TECH PUBLIC
台舟电子

# TPESD0504S6-1

## Low Capactiance 4-Line TVS Array

www.sot23.com.tw

## Features

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Up to 4 data lines and one power line protects
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±25kV
    - Contact discharge: ±20kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
  - – IEC61000-4-5 (Lightning) : 4.7A(8/20μs)
- ROHS Compliant

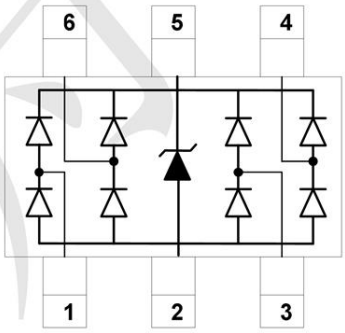
## Mechanical Characteristics

- Package: SOT23-6
- 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 :3000/7Inch Tape & Reel

## Applications

- USB 2.0 and USB 3.0 Ports
- USB OTG
- Digital video interface(DVI)
- Monitor and Flat Panel Displays
- PCI Express and Serial SATA Ports
- Gigabit Ethernet
- IEEE 1394 firewire ports
- Consumer products (STB, DVD, DSC, DVC…)

## Dimensions and Pin Configuration




Circuit and Pin Schematic

**Marking:C16PJ**

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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power（tp=8/20μs）(Vcc-GND) | $P_{PP}$ | 300 | W |
| Peak Pulse Current（tp=8/20μs） | $I_{PP}$ | 4.7 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | $V_{ESD}$ | ±25<br>±20 | kV |
| Operating Temperature Range | $T_J$ | −55 to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

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

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | | 5 | V | Any I/O pin to ground |
| Breakdown Voltage | $V_{BR}$ | 6 | | | V | $I_T$ = 1mA, any I/O pin to ground |
| Reverse Leakage Current | $I_R$ | | | 0.08 | μA | $V_{RWM}$ = 5V, any I/O pin to ground |
| Clamping Voltage | $V_C$ | | | 11 | V | $I_{PP}$ = 1A (8 x 20μs pulse) any I/O pin to ground |
| Clamping Voltage | $V_C$ | | | 15 | V | $I_{PP}$ = 4.7 A (8 x 20μs pulse) any I/O pin to ground |
| Clamping Voltage | $C_J$ | | | 18 | V | $I_{PP}$ =17 A (8 x 20μs pulse) VCC to ground |
| Junction Capacitance | $C_J$ | | 0.3 | 0.4 | pF | VR = 0V, f = 1MHz, between I/O pins |
| Junction Capacitance | $C_J$ | | | 0.8 | pF | VR = 0V, f = 1MHz, any I/O pin to ground |

