

Description

The ASL05FB is an ultra-low capacitance ESD protection device designed to protect high speed data interfaces. ASL05FB is specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).



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

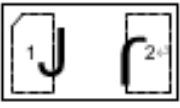

Features

- ◆ IEC 61000-4-2 (ESD)
 - $\pm 10\text{kV}$ Contact Discharge
 - $\pm 15\text{kV}$ Air Discharge
- ◆ IEC 61000-4-4 EFT Protection
 - 40A (5/50ns)
- ◆ Halogen free and RoHS compliant
- ◆ IEC 61000-4-4 EFT Protection
 - 4A (8/20us)
- ◆ Transient protection for high-speed data lines
- ◆ Protects one directional I/O lines
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ AEC-Q101 qualified

Applications

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

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	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
ASL05FB	DFN1006-2L	JJ	Halogen free	Tape & Reel	10000 PCS	UL 94V-0	7 inches

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°C	P_{pk}	-	80	W
Peak pulse current ($t_p=8/20\mu\text{s}$)@ 25°C	I_{pp}	-	4	A
ESD (IEC61000-4-2 air discharge) @ 25°C	V_{ESD}	-	± 15	kV
ESD (IEC61000-4-2 contact discharge) @ 25°C	V_{ESD}	-	± 10	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}	$I_T=1\text{mA}$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$			1	μA
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 ($T_A=25^\circ\text{C}$ unless otherwise Specified)

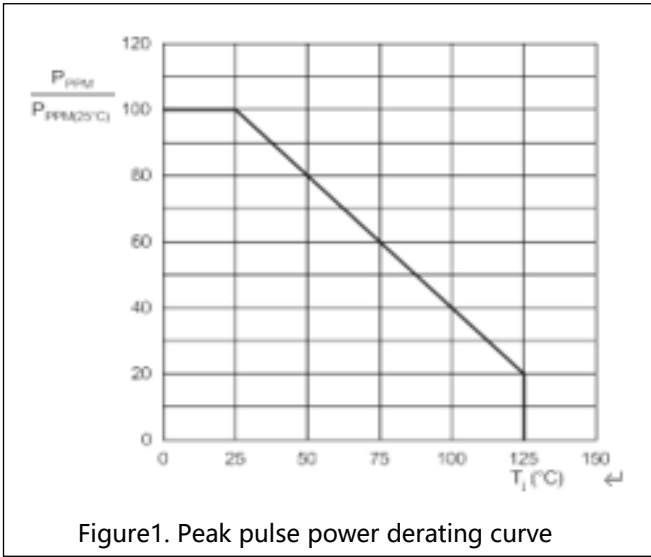


Figure1. Peak pulse power derating curve

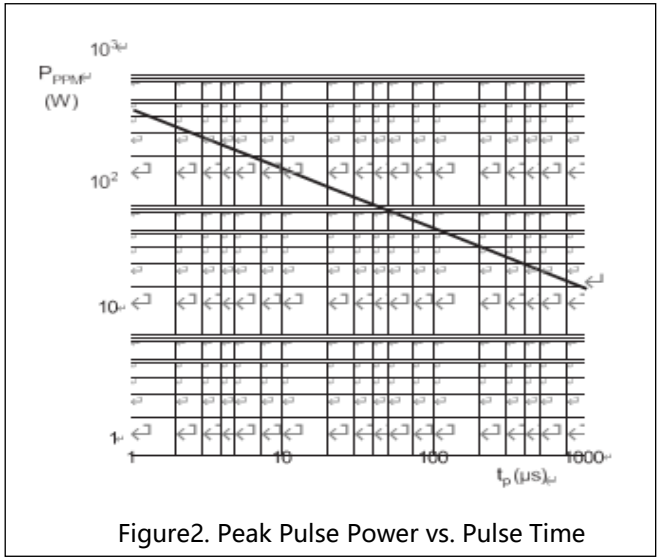


Figure2. Peak Pulse Power vs. Pulse Time

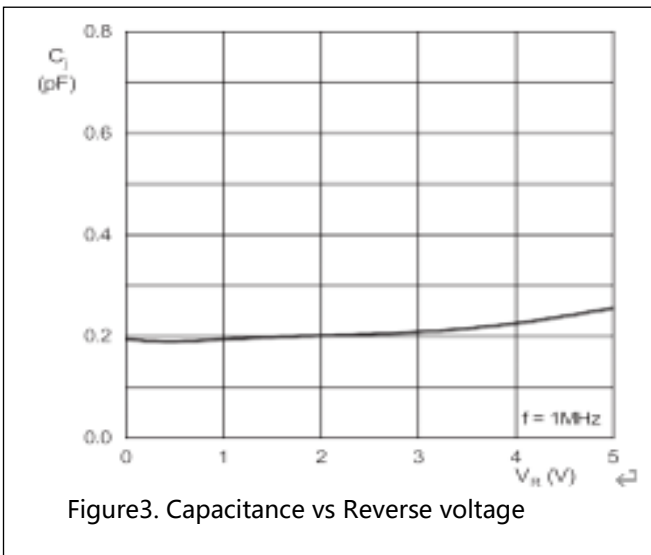
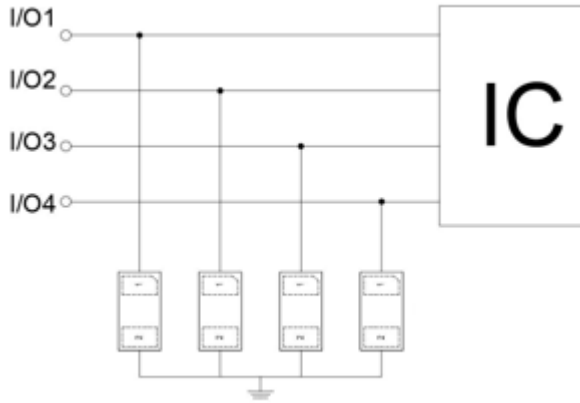


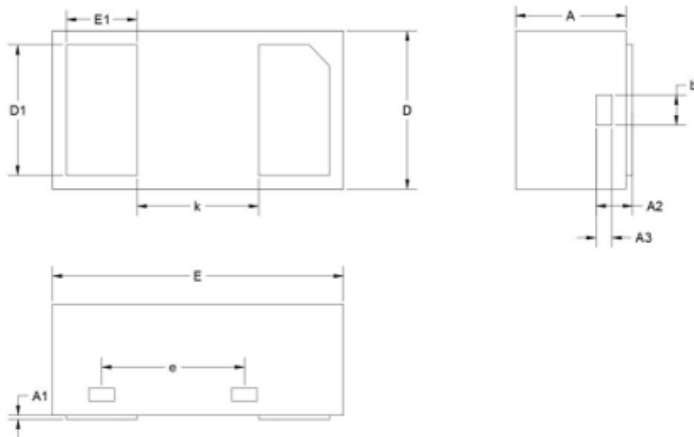
Figure3. Capacitance vs Reverse voltage

Applications Information

Typical Interface Application



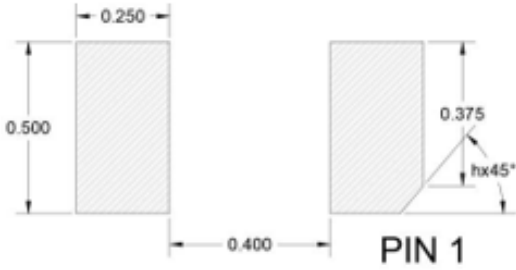
Package Outline Drawing



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