

## Description

The CSL05FB is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time. The CSL05FB is suited for high speed data and transmission lines from over voltage caused by ESD, CDE and EFT.



## Mechanical Characteristics

- ◆ DFN1006-2L
- ◆ ROHS/ Compliant
- ◆ Halogen free
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Marking: Part number
- ◆ Packing: Tape and Reel per EIA 481

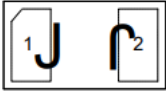

## Features

- ◆ IEC 61000-4-2 (ESD)
  - $\pm 15$ kV Contact Discharge
  - $\pm 10$ kV Air Discharge
- ◆ IEC 61000-4-5 (Lightning)
  - 4A (8/20 $\mu$ s)
- ◆ IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- ◆ Halogen free and RoHS compliant
- ◆ Protects one directional I/O line
- ◆ Transient protection for high-speed data lines
- ◆ Low clamping voltage
- ◆ Low leakage current

## Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants
- ◆ Notebooks / Desktops / Servers
- ◆ Portable Instrumentation
- ◆ Display ports/DVI
- ◆ USB data line

### Dimensions and Pin Configuration

Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to IO		
2	IO2	Connect to IO		

### Ordering Information

Part Number	Package	Marking	Packing	Reel Size
CSL05FB	DFN1006-2L	JJ	10000/Tape & Reel	7 inch

### Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P <sub>pk</sub>	-	80	W
Peak pulse current (tp=8/20us)@25°C	I <sub>pp</sub>	-	4	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±15	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±10	kV
Junction temperature	T <sub>J</sub>	-	125	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}$	6.0			V
Reverse Leakage Current	$I_R$	$V_{RWM}=5\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP}=1\text{A}; t_p=8/20\mu\text{s}$		12		V
Clamping Voltage	$V_C$	$I_{PP}=4\text{A}; t_p=8/20\mu\text{s}$		18		V
Junction Capacitance	$C_J$	I/O to GND; $V_R=0\text{V}; f=1\text{MHz}$		0.35		pF

Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)

