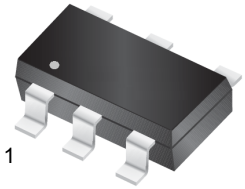
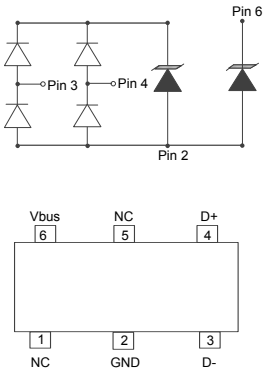
# Low Capacitance ESD/TVS Array in SOT23-6

## Features

- 300Watts peak pulse power (tp = 8/20μs)
- SOT23-6 Package
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance(0.6pF typical I/O to I/O)
- ESD capability according to AEC-Q101: human body model: class H3B: > 8 kV
- ESD Protection for high-speed data lines to:
  IEC 61000-4-2 ±30KV contact ±30KV air
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  IEC 61000-4-5 (Lightning) 20 A (8/20μs)




## Mechanical Data

- **Case:** SOT23-6 (plastic package).
  Lead free; RoHS compliant; Halogen free
- **Molding Compound Flammability Rating:**
  UL 94 V-0
- **Terminals:** High temperature soldering guaranteed:
  260 °C/10 sec. at terminals

## Applications

- USB 2.0, MHL
- Ethernet
- Unified Display Interface (UDI)
- Digital Visual Interface (DVI)

## Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power ($T_P$=8/20μS) | $P_{PP}$ | 300 | W |
| ESD contact/air discharge (IEC-61000-4-2) | $V_{ESD}$ | 30/30 | kV |
| Peak Pulse Current ( $t_P$ = 8/20μS ) | $I_{PP}$ | 20 | A |
| Junction Temperature | $T_J$ | -55 to +150 | ℃ |
| Storage temperature | $T_{STG}$ | -55 to +150 | ℃ |

## Electrical Characteristics

($T_A$ = 25 °C unless otherwise specified)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **D+,D- TVS** | | | | | | |
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | | 5.0 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 6.0 | 8.0 | | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5V,T=25℃ | | 0.2 | 0.5 | uA |
| Clamping Voltage | $V_C$ | $I_{PP}$=8.0A,$T_p$=8/20μs | | 12 | 18 | V |
| Junction Capacitance | $C_j$ | $V_R$ = 0V, f = 1MHz I/O to I/O | | 0.6 | 0.7 | pF |
| | | $V_R$ = 0V, f = 1MHz I/O to GND | | 1.2 | 1.4 | pF |
| **Vbus TVS** | | | | | | |
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | | 5.0 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 6.0 | | | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5V,T=25℃ | | | 1 | uA |
| Clamping Voltage | $V_C$ | $I_{PP}$=20A,$T_p$=8/20μs | | 12 | 15 | V |
| Junction Capacitance | $C_j$ | $V_R$ = 0V, f = 1MHz VCC to GND | | 160 | | pF |

