



Discription

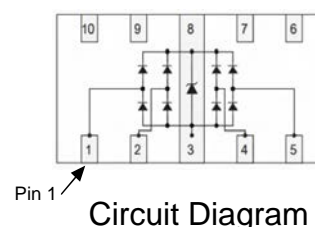
The HPUSB3F99X is a 4-channel ultra low capacitance rail clam ESD protection diodes array . Each channel consists of a pair of diodes that steer positive or negative ESD current to either the positive or negative rail . A zener diode is integrated in to the array between the positive and negative supply rails. In the typical applications, the negative rail pin (assigned as GND) is connected with system ground . The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage.

Features

- ★ 4 channels of ESD protection;
- ★ Provides ESD protection to IEC61000-4-2 level 4
 - $\pm 15\text{kV}$ air discharge
 - $\pm 10\text{kV}$ contact discharge;
- ★ Channel I/O to GND capacitance: 0.55pF (Max)
- ★ Channel I/O to I/O capacitance: 0.6pF (Max)
- ★ Low clamping voltage;
- ★ Low operating voltage;
- ★ Improved zener structure;
- ★ Optimized package for easy high speed data lines PCB layout;
- ★ RoHS compliant and Halogen Free.



DFN-2510-10L
(DFN2510)



Circuit Diagram

Ordering information

Product ID	Pack	Qty(PCS)
HPUSB3F99X	DFN-2510-10L(DFN2510)	3000

Absolute Ratings ($T_{\text{amb}}=25^{\circ}\text{C}$)

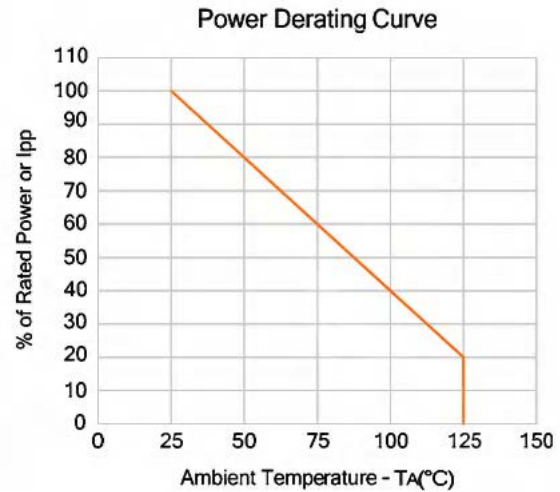
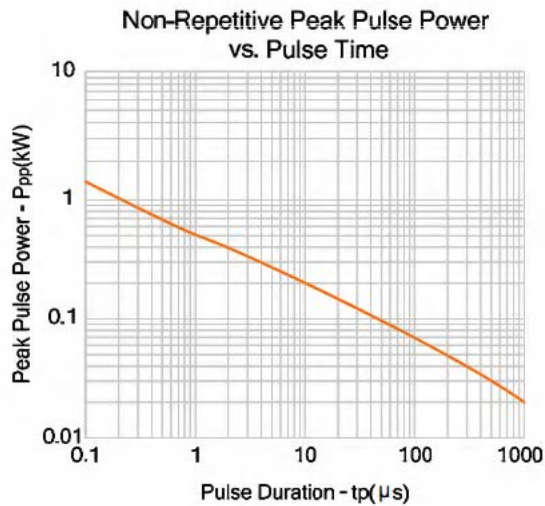
Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	70	W
I_{PP}	Peak Pulse Current(8/20us)	4	A
T_L	Maximum lead temperature for soldering during 10s	260	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$
T_{op}	Operating Temperature Range	-40 to +125	$^{\circ}\text{C}$
T_j	Maximum junction temperature	150	$^{\circ}\text{C}$
	IEC61000-4-2 (ESD)	air discharge contact discharge	± 15 ± 10 KV

