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TPESD101-B1-02ELS

1 - Channel ESD Protection Diode

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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

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

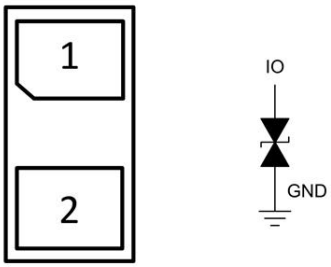
Applications

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

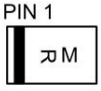
Ordering Information

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

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)	I_{PP}	3	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 20 ± 15	kV
Operating Temperature Range	T_J	−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	V_{RWM}	-3.6		3.6	V	IIO < 10 nA
Breakdown Voltage	V_{BR}	5.5	6.4	7.5	V	I_T = 1mA, any I/O pin to ground
Breakdown Voltage	V_{BR}	-5.5	-6.4	-7.5	V	I_T = 1mA, any ground pin to I/O
Reverse Leakage Current	I_R			10	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		0.18		pF	VR = 0V, f = 1MHz, between I/O pins

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

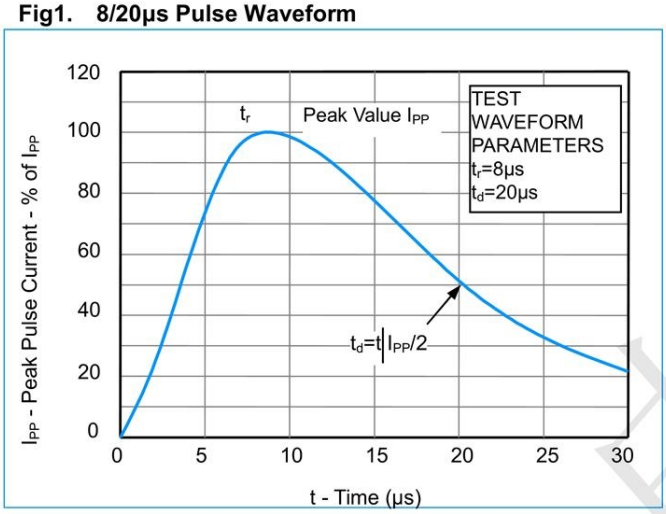


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

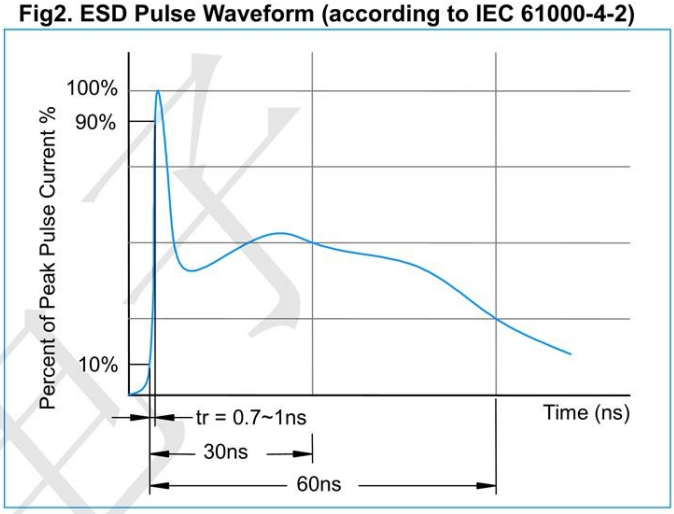
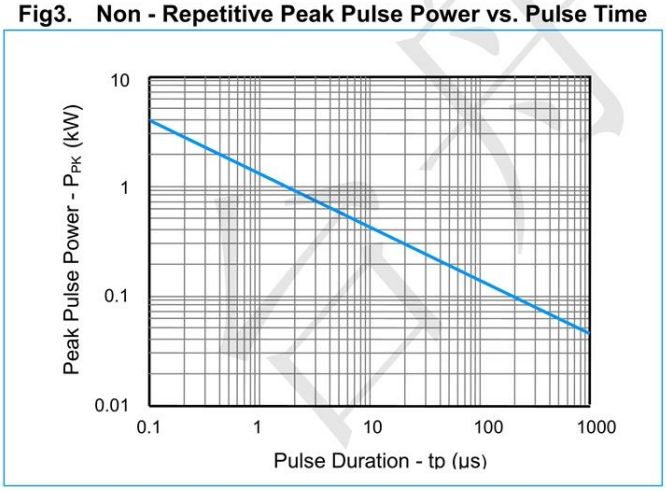
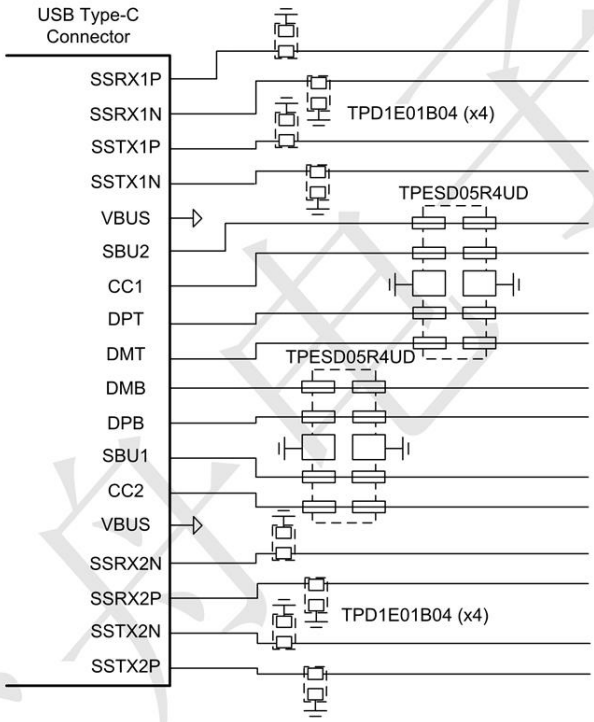


