
|                                  |               | $V_R = 0V, f = 1MHz, V_{CC} = 5V,$<br>Any I/O to GND             |      | 0.35 | 0.50 | pF   |
|                                  | $C_{I/O-I/O}$ | $V_R = 0V, f = 1MHz,$<br>Any I/O to I/O                          |      | 0.35 | 0.50 | pF   |

**Characteristic Curves**

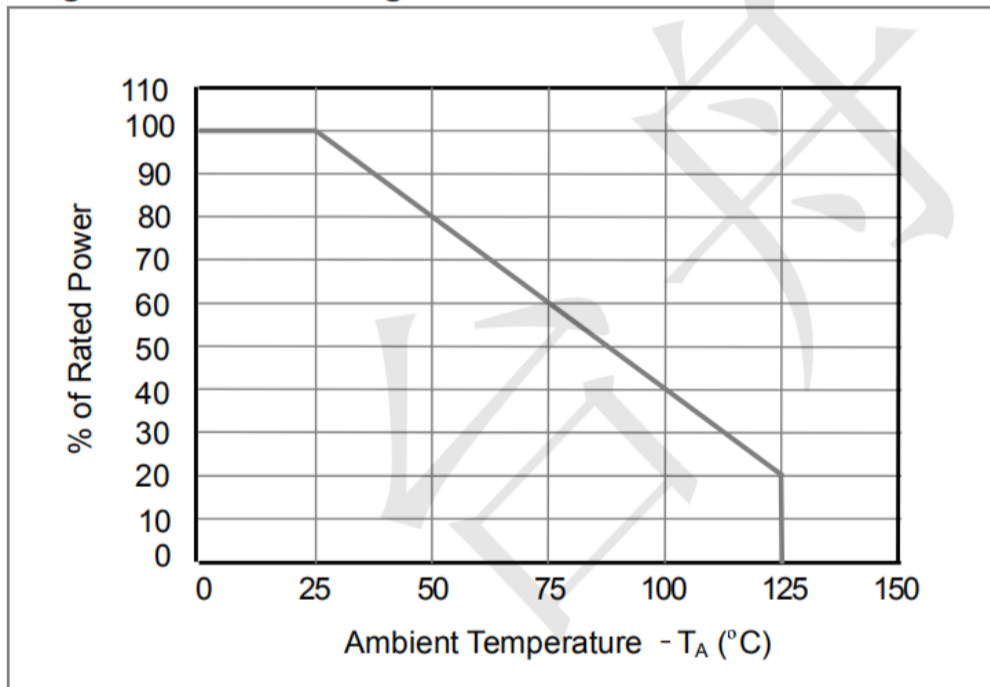
**Fig1. 8/20 $\mu$ s Pulse Waveform**



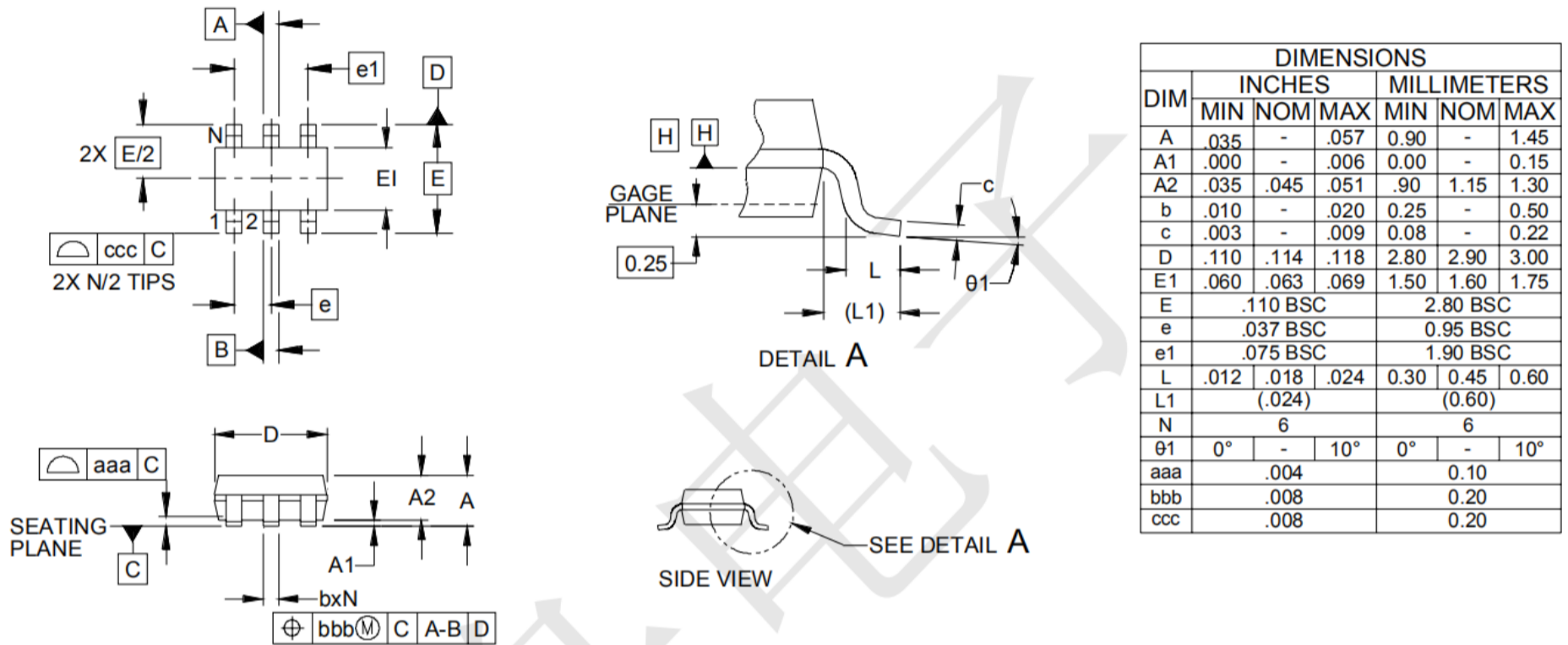
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**



**Outline Drawing - SOT23-6**



**Land Pattern - SOT23-6**

