

Description

CSL05FU is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.4pF, CSL05FU is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc. CSL05FU uses ultra-small DFN1006 package. Each CSL05FU device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make CSL05FU ideal for highspeed data port and high-frequency line applications, such as cellular phones and HD visual devices.



Mechanical Characteristics

- ◆ DFN1006
- ◆ 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)
 - $\pm 8\text{kV}$ Contact Discharge
 - $\pm 15\text{kV}$ Air Discharge
- ◆ IEC 61000-4-4 EFT Protection
 - 40A (5/50ns)
- ◆ Transient protection for high-speed data lines
- ◆ Package optimized for high-speed lines
- ◆ Protects one data, control line
- ◆ Low clamping voltage
- ◆ Low leakage current

Applications

- ◆ Serial ATA
- ◆ Cellular Phones
- ◆ MDDI Ports
- ◆ Notebooks / Desktops / Servers
- ◆ USB Data Line Protection
- ◆ Display Ports
- ◆ Digital Visual Interfaces (DVI)

Pin Configuration



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
CSL05FU	DFN1006	5L	10000/Tape & Reel	7 inch

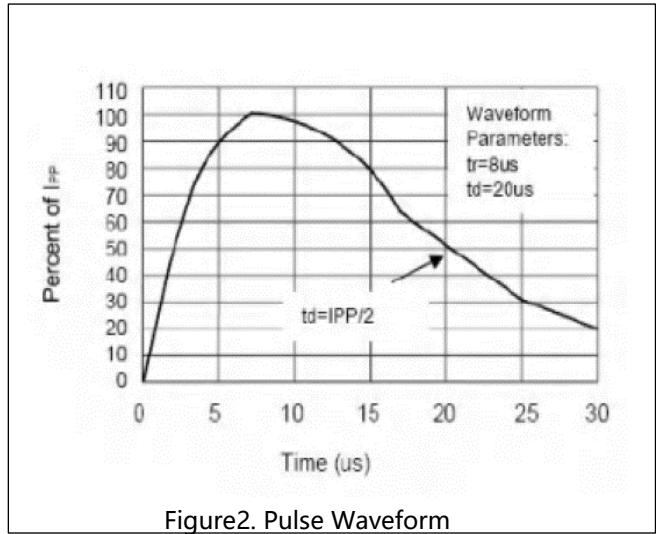
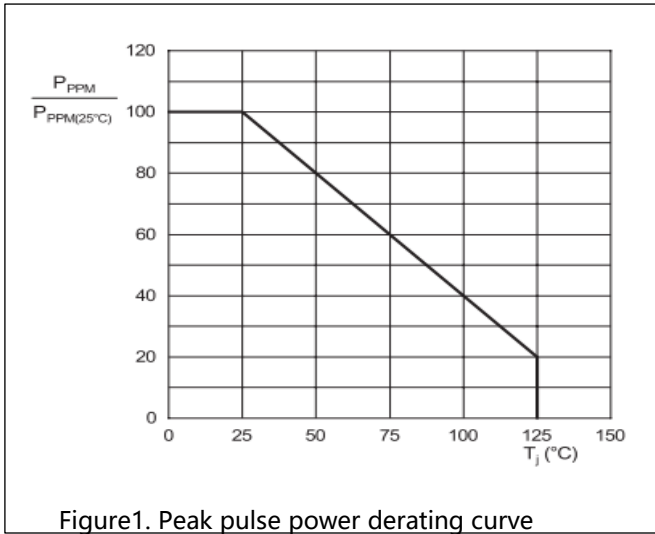
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Units
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/-15	KV
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/-8	KV
Peak Pulse Power (8/20 μs)	P_{PP}	80	W
Operating Temperature	T_{OPT}	-55~125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6.0			V
Reverse Leakage Current	I_{R}	$V_{\text{RWM}}=5\text{V}$			100	nA
Clamping Voltage	V_{C}	$I_{\text{PP}}=1\text{A}$; $t_{\text{p}}=8/20\mu\text{s}$		12		V
Clamping Voltage	V_{C}	$I_{\text{PP}}=4\text{A}$; $t_{\text{p}}=8/20\mu\text{s}$		18		V
Junction Capacitance	C_{J}	$V_{\text{R}}=0\text{V}$; $f=1\text{MHz}$		0.4	0.6	pF

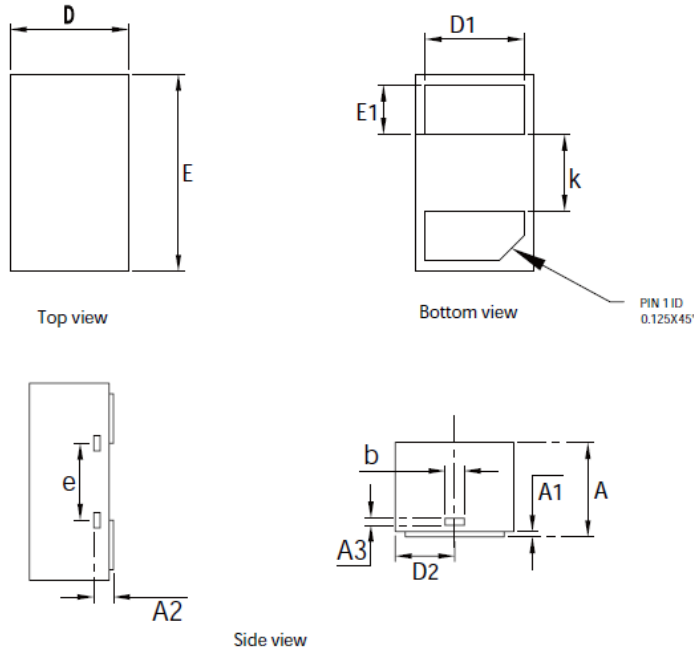
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



Applications Information

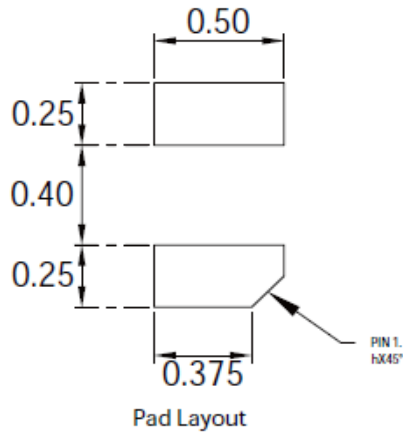
Typical Interface Application

Package Outline



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
D2	0.200	0.300	0.400
E	0.900	1.000	1.100
E1	0.150	0.250	0.350
e	0.460	0.510	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