

### Features

- ◆ Ultra low capacitance: 0.25 pF typical (I/O to I/O)
- ◆ Ultra low leakage: nA level
- ◆ Breakdown Voltage: 5.5 V (Minimum)
- ◆ 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) : 4 A(8/20µs)
- ◆ ROHS Compliant

[www.sot23.com.tw](http://www.sot23.com.tw)  
TPD4E02B04DQAR PIN to PIN fully compatible

### Mechanical Characteristics

- ◆ Package: DFN2510-10 (2.5×1.0×0.5mm)
- ◆ 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

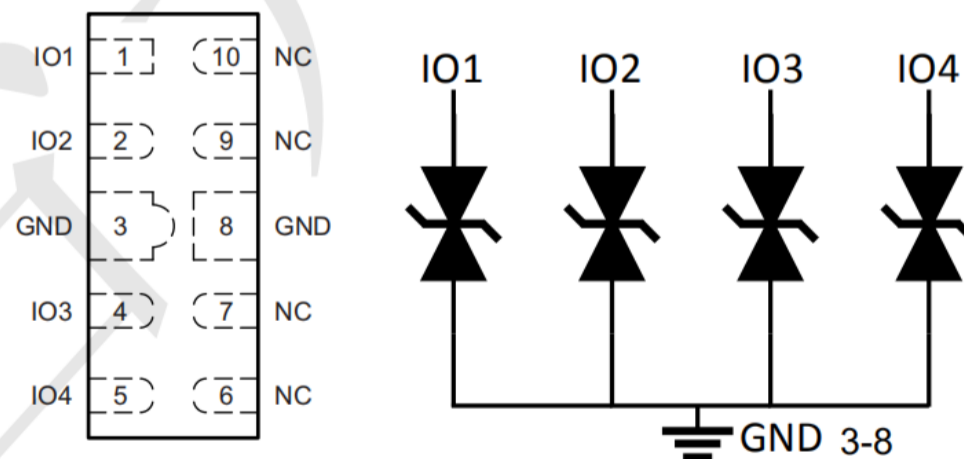
### Applications

- ◆ End Equipment
- ◆ Laptops and Desktops
- ◆ Set-Top Boxes
- ◆ TV and Monitors
- ◆ Mobile and Tablets

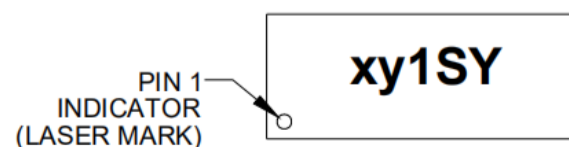
### Ordering Information

Part Number	Qty per Reel	Reel Size
TPD4E02B04DQAR-TP	3000	7"

### Dimensions and Pin Configuration



### Marking:



1SY = Device code  
xy = Month code

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

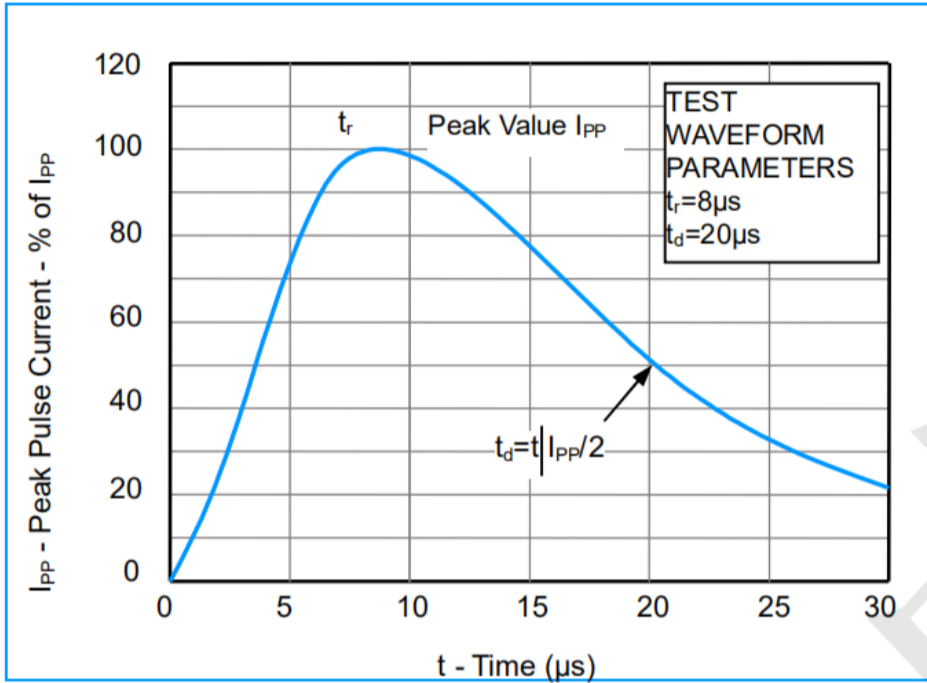
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	60	W
Peak Pulse Current (8/20μs)	IPP	4	A
ESD per IEC 61000-4-2 (Air)	VESD	± 20	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

