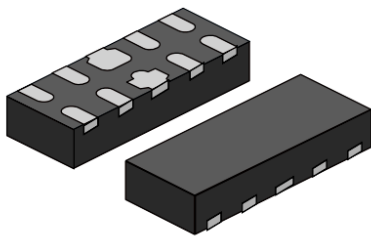


## Description

The CSL05G4U is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time. The CSL05G4U is suited for using in USB3.0, VGA, eSATA, HDMI high speed data ports.



## Features

- ◆ IEC 61000-4-2 (ESD)
  - ±20kV Contact Discharge
  - ±25kV Air Discharge
- ◆ IEC 61000-4-5 (Lightning)
  - 4.5A (8/20us)
- ◆ IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- ◆ Halogen free and RoHS compliant
- ◆ Protects 4 channels I/O line
- ◆ Transient protection for high-speed data lines
- ◆ Low clamping voltage
- ◆ Low leakage current

## Mechanical Characteristics

- ◆ DFN2510P10
- ◆ ROHS/ Compliant
- ◆ Halogen free
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Marking: Part number
- ◆ Packing: Tape and Reel per EIA 481

## Applications

- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants
- ◆ Notebooks / Desktops / Servers
- ◆ LCD/TV
- ◆ Digital cameras
- ◆ External storage

## Pin Configuration

Pin	Name	Description	Outline	Circuit Diagram
3,8	Gnd			
1,10	IO	Protect IO		
2,9				
4,7				
5,6				

### Ordering Information

Part Number	Package	Marking	Packing	Reel Size
CSL05G4U	DFN2510P10	0524P	3000/Tape & Reel	7 inch

### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power ( $t_p=8/20\mu\text{s}$ )@ $25^\circ\text{C}$	$P_{pk}$	-	60	W
Peak pulse current ( $t_p=8/20\mu\text{s}$ )@ $25^\circ\text{C}$	$I_{pp}$		4	A
ESD (IEC61000-4-2 air discharge) @ $25^\circ\text{C}$	$V_{ESD}$	-	$\pm 25$	kV
ESD (IEC61000-4-2 contact discharge) @ $25^\circ\text{C}$	$V_{ESD}$	-	$\pm 20$	kV
Junction temperature	$T_J$	-	125	$^\circ\text{C}$
Operating temperature	$T_{OP}$	-40	125	$^\circ\text{C}$
Storage temperature	$T_{STG}$	-55	150	$^\circ\text{C}$
Lead temperature	$T_L$	-	260	$^\circ\text{C}$

### Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}$	6			V
Reverse Leakage Current	$I_R$	$V_{RWM}=5\text{V}$			0.1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{pp}=1\text{A}$ ; $t_p=8/20\mu\text{s}$		8		V
Clamping Voltage	$V_C$	$I_{pp}=4\text{A}$ ; $t_p=8/20\mu\text{s}$		12		V
TLP Clamping Voltage	$V_C$	$I_{PL}=3\text{A}$ ; $t_p=0.2/100\text{ns}$		10		V
TLP Clamping Voltage	$V_C$	$I_{PL}=20\text{A}$ ; $t_p=0.2/100\text{ns}$		21.5		V
Dynamic resistance	$R_{dyn}$	TLP, I/O to Gnd		0.68		$\Omega$
Junction Capacitance	$C_J$	I/O to GND; $V_R=0\text{V}$ ; $f=1\text{MHz}$		0.45		pF
Junction Capacitance	$C_J$	I/O to IO; $V_R=0\text{V}$ ; $f=1\text{MHz}$		0.25		pF

Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)