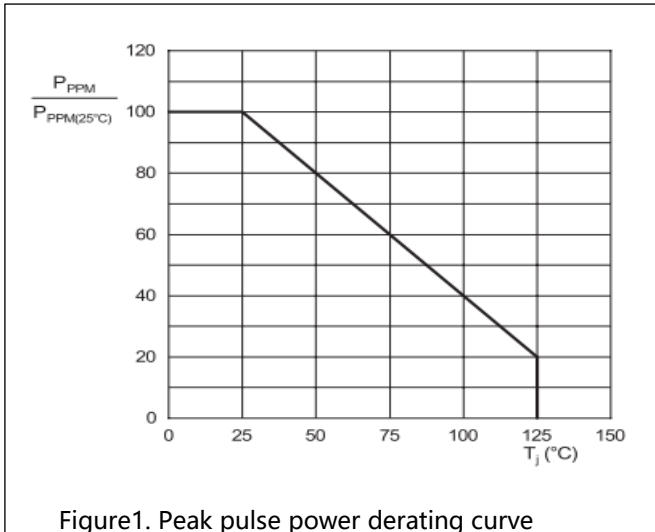


Figure1. Peak pulse power derating curve

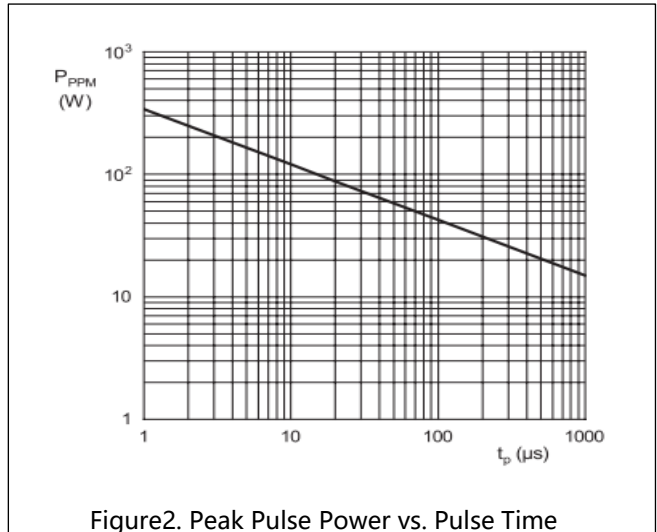


Figure2. Peak Pulse Power vs. Pulse Time

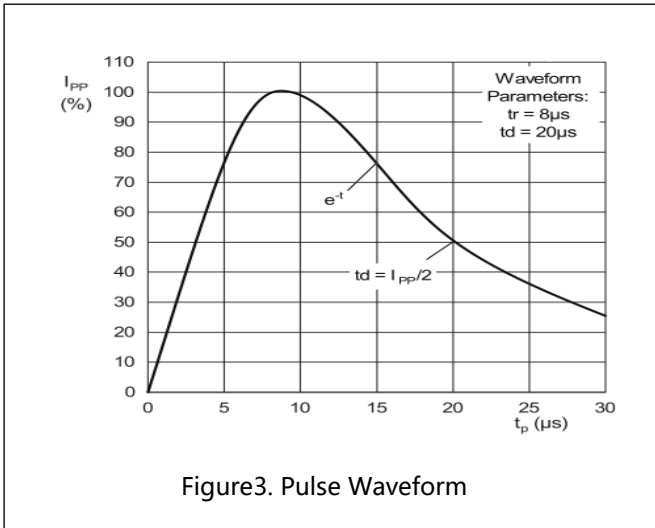


Figure3. Pulse Waveform

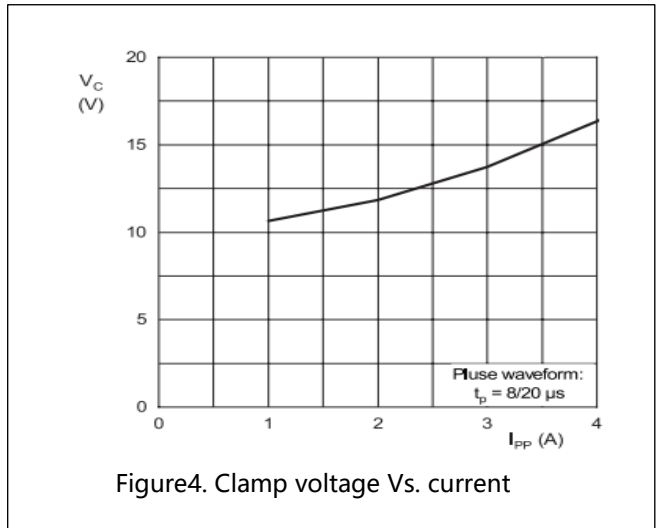


Figure4. Clamp voltage Vs. current

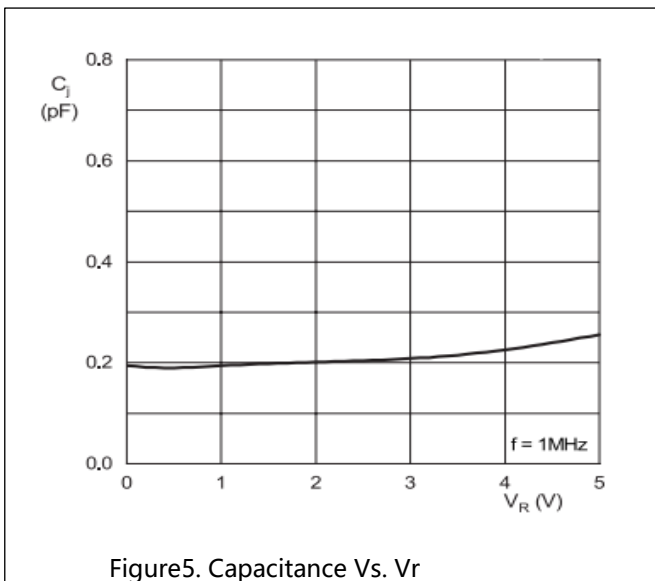


Figure5. Capacitance Vs. Vr

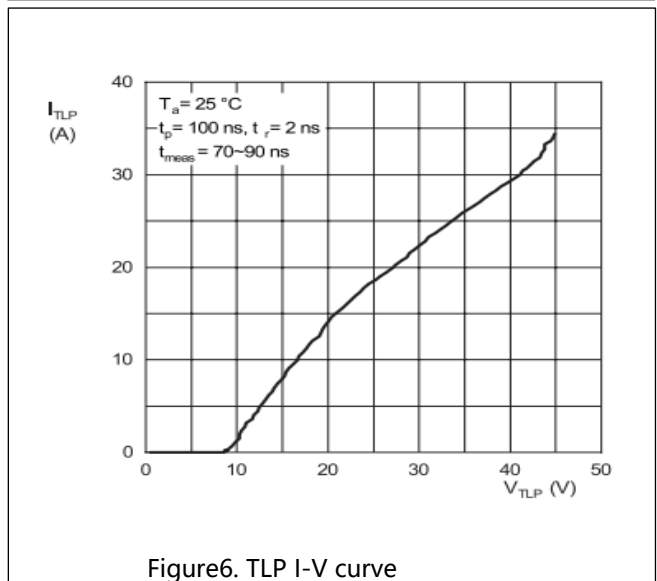
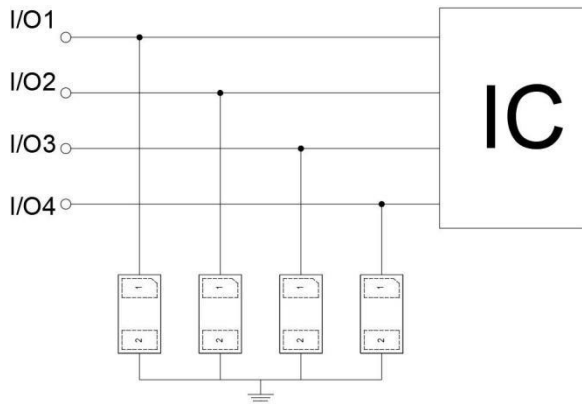


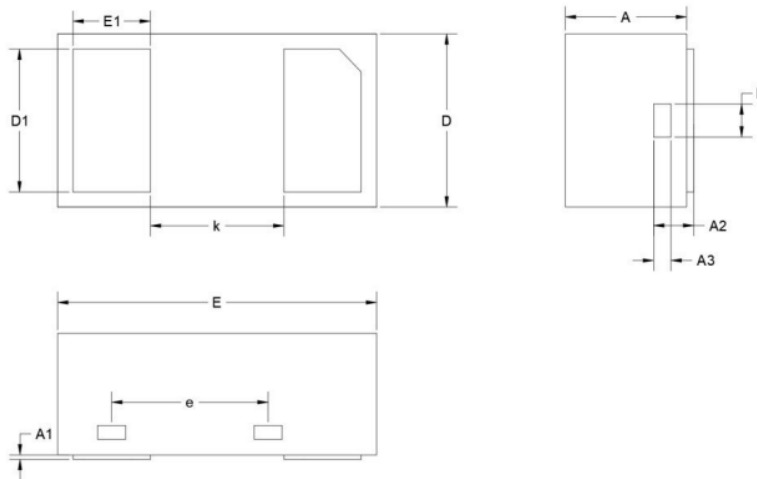
Figure6. TLP I-V curve

Applications Information

Typical Interface Application



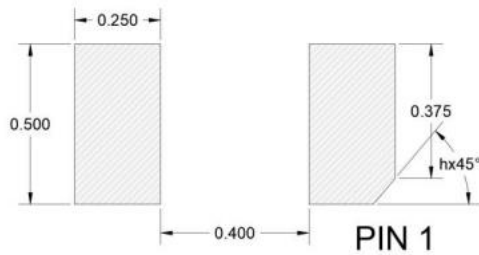
Package Outline Drawing



Units in millimeters

Symbol	Min.	Nom.	Max.
A	0.350	0.450	0.550
A1	0.000	0.020	0.050
A2	0.077	0.127	0.207
A3	0.013	0.063	0.113
b	0.070	0.120	0.200
D	0.500	0.600	0.700
D1	0.400	0.500	0.600
E	0.900	1.000	1.100
E1	0.150	0.250	0.350
e	0.310	0.410	0.560
k	0.300	0.400	0.500

Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference only

Revision history of Specification

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

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