

Description

The CSHxxFB series are designed to protect voltage sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients). Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.



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)
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- ◆ 100W Peak pulse Power (8/20us)
- ◆ 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
- ◆ Peripherals & Pagers

Dimensions and Pin Configuration

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

Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
CSHxxFB	DFN1006-2L	Halogen free	Tape & Reel	10,000 PCS	UL 94V-0	7 inches	
Marking for the CSHxxFB series							
V _{RWM}	3.3V	5V	7V	8V	12V	15V	24V
Marking	T	PB	PC	R2.C	2C	E	DH

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameters	Symbol	Min.	Max.	Unit
ESD (IEC61000-4-2 air discharge) @25°C	V _{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V _{ESD}	-	±30	kV
Junction temperature	T _J	-	125	°C
Operating temperature	T _{OP}	-40	125	°C
Storage temperature	T _{STG}	-55	150	°C
Lead temperature	T _L	-	260	°C

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

Part Number	VRWM (max.)	VBR (min.)	VCL@I=1A (max.)	IPP (max.)	VCL@I=IPP (max.)	IR (max.)	CJ (typ.)
	(V)	(V)	(V)	(A)	(V)	(μA)	(Pf)
CSH03FB	3.3	3.6	7	8	10	1.0	15
CSH05FB	5.0	5.6	8	7	11	1.0	15
CSH07FB	7.0	7.5	11	15	17	1.0	80
CSH08FB	8.0	9.0	13	6	16	1.0	10
CSH12FB	12.0	13.0	18	6	25	1.0	10
CSH15FB	15.0	16.5	24	7	35	1.0	18
CSH24FB	24.0	26.0	35	5	48	1.0	20

