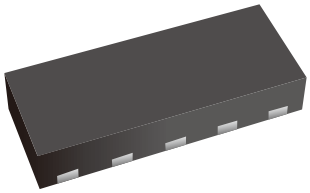
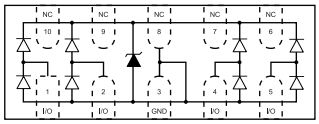
LTE25NP05A01L

Ultra Low CapacitanceESD Protection Array

Features





- Transient protection for high-speed data lines
  - IEC 61000-4-2(ESD) ±25KV(Air)
  - ±20KV(Contact)
  - IEC 61000-4-4(EFT)40A(5/50ns)
  - Cable Discharge Event(CDE)
- Package optimized for high-speed lines
- Ultra-small package(2.5mm*1.0mm*0.5mm)
- Protects four data lines
- Low capacitance: 0.2pF (I/O to I/O)
- Low leakage current
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8KV contact discharge

Applications

- Serial ATA
- PCI Express
- Desktops, Servers and Notebooks
- MDDI Ports
- USB 2.0/3.0 Power and Data Line Protection
- Display Ports
- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)

Machanical Data

- Case:DFN2510
- Flammability Rating: UL 94V-0
- Terminal: Matte tin plated
- Material: Halogen free

Ordering Information

Part Number	Marking	Shipping	Reel
LTE25NP05A01L-TR3	0524P	3000PCS Tape&Reel	7 inchs

Absolute Maximum Rating

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20μs)	60	W
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±25 ±20	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA Any I/O pin to GND	6.0		9.0	V
I_R	Reverse Leakage Current	V_{RWM} = 5V Any I/O pin to GND			1.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs Any I/O pin to GND			10	V
V_C	Clamping Voltage	I_{PP} = 4A, t_p = 8/20μs Any I/O pin to GND			15	V
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz Between I/O and GND		0.4	0.5	pF
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz Between I/O and I/O		0.2	0.3	pF

Note: I/O pins are pin 1,2,4,5, GND pins are pin 3,8.

