

Features

- ◆ Ultra low capacitance: 0.25 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: $\pm 20\text{kV}$
Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-4 (EFT) 80A (5/50ns)
 - IEC61000-4-5 (Lightning) : 3A(8/20 μs)
- ◆ ROHS Compliant

Ordering Information

Part Number	Qty per Reel	Reel Size
TPD1E01B04DPYR	10000	7"

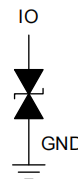
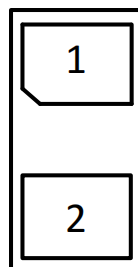
Mechanical Characteristics

- ◆ Package: X1SON-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:

| 5C

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)	I _{PP}	3	A
ESD per IEC 61000-4-2 (Air)	VESD	± 20	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	-3.6		3.6	V	I _{IO} < 10 nA
Breakdown Voltage	V _{BR}	5.5	6.4	8.5	V	I _T = 1mA, any I/O pin to ground
Breakdown Voltage	V _{BR}	-5.5	-6.4	-8.5	V	I _T = 1mA, any ground pin to I/O
Reverse Leakage Current	I _R			100	nA	V _{IO} = ± 2.5V any I/O pin to ground
Dynamic resistance	R _{DYN}		0.47		Ω	any I/O pin to ground
Clamping Voltage	V _C		7.2		V	I _{PP} = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V _C		9		V	I _{PP} = 3A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C _J		0.25		pF	V _R = 0V, f = 1MHz, between I/O pins

Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

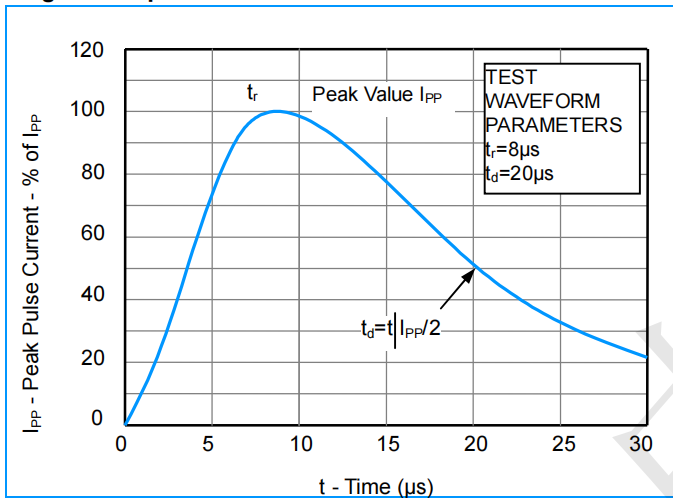


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

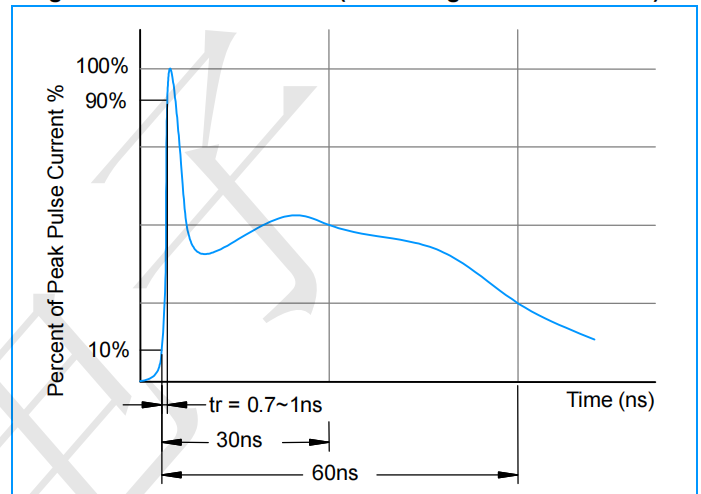
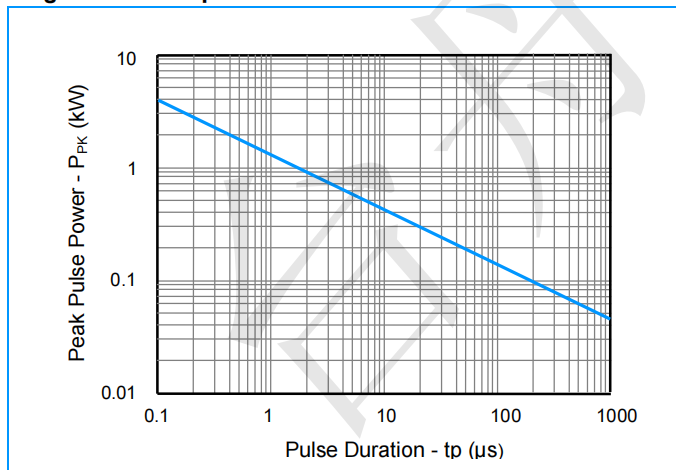
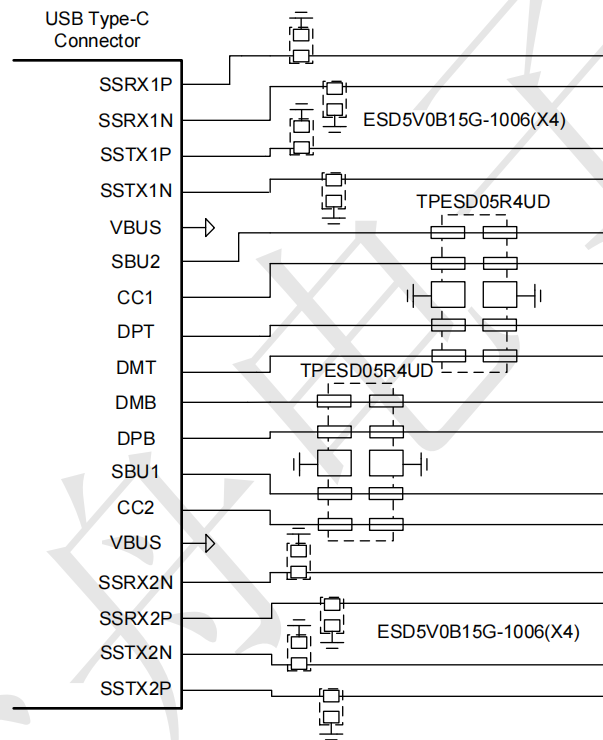


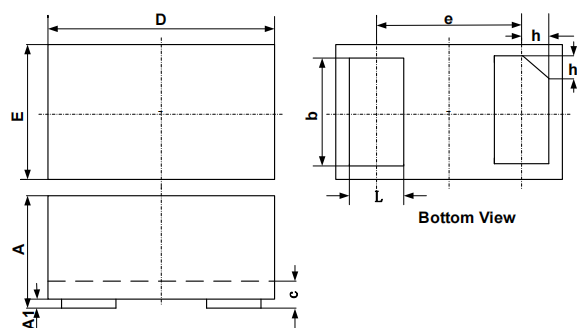
Fig3. Non - Repetitive Peak Pulse Power vs. Pulse Time



Application Information

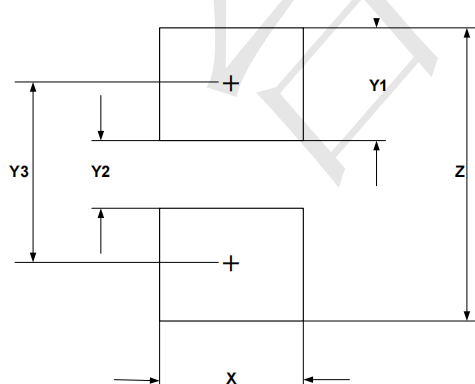


X1SON-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
h	0.07	0.12	0.17	0.003	0.005	0.007

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