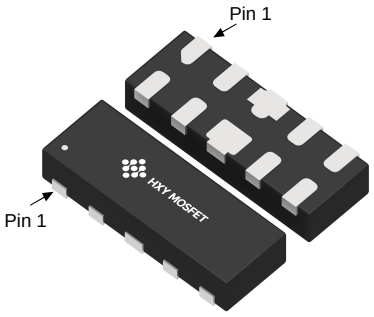
Discription

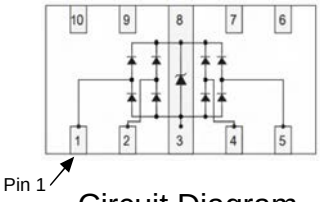
The HSP3420-04UTG is a 4-channel ultra low capacitance rail clam ESD protection diodes array. Each channel consists of a pair of diodes that steer positive or negative ESD current to either the positive or negative rail . A zener diode is integrated in to the array between the positive and negative supply 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.



DFN2510-10L

Features

★ 4 channels of ESD protection;
★ Provides ESD protection to IEC61000-4-2 level 4
- ±15kV air discharge
- ±10kV 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.



Circuit Diagram

Ordering information

Product ID	Pack	Qty(PCS)
HSP3420-04UTG	DFN2510-10L	3000

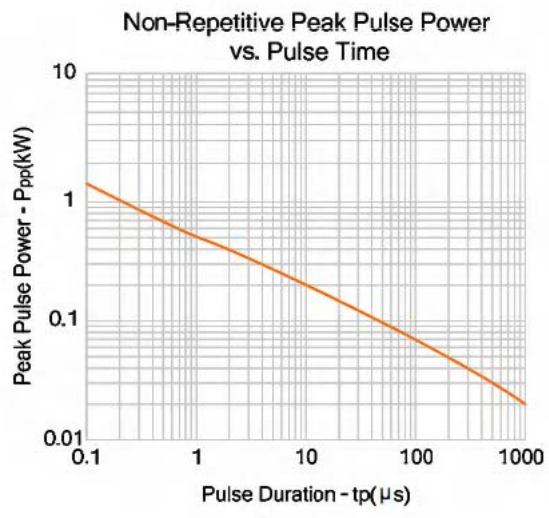
Absolute Ratings(Tamb = 25°C)

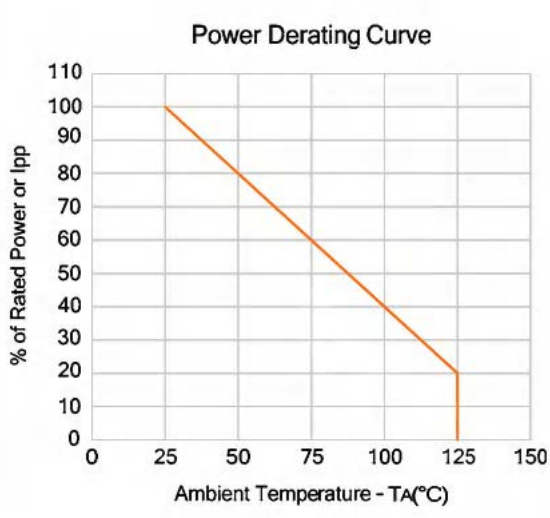
Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (t_p = 8/20μs)	70	W
I_{PP}	Peak Pulse Current(8/20us)	4	A
T_L	Maximum lead temperature for soldering during 10s	260	°C
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_{op}	Operating Temperature Range	-40 to +125	°C
T_j	Maximum junction temperature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

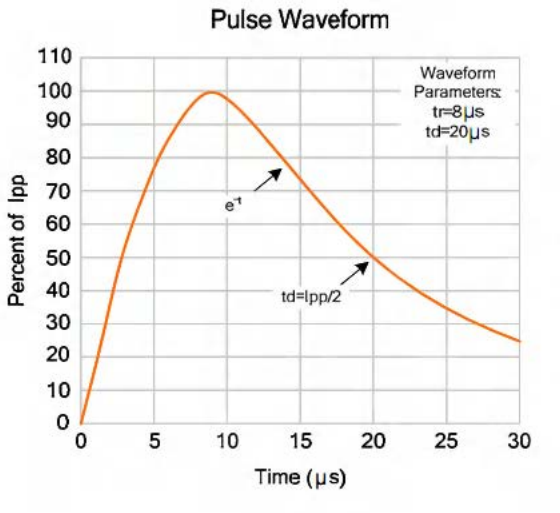
Electrical Characteristics (Ta= 25℃)

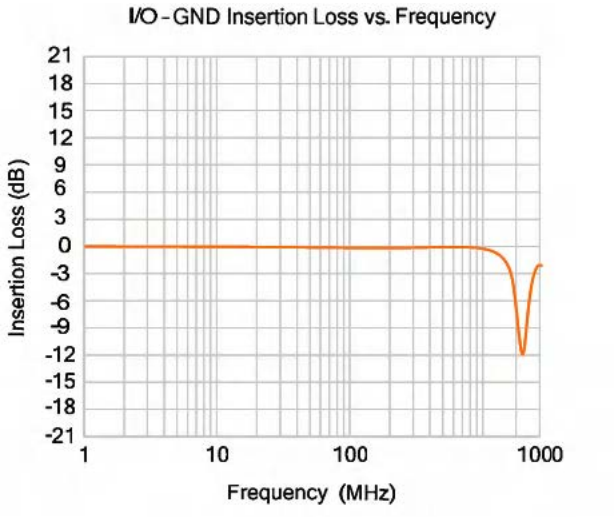
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	5.6			V
I_R	Reverse Leakage Current	V_{RWM} = 5.0V			1.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs		7		V
		I_{PP} = 4A, t_p = 8/20μs		8	20	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz Any I/O pin to GND		0.5	0.6	pF
C_J	Junction Capacitance	V_R = 0V, f = 1MHz Any I/O pin to I/O		0.3	0.4	pF