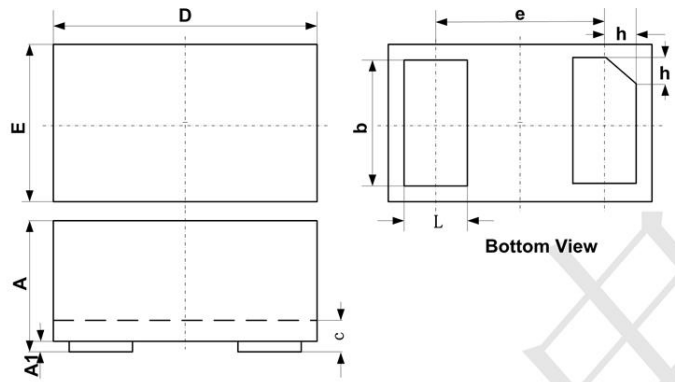
Fig3. Non - Repetitive Peak Pulse Power vs. Pulse Time



Application Information

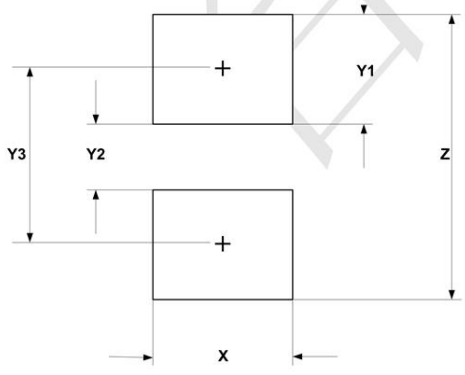


DFN0603-2 Package Outline Drawing (0201)



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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TPESD0504S6-A TPS3809L30DBVR-TP TPADM809SAKSZ QM3003J-TP BV15C TPDMG6602SVT TPESD0402G08V TPESD5311N TPFMMT493 TPWSB5557Z TPB05A40-323 TPGC12C-1 TPADM809LAKSZ ESD5B5.0ST1G-P FDC6301N-TP IRFR2405TRPBF-TP SI3932DV TPD1213A-02SM BSN20W TPSPX3819M5-L-3-3 DMP6350S LTH7 SN7002W TPB1A30-123 TPS7B6950DBVR-TP TPZVN3320FTA TPZXMP3A13FTA DDTA143ZCA FDMS7670AS-TP TPAPX809S-31SA