

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: $\pm 25\text{kV}$
Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) : 4.7A(8/20 μs)
- ◆ ROHS Compliant

Ordering Information

| Part Number | Qty per Reel | Reel Size |
|--------------|--------------|-----------|
| TPSP0504SHTG | 3000 | 7" |

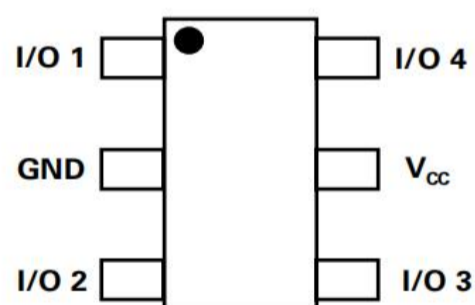
Mechanical Characteristics

- ◆ 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

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



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

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|------|
| Peak Pulse Power (tp=8/20μs) (Vcc-GND) | PPP | 300 | W |
| Peak Pulse Current (tp=8/20μs) | IPP | 4.7 | A |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | VESD | ±25 ±20 | kV |
| Operating Temperature Range | TJ | -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 | VRWM | | | 5 | V | Any I/O pin to ground |
| Breakdown Voltage | VBR | 6 | | | V | IT = 1mA, any I/O pin to ground |
| Reverse Leakage Current | IR | | | 0.08 | μA | VRWM = 5V, any I/O pin to ground |
| Clamping Voltage | Vc | | | 11 | V | IPP = 1A (8 x 20μs pulse) any I/O pin to ground |
| Clamping Voltage | Vc | | | 15 | V | IPP = 4.7A (8 x 20μs pulse) any I/O pin to ground |
| Clamping Voltage | CJ | | | 18 | V | IPP = 17A (8 x 20μs pulse) VCC to ground |
| Junction Capacitance | CJ | | 0.3 | 0.4 | pF | VR = 0V, f = 1MHz, between I/O pins |
| Junction Capacitance | CJ | | | 0.8 | pF | VR = 0V, f = 1MHz, any I/O pin to ground |