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

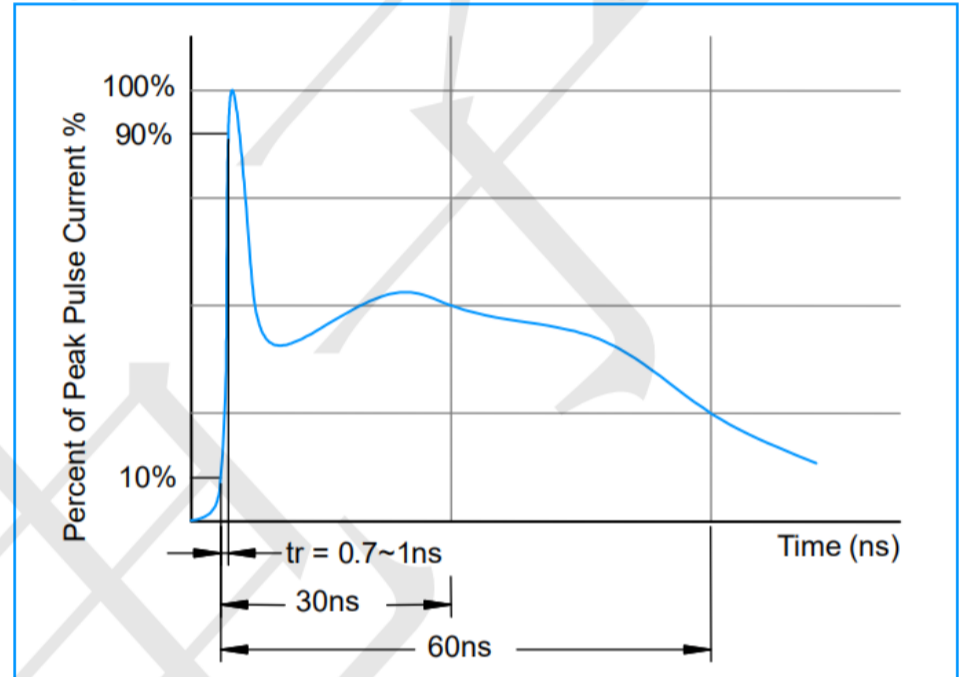
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM	-3.6		3.6	V	IIO < 10 nA
Breakdown Voltage	VBR	5.5	6.4	7.5	V	IT = 1mA, any I/O pin to ground
Breakdown Voltage	VBR	-5.5	-6.4	-7.5	V	IT = 1mA, any ground pin to I/O
Reverse Leakage Current	IR			10	nA	VIO=± 2.5V any I/O pin to 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 = 4A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	CJ		0.25	0.4	pF	VR = 0V, f = 1MHz, between I/O pins

