

PS1223-D32

Low Capacitance ESD Protection

Voltage

2.8V

Features

- IEC61000-4-2(ESD) : ± 15 kV Air, ± 12 kV Contact
- IEC61000-4-4(EFT) : 40A(5/50ns)
- IEC61000-4-5(Lightning) : 5A (8/20uS)
- Ultra-Low Capacitance : 0.17pF
- Low leakage current, maximum of 0.5uA at rated voltage
- Low clamping voltage
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

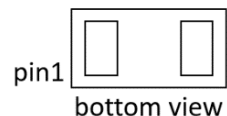
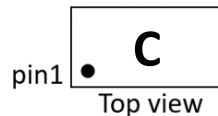
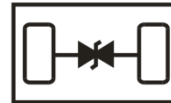
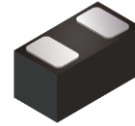
Mechanical Data

- Case : DFN0603-2L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0004 grams

Applications

- Thunderbolt
- USB 3.0/3.1/3.2 and 4.0
- USB Type-C
- Consumer electronics

DFN0603-2L



| Part Marking | Parameter |
|--------------|------------------|
| C | C = Marking Code |

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

| PARAMETER | SYMBOL | LIMIT | UNITS |
|--|------------------|----------|-------|
| ESD IEC61000-4-2(Air) | V _{ESD} | ± 15 | kV |
| ESD IEC61000-4-2(Contact) | | ± 12 | |
| Typical Thermal Resistance ^(Note 1) | R _{θJA} | 500 | °C/W |
| Operating Junction Temperature Range | T _J | -55~125 | °C |
| Storage Temperature Range | T _{STG} | -55~150 | °C |

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Electrical Characteristics (T_A = 25°C unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|--|------------------|--|------|------|------|-------|
| Reverse Stand-Off Voltage ^(Note 2) | V _{RWM} | Pin1 to Pin2 | - | - | 2.8 | V |
| Reverse Breakdown Voltage | V _{BR} | I _{BR} = 1mA, Pin1 to Pin2 | 5 | - | 10 | V |
| Reverse Leakage Current | I _R | V _{RWM} = ±2.8V, Pin1 to Pin2 | - | 0.4 | 0.5 | µA |
| Surge Clamping Voltage (8/20 µs) | V _{CL} | I _{PP} = 5A, Pin1 to Pin2 | - | 2.5 | 3.5 | V |
| Clamping Voltage TLP (t _{period} =100ns,t _r =1ns) ^(Note 3) | V _{CL} | I _{TLP} = 16A, Pin1 to Pin2 | - | 4.1 | - | V |
| Off State Junction Capacitance ^(Note 4) | C _J | V _R =1V, f=1MHz, Pin1 to Pin2 | - | 0.17 | 0.22 | pF |

NOTES :

1. Mounted on a FR4 PCB, Single-sided copper, mini pad.
2. A transient suppressor is selected according to the working peak reverse voltage(V_{RWM}), which should be equal to or greater than the DC or continuous peak operation voltage level.
3. Testing using Transmission Line Pulse (TLP) conditions: Z₀ = 50 Ω, t_p = 100 ns.
4. This parameter is guaranteed by design.
5. This snap-back behavior strongly reduces the clamping voltage to the system behind the ESD protection during an ESD event. Do not connect unlimited DC current sources to the data lines to avoid the ESD protection device maintain in snap-back state after exceeding breakdown voltage.

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TYPICAL CHARACTERISTIC CURVES