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

Fig1. 8/20 μs Pulse Waveform

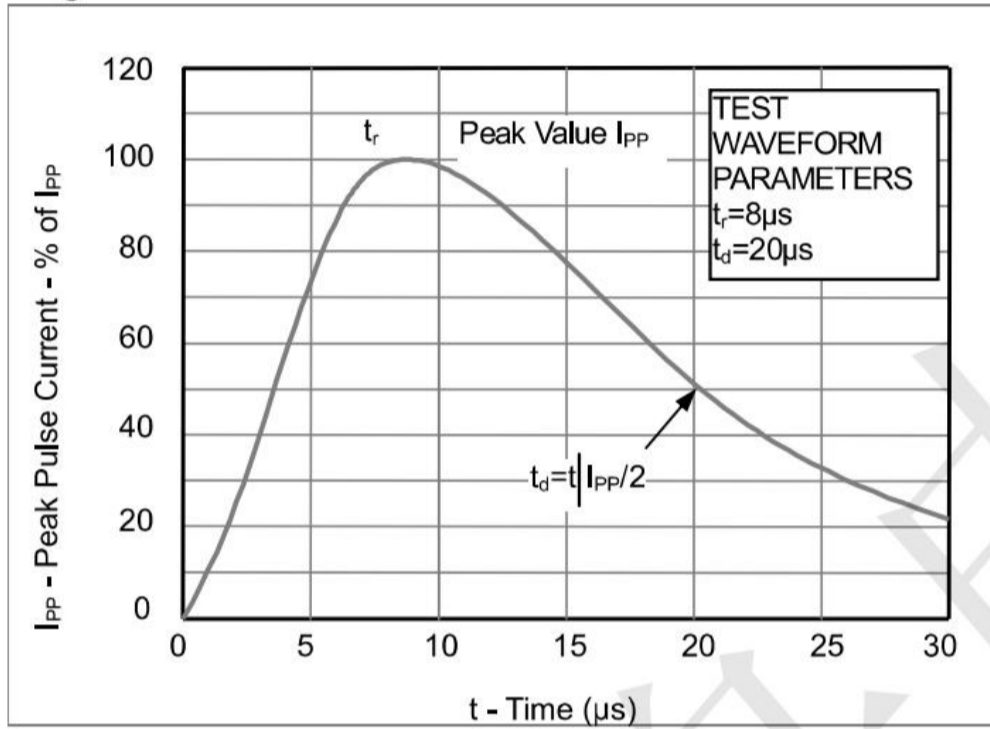


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

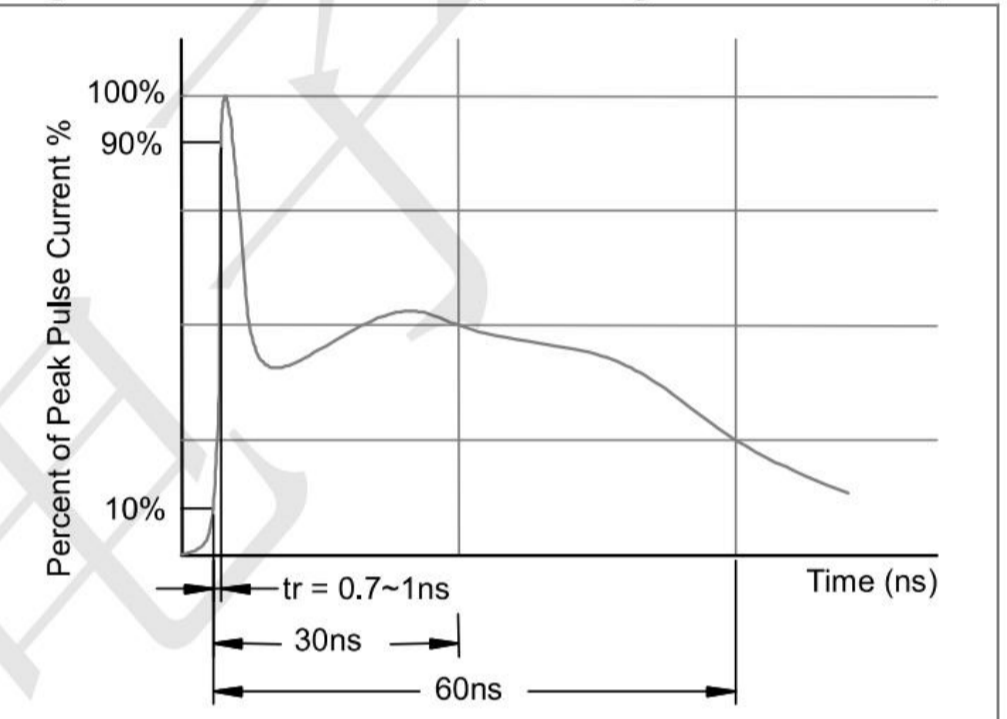
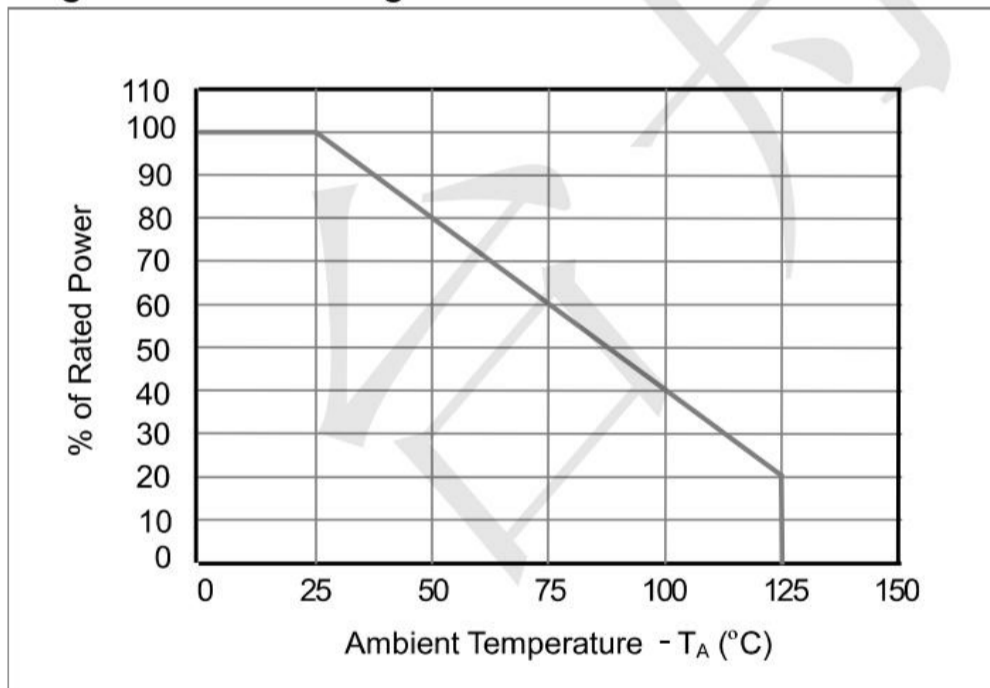
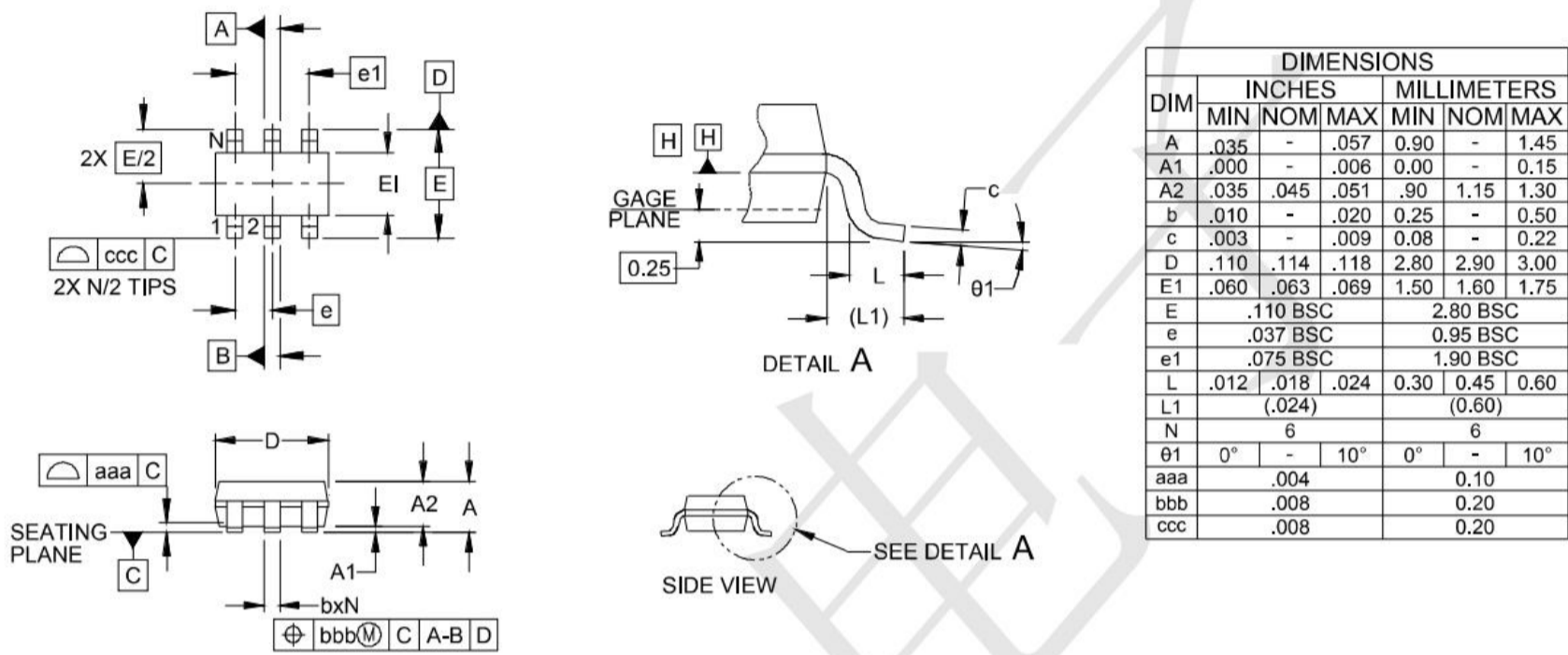