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

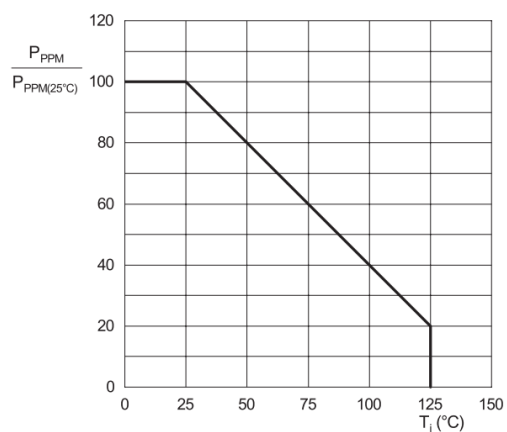


Figure1. Peak pulse power derating curve

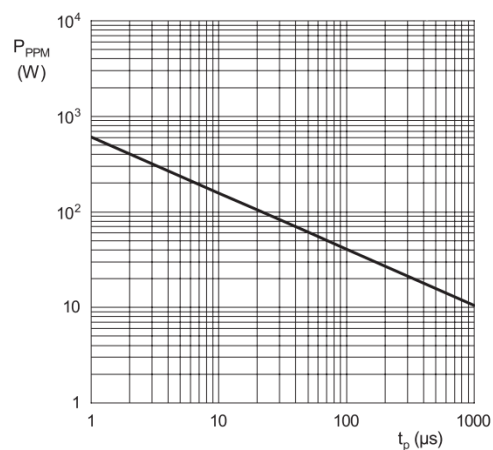


Figure2. Peak Pulse Power vs. Pulse Time

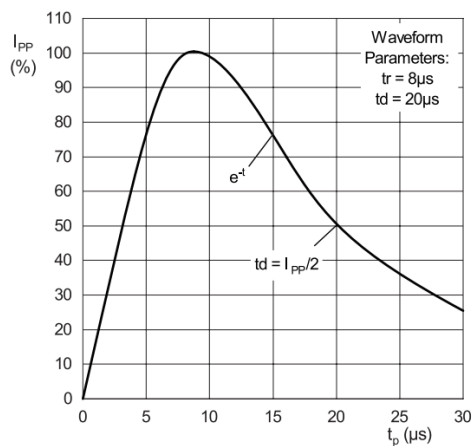


Figure3. Pulse Waveform

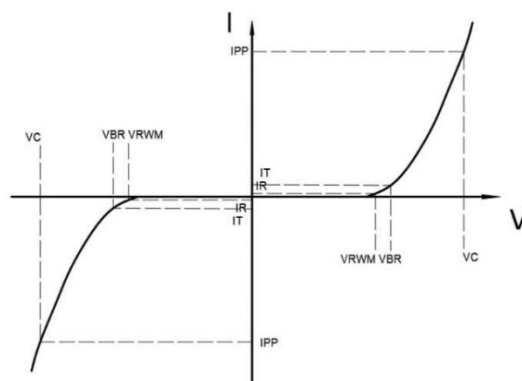
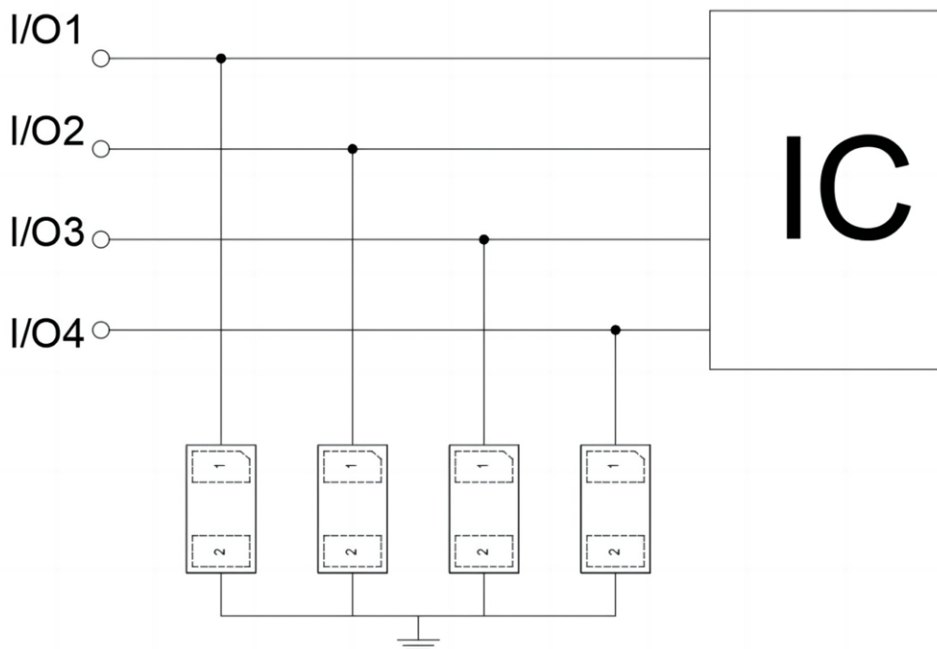


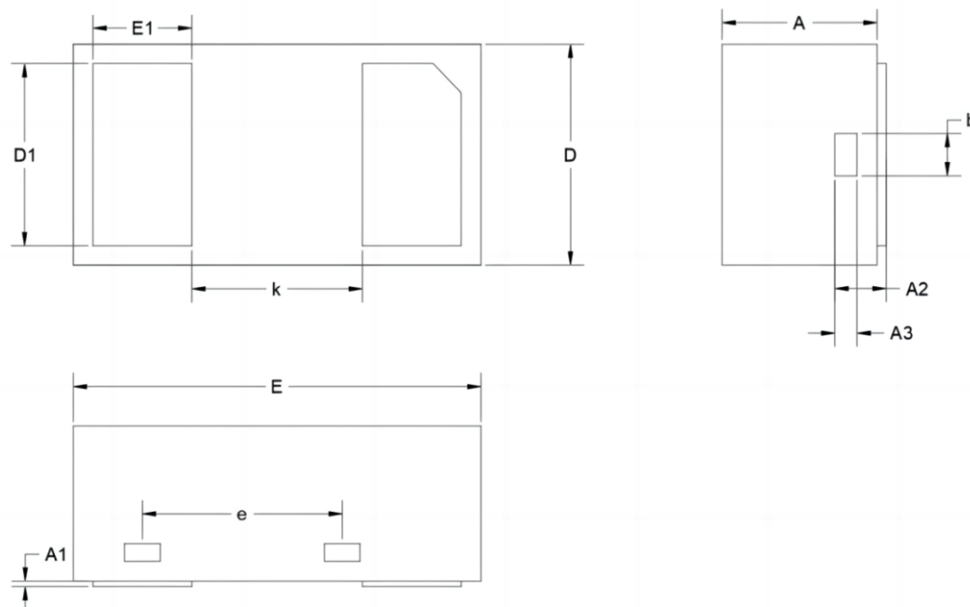
Figure 4 Parameters

Applications Information

Typical Interface Application



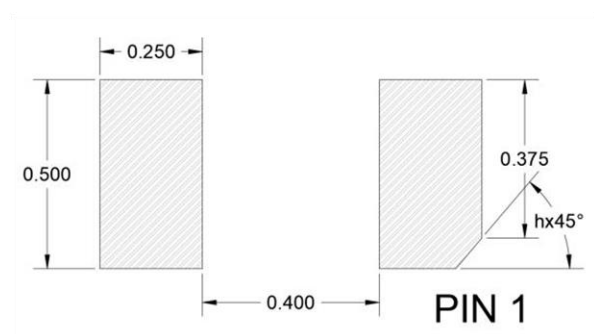
Package Outline Drawing



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
1.1	Add "CSH07FB" Product	2-Oct-2023