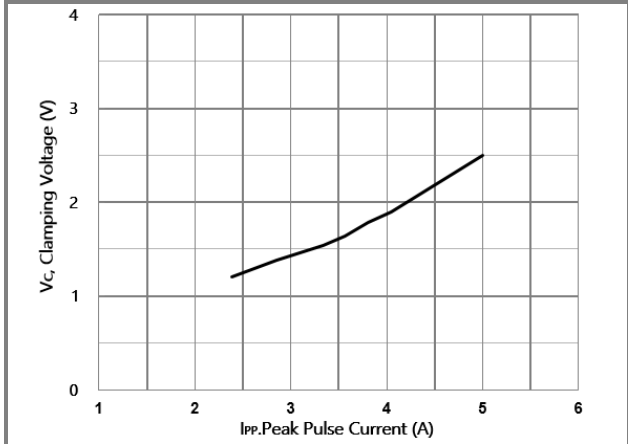


Fig.1 Typical Peak Clamping Voltage

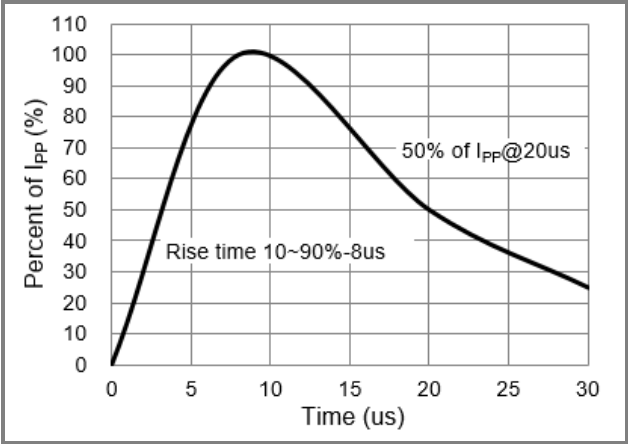


Fig.2 Pulse Waveform

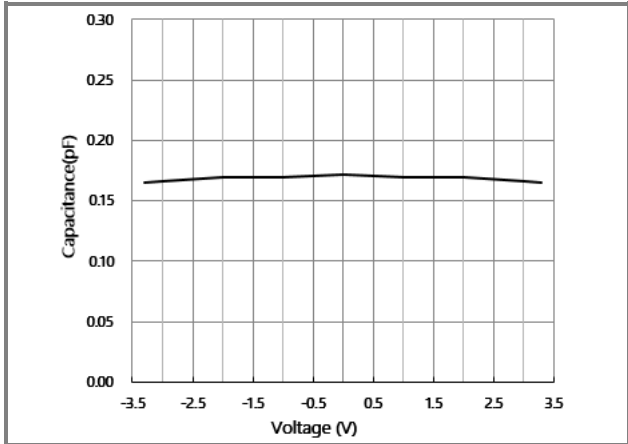


Fig.3 Typical Junction Capacitance

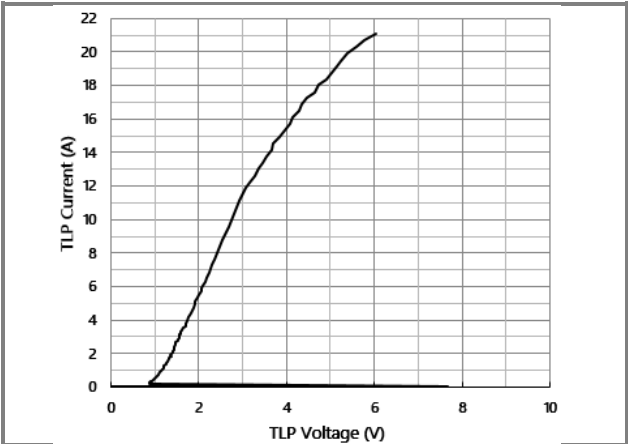


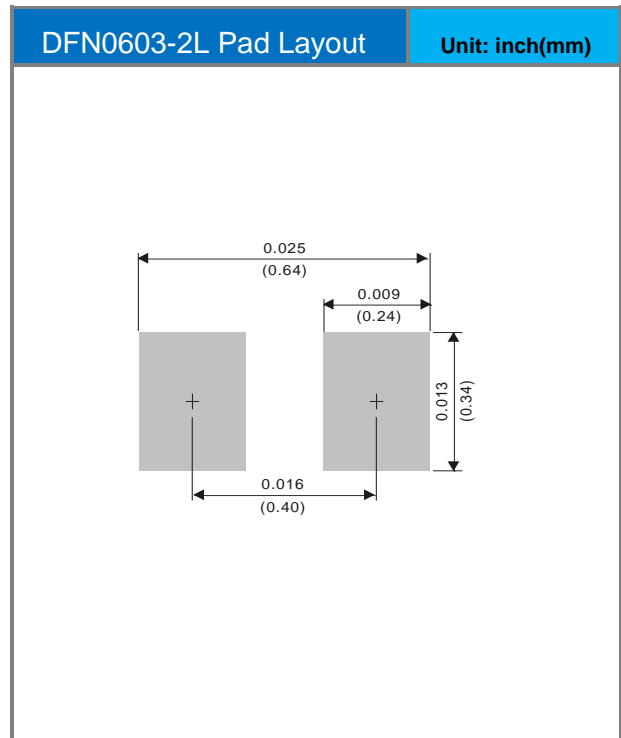
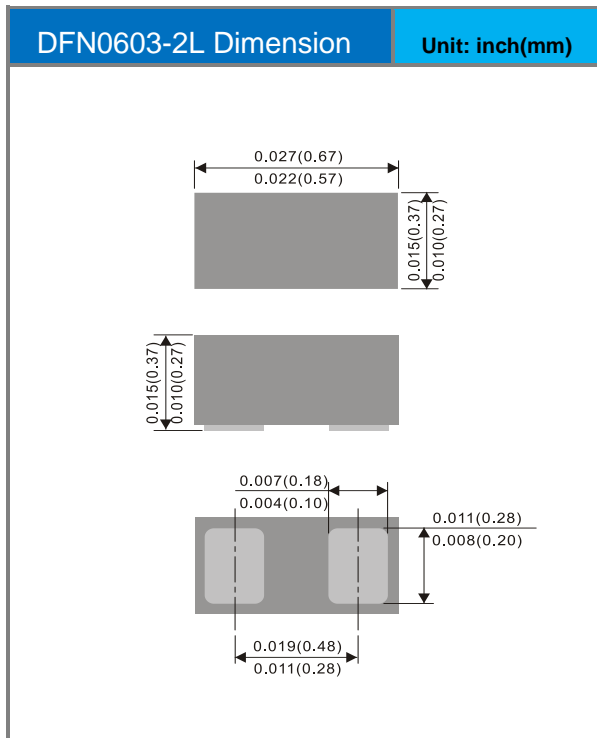
Fig.4 TLP Measurement

PS1223-D32

Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|------------|--------------|-------------------|---------|
| PS1223-D32 | DFN0603-2L | 10K pcs / 7" reel | C |

Packaging Information & Mounting Pad Layout



PS1223-D32

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