**Characteristic Curves**

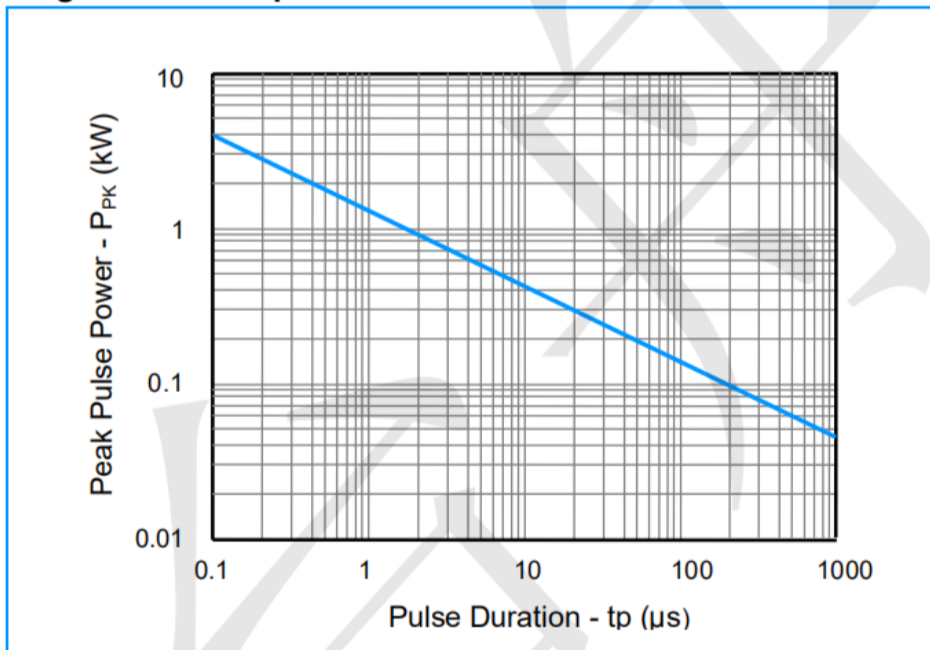
**Fig1. 8/20µs Pulse Waveform**



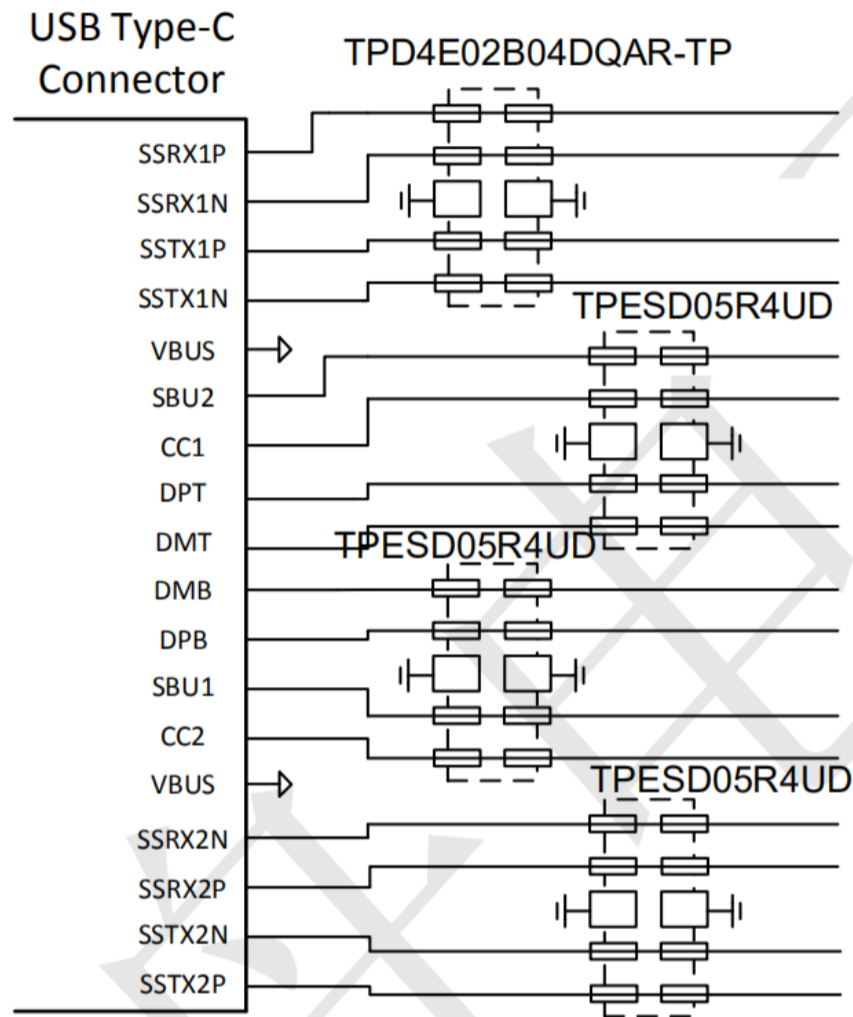
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



