

Features

- ◆ Ultra low capacitance: 0.18 pF typical (I/O to GND)
- ◆ Ultra low leakage: nA level
- ◆ Breakdown Voltage: 6.4 V (typ)
- ◆ Low clamping voltage
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±20kV
Contact discharge: ±15kV
 - IEC61000-4-4 (EFT) 80A (5/50ns)
 - IEC61000-4-5 (Lightning) : 3 A(8/20µs)
- ◆ ROHS Compliant

Ordering Information

| Part Number | Qty per Reel | Reel Size |
|-------------------|--------------|-----------|
| TPESD101-B1-02ELS | 3000 | 7" |

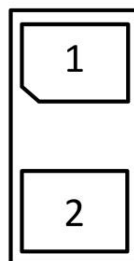
Mechanical Characteristics

- ◆ Package: DFN0603-2
- ◆ Ultra low leakage: nA level
- ◆ Case Material: "Green" Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below

Applications

- ◆ USB Type-C
- ◆ Thunderbolt 3
- ◆ Set-Top Boxes
- ◆ DisplayPort 1.3
- ◆ PCI Express 3

Dimensions and Pin Configuration



Marking:



R = Specific Device Code
M = Date Code

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

| Parameter | Symbol | Value | Unit |
|---------------------------------|--------|-------------|------|
| Peak Pulse Power (8/20μs) | Ppk | 30 | W |
| Peak Pulse Current (8/20μs) | IPP | 3 | A |
| ESD per IEC 61000-4-2 (Air) | VESD | ± 20 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 15 | |
| 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 | -3.6 | | 3.6 | V | IIO < 10 nA |
| Breakdown Voltage | VBR | 5.5 | 6.4 | 7.5 | V | IT = 1mA, any I/O pin to ground |
| Breakdown Voltage | VBR | -5.5 | -6.4 | -7.5 | V | IT = 1mA, any ground pin to I/O |
| Reverse Leakage Current | IR | | | 10 | nA | VIO = ± 2.5V any I/O pin to ground |
| Dynamic resistance | RDYN | | 0.47 | | Ω | any I/O pin to ground |
| Clamping Voltage | VC | | 7.2 | | V | IPP = 1A (8 x 20μs pulse), any I/O pin to ground |
| Clamping Voltage | VC | | 9 | | V | IPP = 3A (8 x 20μs pulse), any I/O pin to ground |
| Junction Capacitance | CJ | | 0.18 | | pF | VR = 0V, f = 1MHz, between I/O pins |

Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

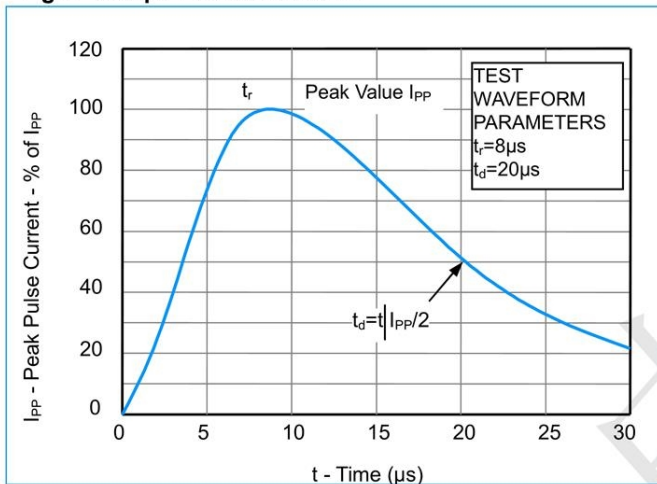


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

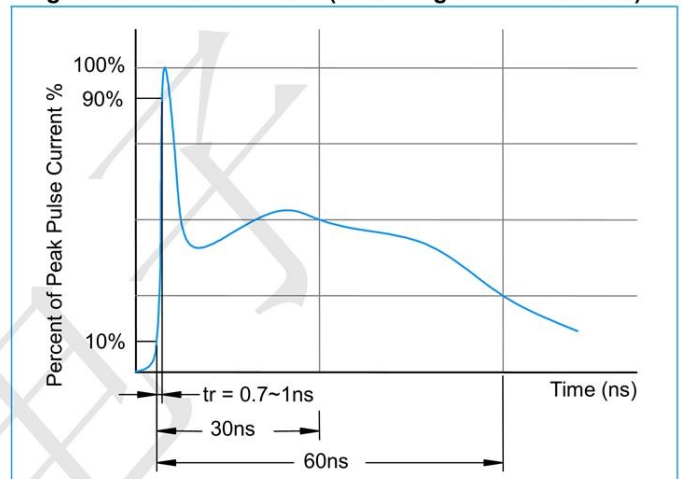
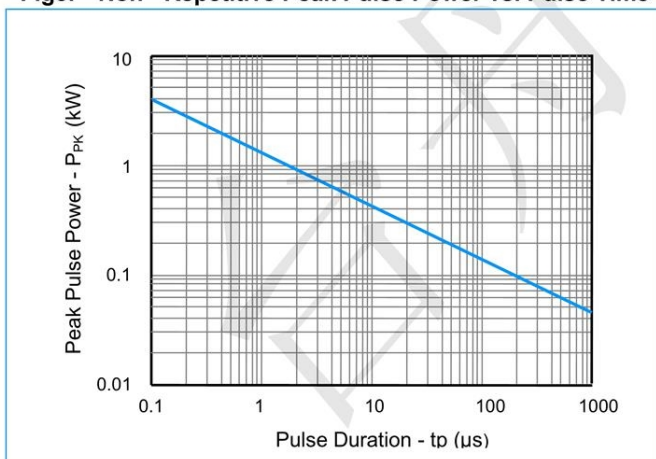
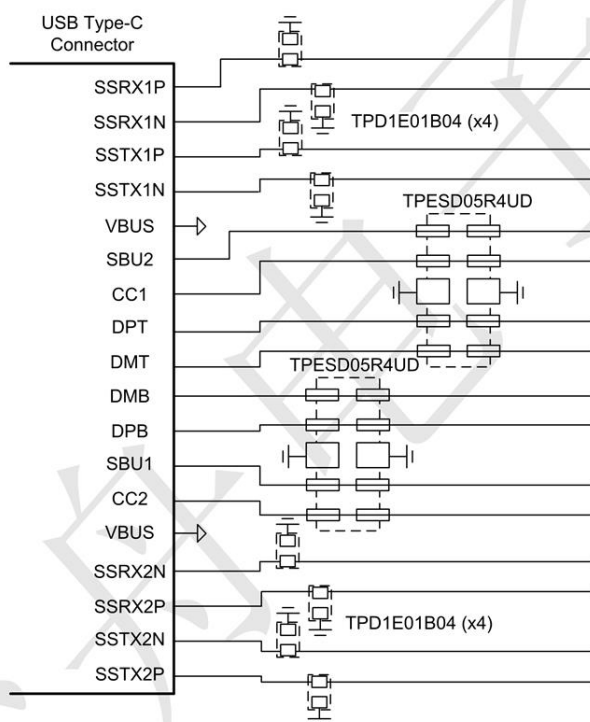


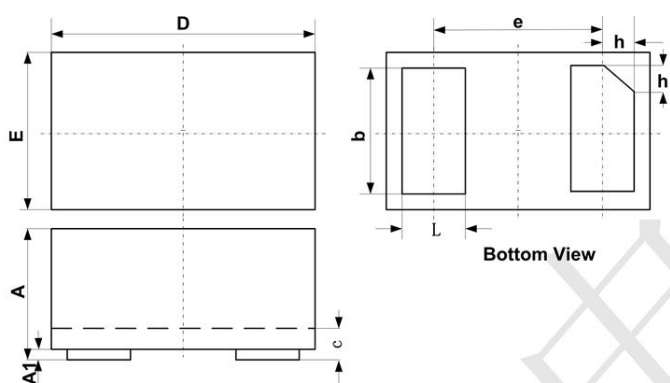
Fig3. Non - Repetitive Peak Pulse Power vs. Pulse Time



Application Information

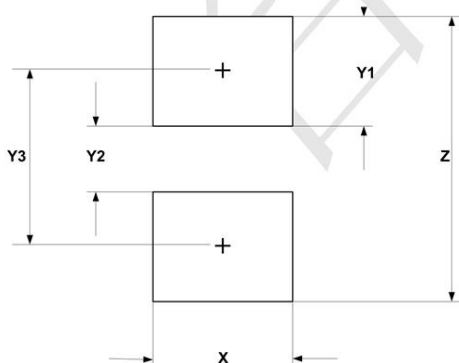


DFN0603-2 Package Outline Drawing (0201)



| SYM | DIMENSIONS | | |
|-----|-------------|-------|-------|
| | MILLIMETERS | | |
| | MIN | NOM | MAX |
| A | 0.230 | 0.300 | 0.330 |
| A1 | 0.000 | 0.020 | 0.050 |
| b | 0.215 | 0.245 | 0.275 |
| c | 0.120 | 0.150 | 0.180 |
| D | 0.550 | 0.600 | 0.650 |
| e | 0.355 BSC | | |
| E | 0.250 | 0.300 | 0.350 |
| L | 0.160 | 0.190 | 0.220 |
| h | 0.079 BSC | | |

Suggested Land Pattern



| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |
| X | 0.60 | 0.024 |
| Y1 | 0.50 | 0.020 |
| Y2 | 0.30 | 0.012 |
| Y3 | 0.80 | 0.032 |
| Z | 1.30 | 0.052 |

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