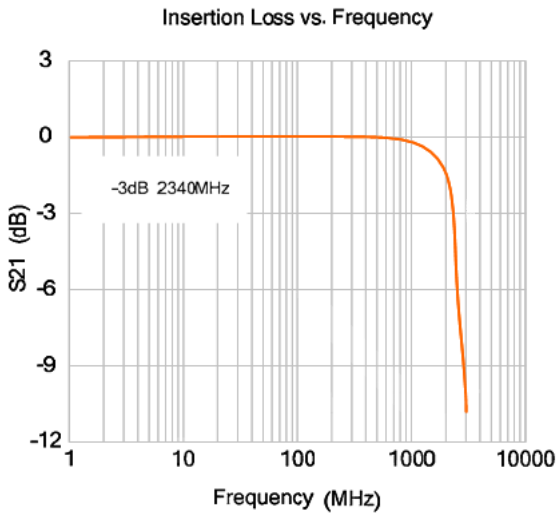
Typical Characteristics

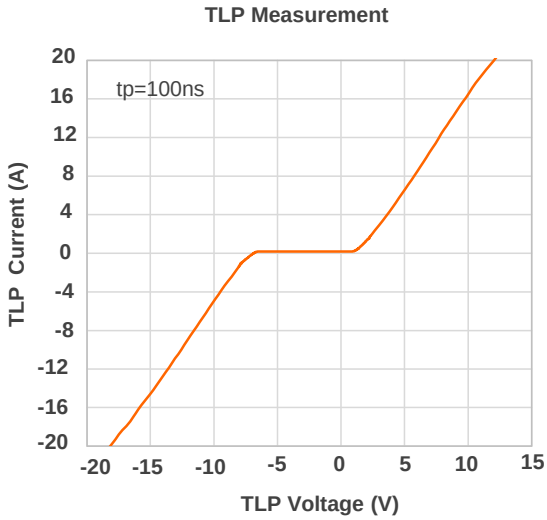




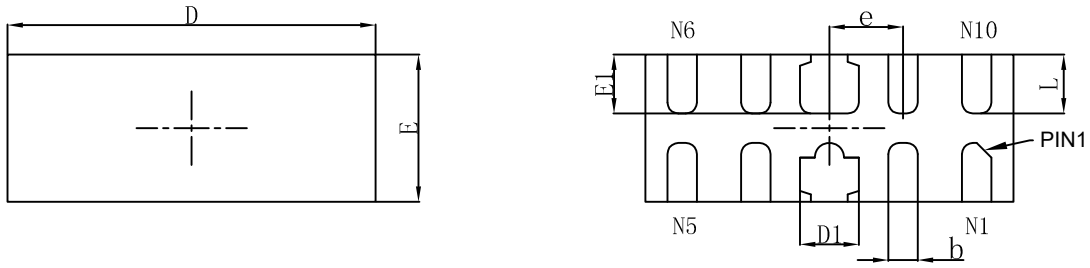

Pulse Waveform
Waveform
Parameters:
tr=8μs
td=20μs
e-1
td=Ipp/2
Percent of Ipp
Time (μs)
110
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30


I/O - GND Insertion Loss vs. Frequency
Insertion Loss (dB)
Frequency (MHz)
21
18
15
12
9
6
3
0
-3
-6
-9
-12
-15
-18
-21
1
10
100
1000

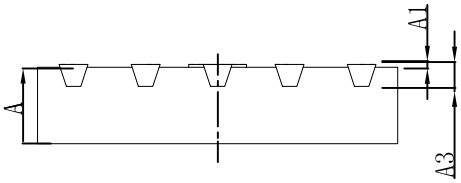

Insertion Loss vs. Frequency
-3dB 2340MHz
S21 (dB)
Frequency (MHz)
3
0
-3
-6
-9
-12
1
10
100
1000
10000


TLP Measurement
tp=100ns
TLP Current (A)
TLP Voltage (V)
20
16
12
8
4
0
-4
-8
-12
-16
-20
-20
-15
-10
-5
0
5
10
15

Outline And Dimensions



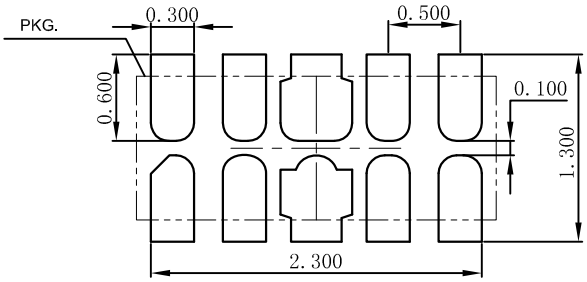
Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.017	0.022
A1	0.000	0.050	0.000	0.002
A3	0.152REF.		0.006REF.	
D	2.450	2.550	0.096	0.100
E	0.950	1.050	0.037	0.041
D1	0.350	0.450	0.014	0.018
E1	0.350	0.450	0.014	0.018
b	0.150	0.250	0.006	0.010
e	0.500TYP.		0.020TYP.	
L				

Soledering Footprint



Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of HUA XUAN YANG ELECTRONICS CO.,LTD.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.