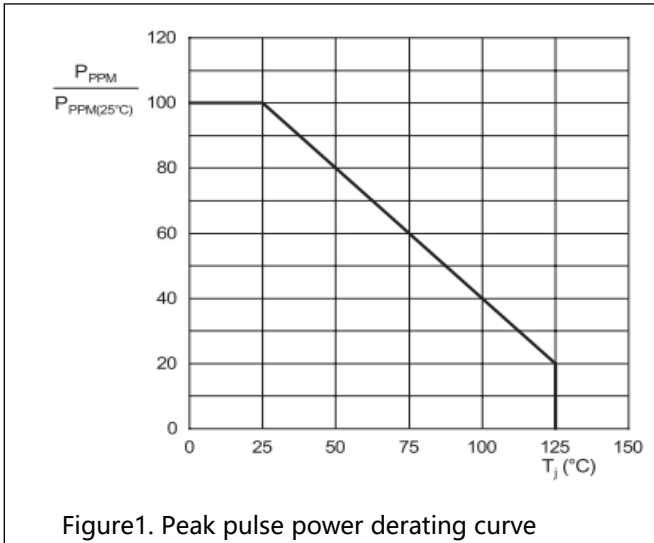


Figure1. Peak pulse power derating curve

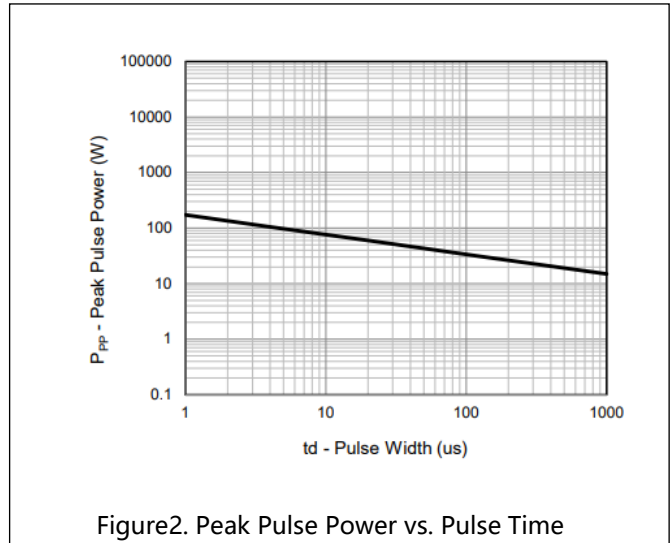


Figure2. Peak Pulse Power vs. Pulse Time

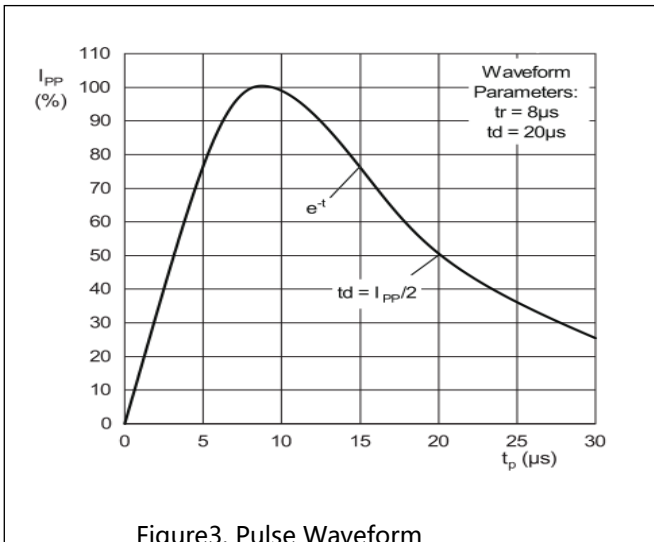


Figure3. Pulse Waveform

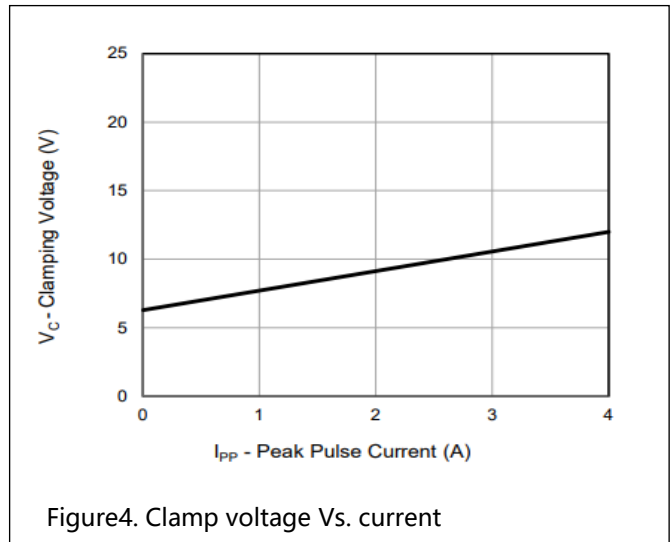


Figure4. Clamp voltage Vs. current

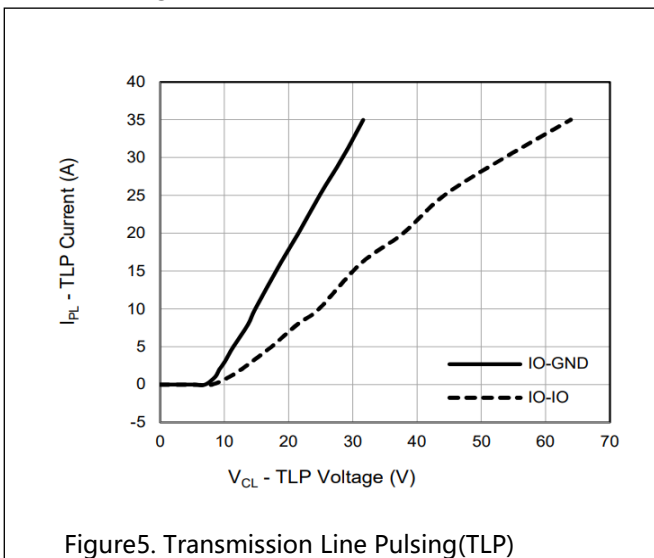
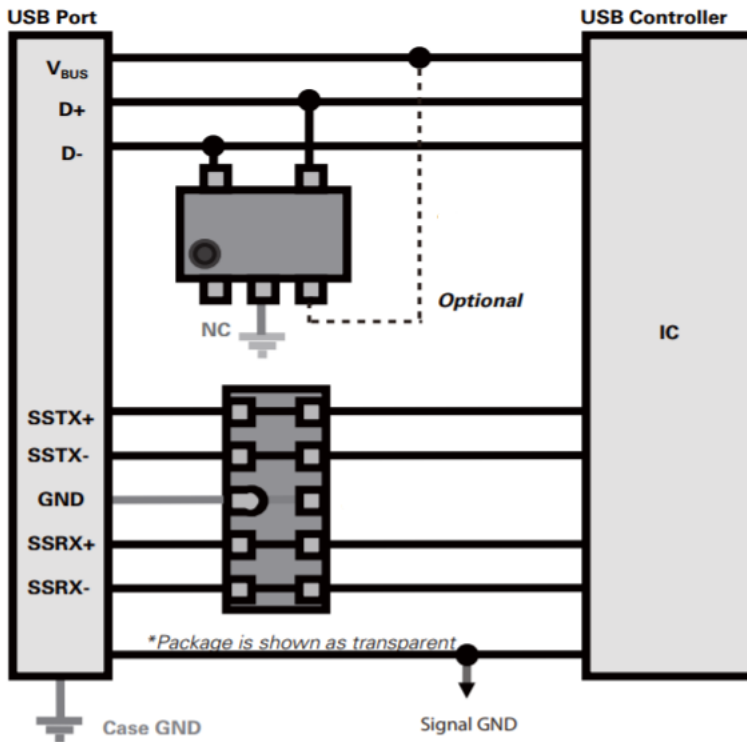


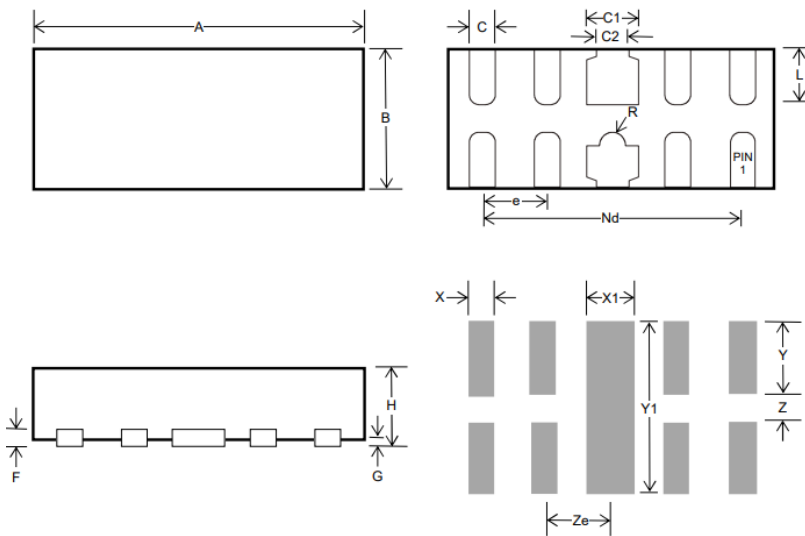
Figure5. Transmission Line Pulsing(TLP)

Applications Information

Typical USB3.0 application



Package Outline Drawing



DFN2510P10			
SYMBOL	Millimeters		
	MIN	NOM	MAX
A	2.45	2.5	2.55
B	0.95	1	1.05
C	0.15	0.2	0.25
F	0.119	0.127	0.135
G	-	0.02	0.05
H	0.45	0.5	0.6
L	0.35	0.4	0.45
e		0.5	
C1	0.35	0.4	0.45
C2	0.2		0.3
R	0.05		0.15
Nd		2	
X		0.2	
Y		0.6	
Z		0.2	
Ze		0.5	
X1		0.4	
Y1		1.4	

Recommended Land Pattern

See above showed



### Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	13-Aug-2021

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