

TSPESD4USB5B-TTSX

4-Lines Bi-directional Channels ESD protection

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Features

- 4 Bi-directional Channels ESD protection
- Typically Used at High Speed Ports
- Low operating voltage: 5V
- Low Channel Input Capacitance of 0.3pF(Typ)
Typical for I/Os (Typ)
- -IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
- -IEC61000-4-4 (EFT) 40A (5/50ns)
- Totally Lead-Free & Fully RoHS Compliant
- Halogen and Antimony Free. "Green" Device

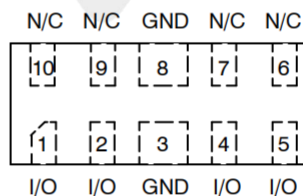
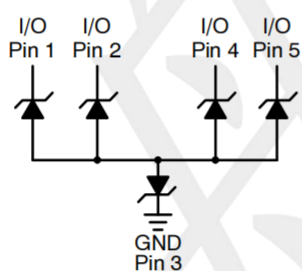
Mechanical Characteristics

- Package: DFN2510-10L
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

Applications

- USB 3.1 & 3.2 and MDDI ports
- PCI express and Serial SATA
- Ports Notebook Computers
- Tablets

Dimensions and Pin Configuration



DFN2510-10L

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

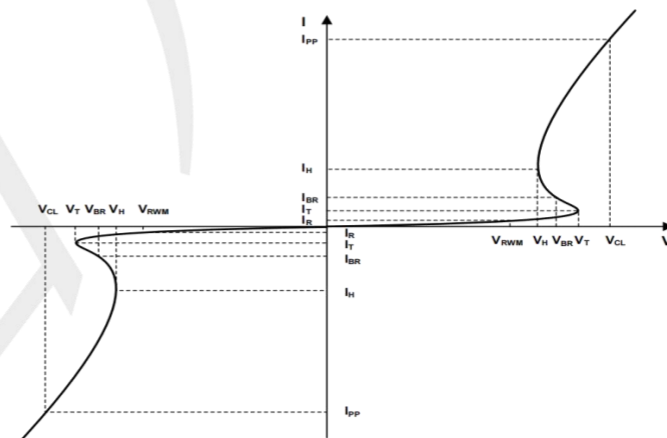
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	55	W
IEC 61000-4-2 Spec Current at 60 ns (A)	Ipp	6	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	KV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM	--	--	5	V	
Breakdown Voltage	VBR	5.8	--	9.5	V	IT= 1mA
Reverse Leakage Current	IR	--	--	200	nA	VRWM=5V
Clamping Voltage	VC	--	5.8	7.5	V	Ipp=1A(8x 20us pulse)
Clamping Voltage	VC	--	8.0	10	V	Ipp=5.5A(8x 20us pulse)
Junction Capacitance	CJ	--	0.3	0.4	pF	VR = 0V, f = 1MHz, Any vO pin to GND
Junction Capacitance	CJ	--	0.2	--	pF	VR = 0V, f = 1MHz, Between any I/O pin

Electrical Characteristics

Symbol	Parameter
VBR	Reverse Breakdown Voltage
IBR	Reverse Breakdown Current
VRWM	Reverse Stand-off Voltage
IR	Reverse Leakage Current
VH	Holding Voltage
IH	Holding Current
VT	Trigger Voltage
IT	Trigger Current
Ipp	Peak Pulse Current
VCL	Clamping Voltage



Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

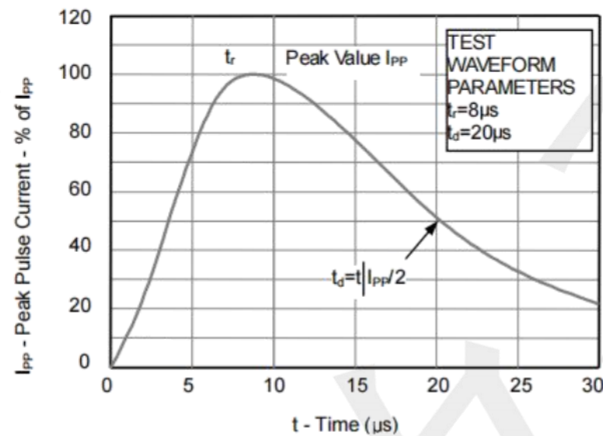


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

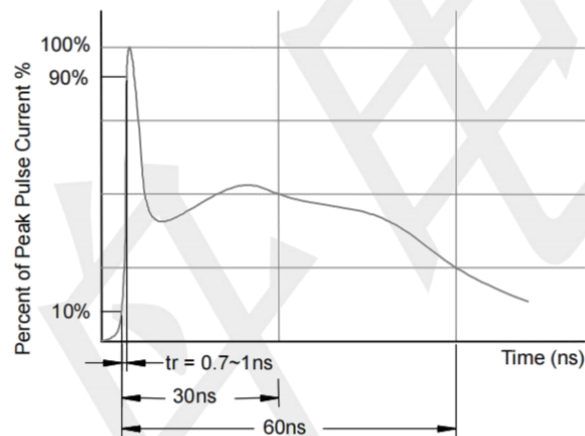
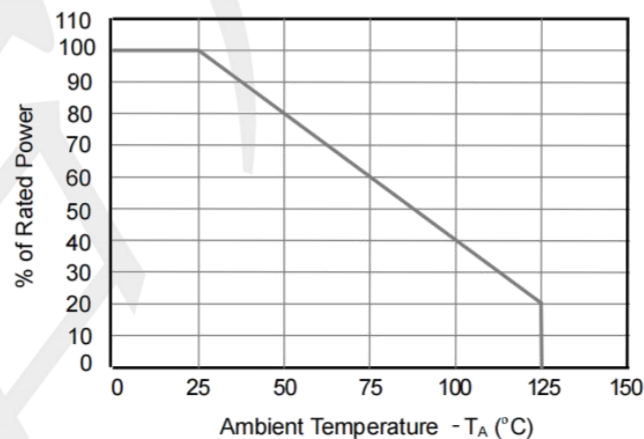
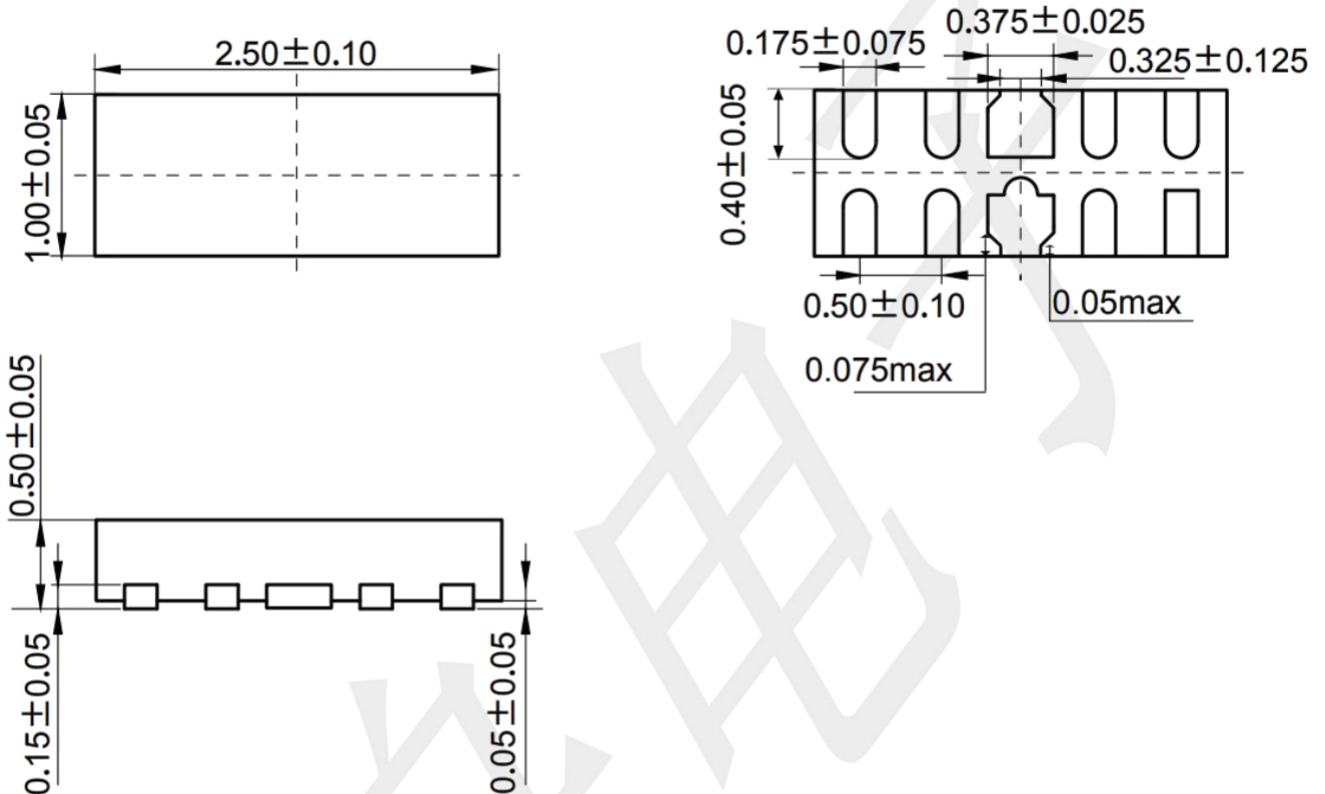


Fig3. Power Derating Curve



Package Outline Dimensions (unit: mm)

DFN2510-10L



Mounting Pad Layout (unit: mm)