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

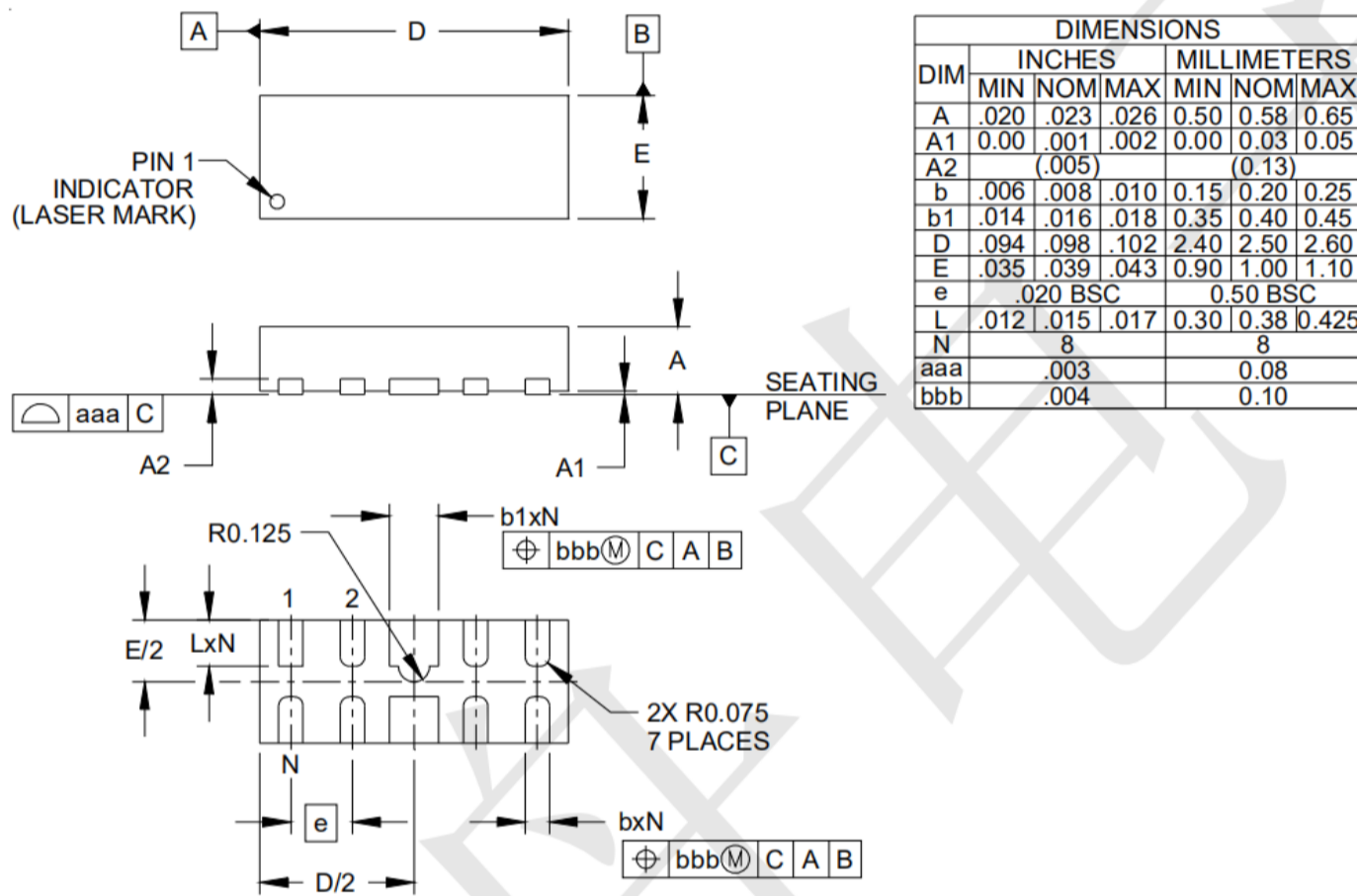


**Application Information**



**USB 3.1 Gen 2 Type-C ESD Schematic**

**Outline Drawing - DFN2510-10**



**Land Pattern - DFN2510-10**