## Typical Characteristics ($T_{amb}$ = 25 °C unless otherwise specified)

**Fig.1 Peak Pulse Power Rating Curve**

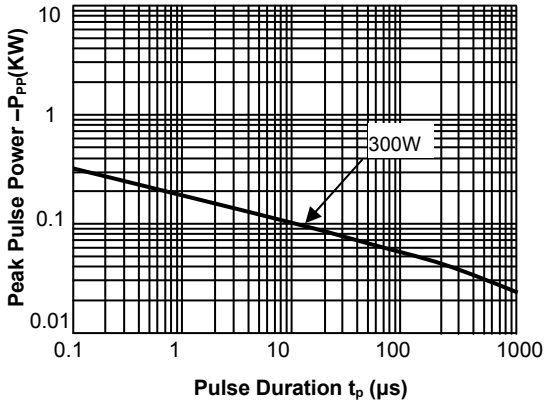



**Fig.2 Pulse Derating Curve**

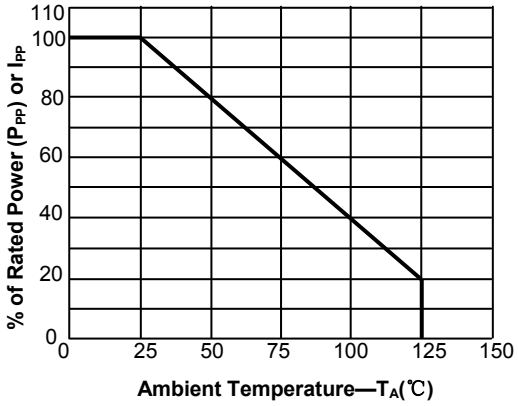



**Fig.3 Pulse Waveform-8/20μs**

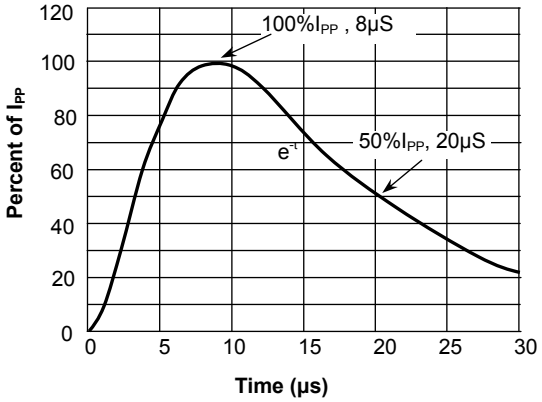



**Fig.4 Pulse Waveform-ESD(IEC61000-4-2)**

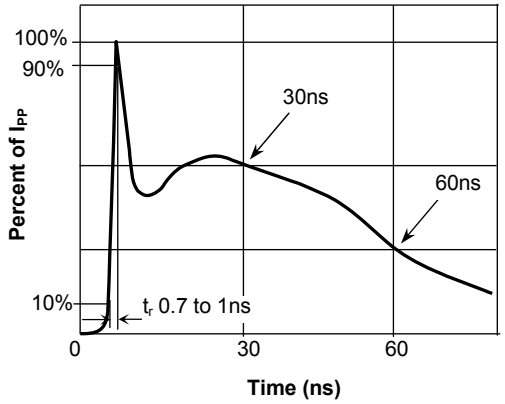



**Fig.5 ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)**

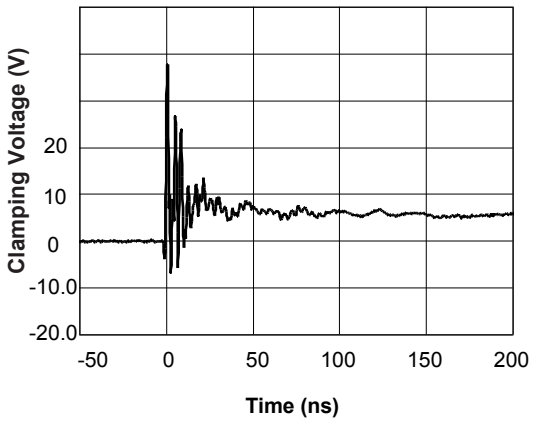
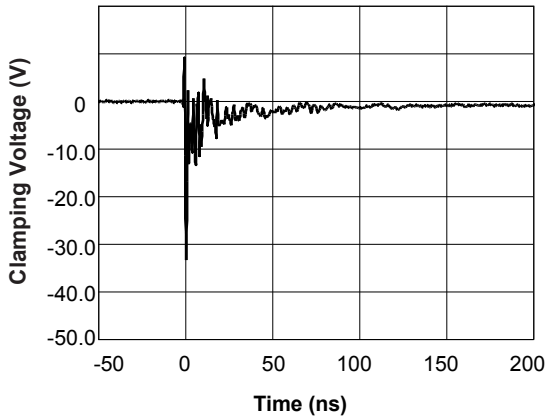
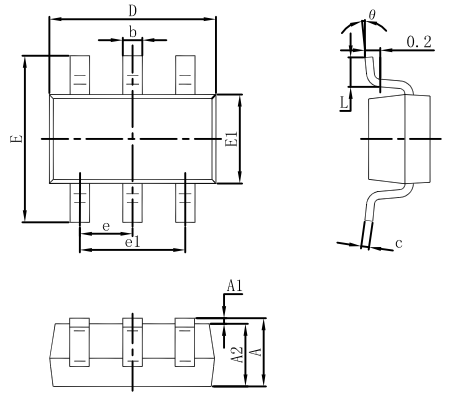



**Fig.6 Fig.5 ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)**

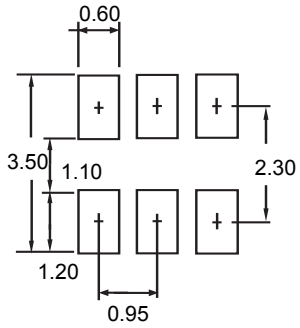


## Package Dimensions

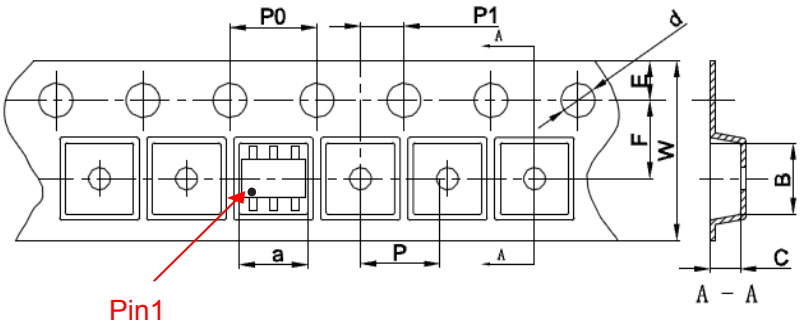



| Symbol | Dimensions in millimeters | |
|---|---|---|
| | Min | Max |
| A | 1.050 | 1.250 |
| A1 | 0.000 | 0.100 |
| A2 | 1.050 | 1.150 |
| b | 0.300 | 0.500 |
| c | 0.100 | 0.200 |
| D | 2.820 | 3.020 |
| E1 | 1.500 | 1.700 |
| E | 2.650 | 2.950 |
| e | 0.950(BSC) | |
| e1 | 1.800 | 2.000 |
| L | 0.300 | 0.600 |
| θ | 0° | 8° |

## Pad dimensions




## Package information




| Dimensions are in millimeter | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | a | B | C | d | E | F | P0 | P | P1 | W |
| SOT-23-6 | 3.17 | 3.23 | 1.37 | Ø1.55 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

## Ordering information

| Order code | Marking | Package | Packaging option | Base quantity | Packaging specification |
|---|---|---|---|---|---|
| TEST236LC5VUTL | 5Q | SOT23-6 | Tape and reel | 3000pcs / reel | EIA STD RS-481 |