## Typical Performance Characteristics ($T_A$=25°C unless otherwise Specified)

**Fig1. 8/20μs Pulse Waveform**

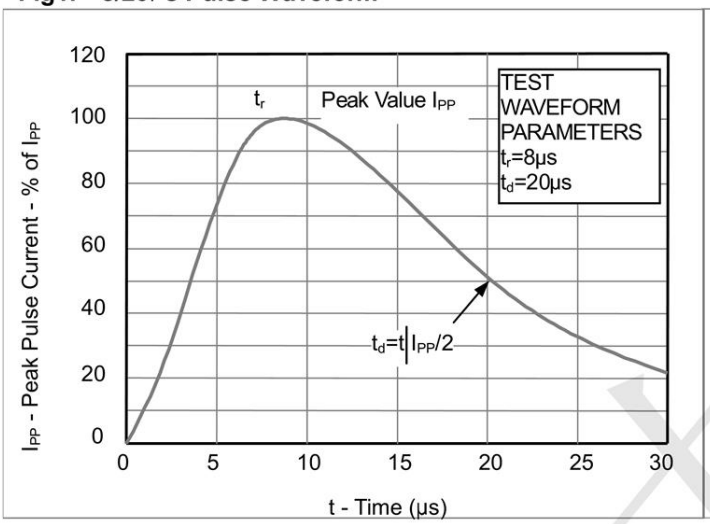



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**

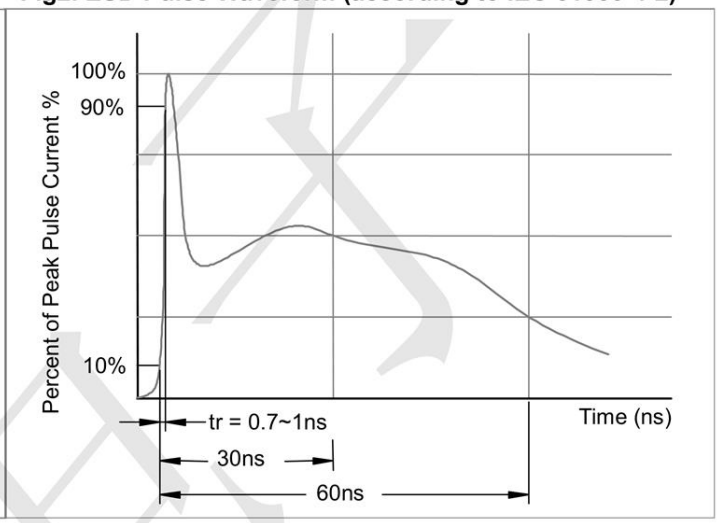
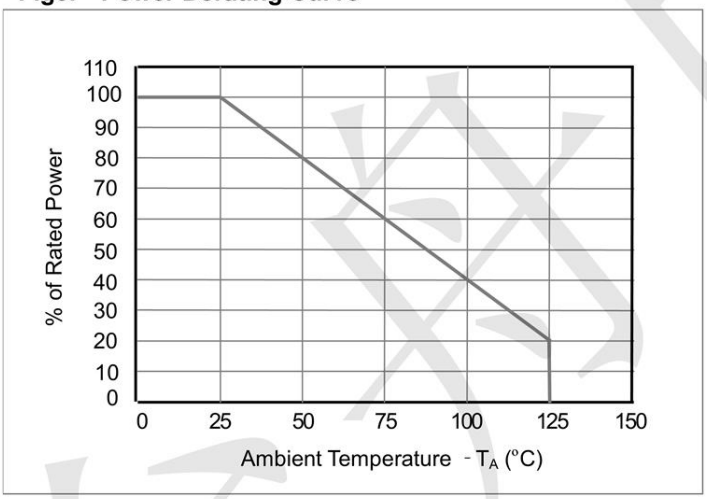
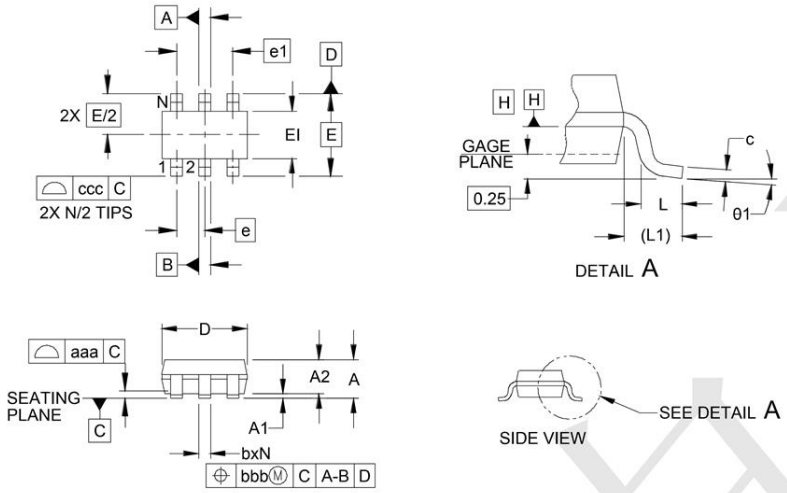



**Fig3. Power Derating Curve**

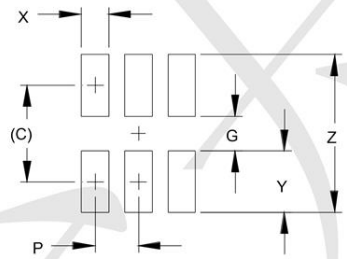


## Outline Drawing - SOT23-6




| DIM | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|
| | INCHES | | | MILLIMETERS | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | .035 | - | .057 | 0.90 | - | 1.45 |
| A1 | .000 | - | .006 | 0.00 | - | 0.15 |
| A2 | .035 | .045 | .051 | .90 | 1.15 | 1.30 |
| b | .010 | - | .020 | 0.25 | - | 0.50 |
| c | .003 | - | .009 | 0.08 | - | 0.22 |
| D | .110 | .114 | .118 | 2.80 | 2.90 | 3.00 |
| E1 | .060 | .063 | .069 | 1.50 | 1.60 | 1.75 |
| E | .110 BSC | | | 2.80 BSC | | |
| e | .037 BSC | | | 0.95 BSC | | |
| e1 | .075 BSC | | | 1.90 BSC | | |
| L | .012 | .018 | .024 | 0.30 | 0.45 | 0.60 |
| L1 | (.024) | | | (0.60) | | |
| N | 6 | | | 6 | | |
| θ1 | 0° | - | 10° | 0° | - | 10° |
| aaa | .004 | | | 0.10 | | |
| bbb | .008 | | | 0.20 | | |
| ccc | .008 | | | 0.20 | | |

## Land Pattern - SOT23-6




| DIM | DIMENSIONS | |
|---|---|---|
| | INCHES | MILLIMETERS |
| C | (.098) | (2.50) |
| G | .055 | 1.40 |
| P | .037 | 0.95 |
| X | .024 | 0.60 |
| Y | .043 | 1.10 |
| Z | .141 | 3.60 |

# Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

## TECH PUBLIC:

TPADM809SAKSZ TPB05A40-323 TPGC12C-1 BV15C IRFR2405TRPBF-TP TPB1A30-123 TPD1213A-02SM TPFMMT493 TPS3809L30DBVR-TP TPS7B6950DBVR-TP TPZVN3320FTA DMP6350S ESD5B5.0ST1G-P LTH7 QM3003J-TP SI3932DV TPESD0402G08V TPESD0504S6-A BSN20W FDC6301N-TP TPADM809LAKSZ TPAPX809S-31SA TPWSB5557Z DDTA143ZCA FDMS7670AS-TP TPDMG6602SVT TPZXMP3A13FTA TPESD5311N SN7002W TPSPX3819M5-L-3-3