Characteristics Curves

Fig 1 Power Derating Curve

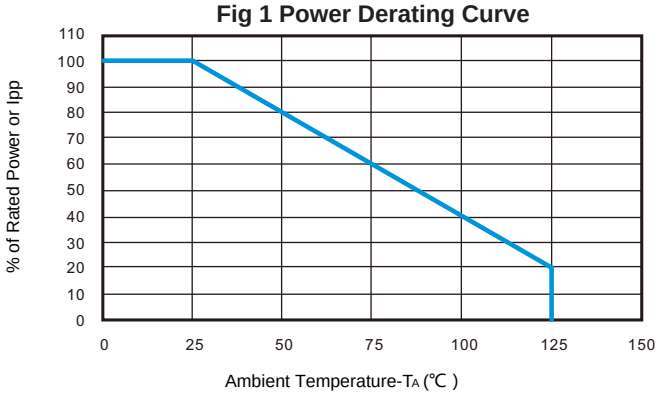


Fig2 Clamping Voltage vs Peak Pulse Current

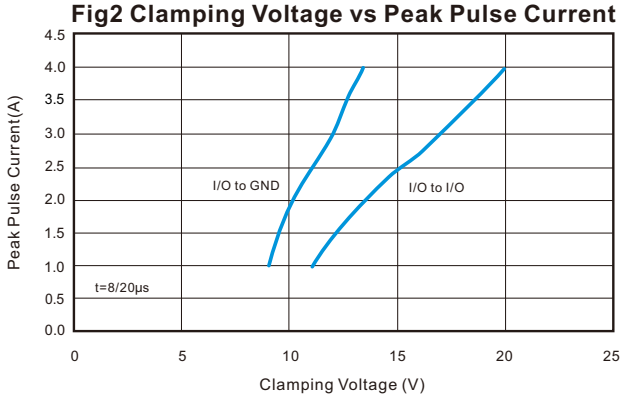


Fig3 Voltage Sweeping of I/O to I/O

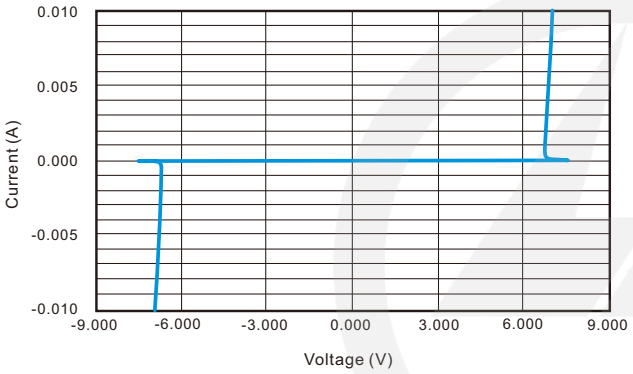


Fig4 Voltage vs Capacitance

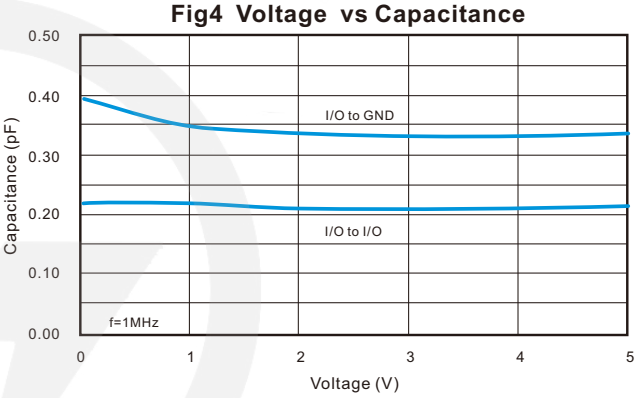


Fig 6 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

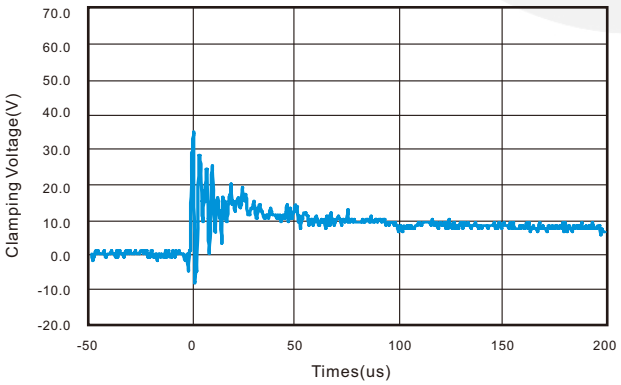
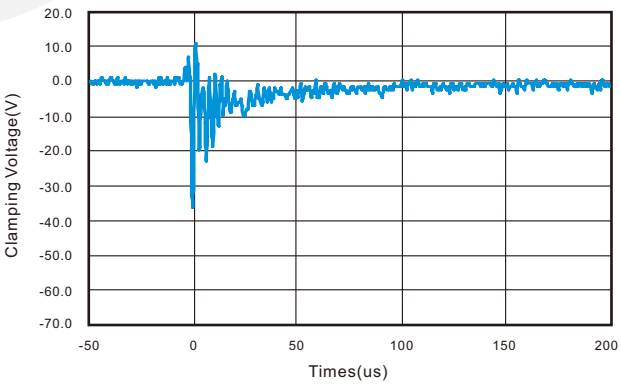
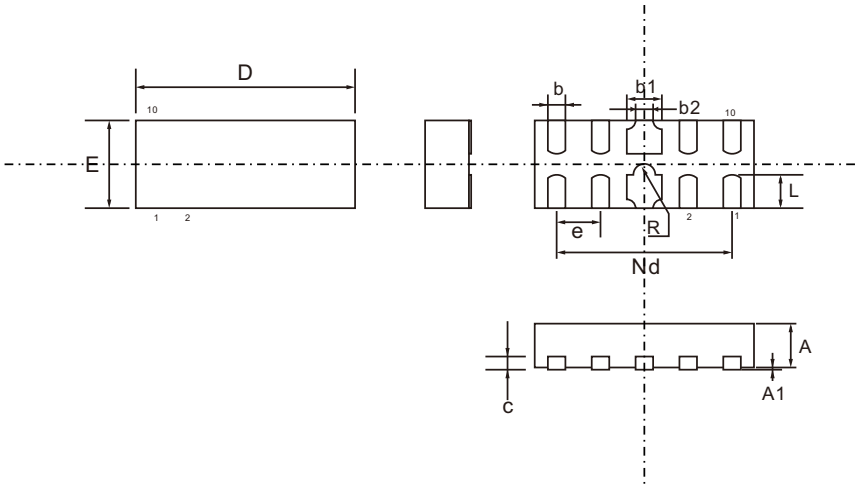


Fig 6 ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)



DFN2510 Package Outline Plastic surface mounted package



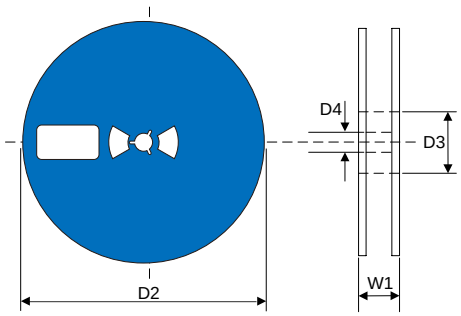
Unit: mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
D	2.450	2.550
E	0.950	1.050
b1	0.350	0.450
b2	0.200 REF	
b	0.150	0.250
L	0.330	0.430
Nd	2.000 BSC	
e	0.500 BSC.	
R	0.100	0.150
A	0.450	0.550
c	0.150 REF.	
A1	0.000	0.050