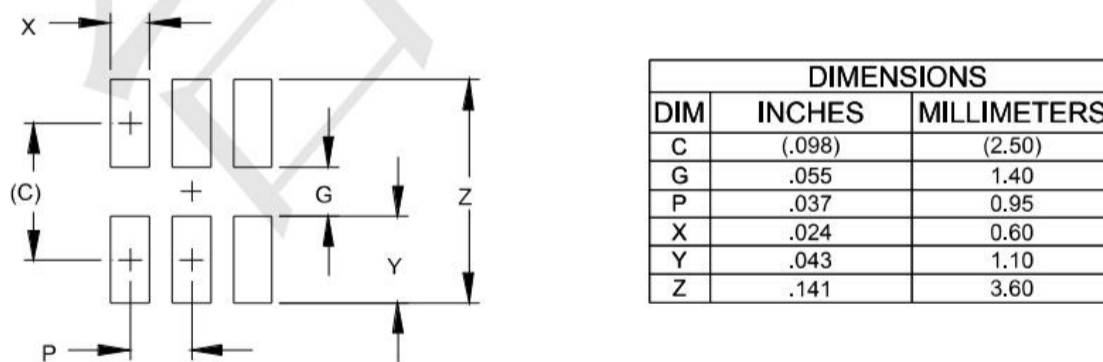
Fig3. Power Derating Curve



Outline Drawing - SOT23-6



Land Pattern - SOT23-6



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