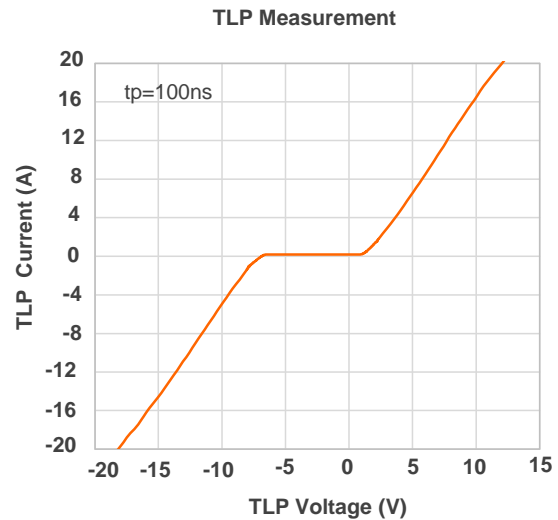
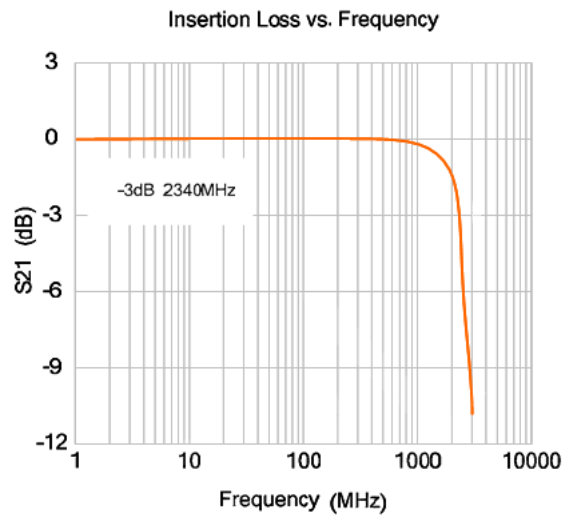
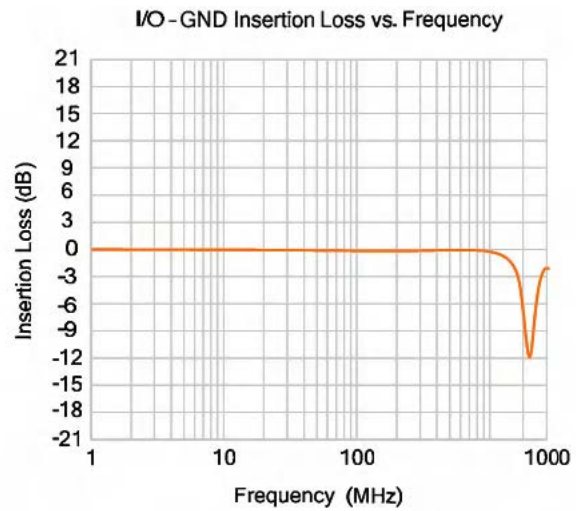
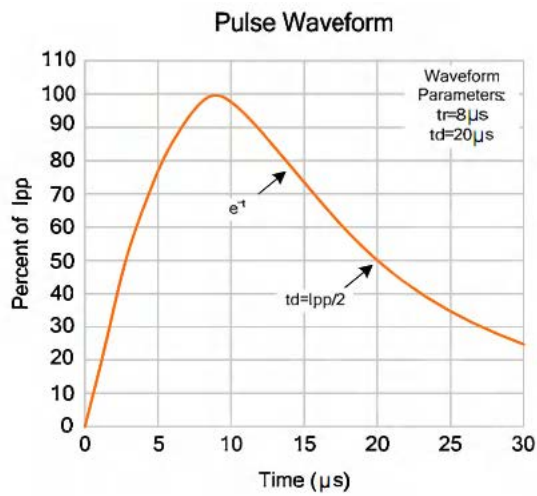


ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Reverse Working Voltage	VRWM	–	–	3.3	V	Any I/O pin to GND
Reverse Breakdown Voltage	VBR	5.6	–	–	V	It =1mA; Any I/O pin to GND
Reverse Leakage Current	IR	–	–	1	μA	VRWM =3.3V, T=25°C; Any I/O pin to GND
Positive Clamping Voltage	VC1	–	8	20	V	IPP=4A, tP=8/20μs; Positive pulse; Any I/ O pin to GND
Negative Clamping Voltage	VC2	–	1.8	–	V	IPP=1A, tP=8/20μs; Negative pulse; Any I/O pin to GND
Junction Capacitance Between Channel	CJ1	–	0.3	0.4	pF	VR=0V, f=1MHz; Between I/O pins
Junction Capacitance Between I/O And GND	CJ2	–	0.5	0.6	pF	VR=0V, f=1MHz; Any I/O pin to GND

ELECTRICAL CHARACTERISTIC CURVES

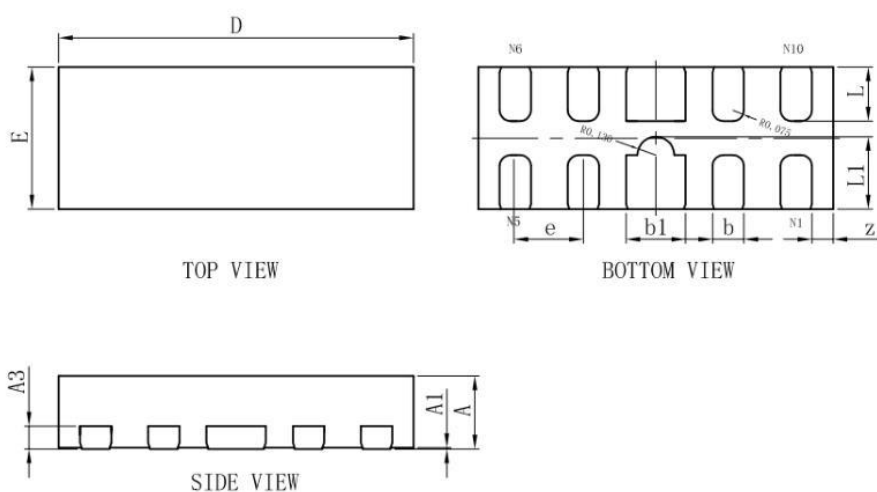






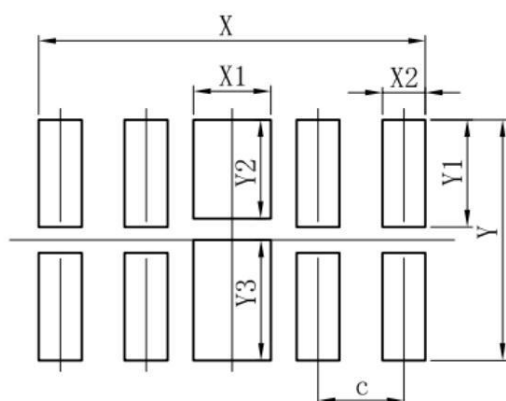
Package Outline Dimension

DFN-2510-10L(DFN2510)



DFN2510			
Dim	Min	Typ	Max
A	0.48	0.53	0.58
A1	0	0.02	0.05
A3	-	0.152	-
b	0.17	0.22	0.27
b1	0.37	0.42	0.47
D	2.45	2.50	2.55
e	0.45	0.50	0.55
E	0.95	1.00	1.05
L	0.33	0.38	0.43
L1	0.46	0.51	0.56
z	0.10	0.15	0.20
All Dimensions in mm			

Suggested Pad layout



DFN2510	mm
c	0.5
X	2.25
X1	0.45
X2	0.25
Y	1.4
Y1	0.625
Y2	0.575
Y3	0.7



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