Reel Dimensions

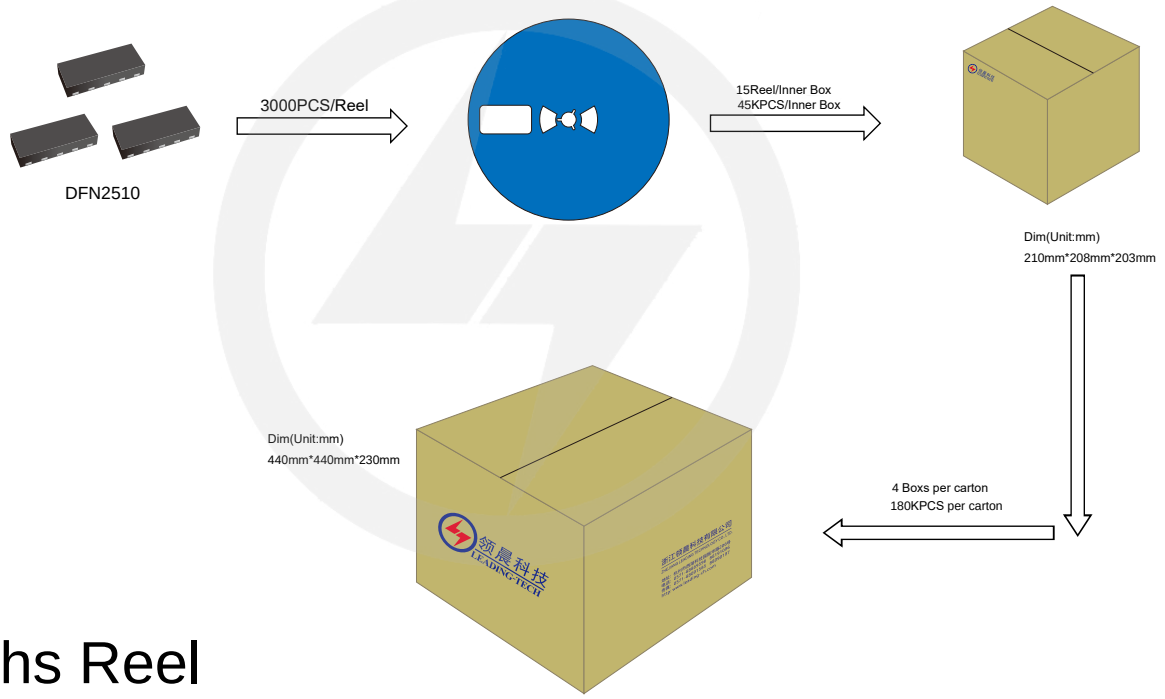
Unit：mm

7” Reel



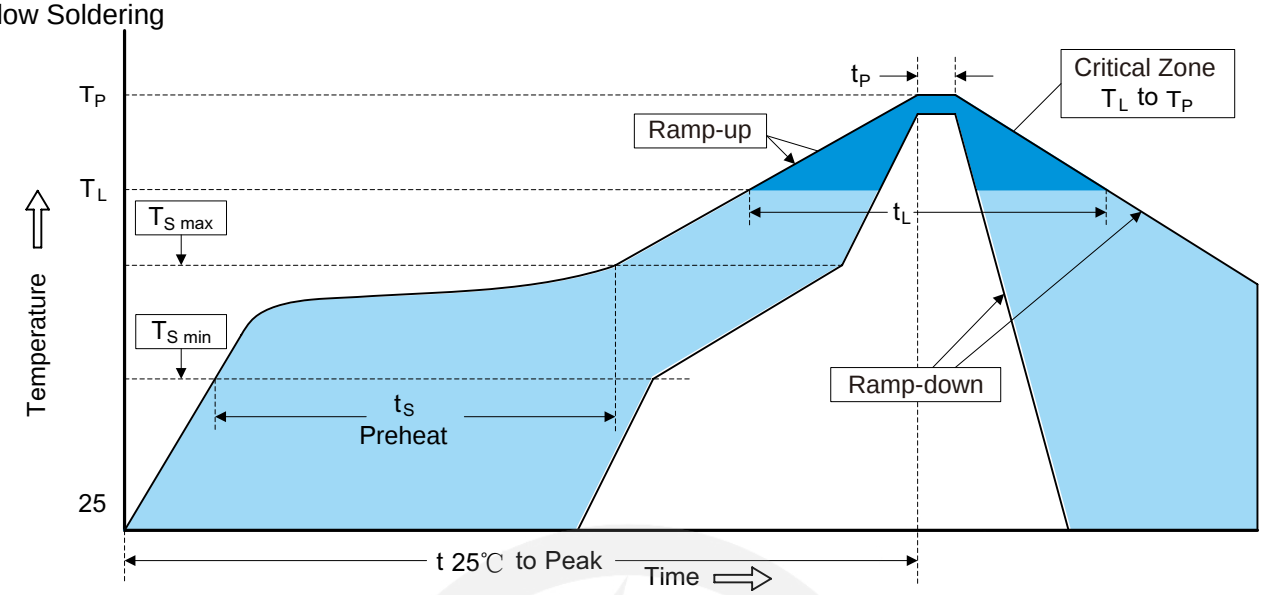
D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

Packaging



Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.3.12	2024.3.12	3.0	New File	/	Ding	