



Ultra Low Capacitance ESD Protection Array

Description

The ESD0524P provides a typical line to line capacitance of 0.5pF between I/O pins and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

This series has been 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).

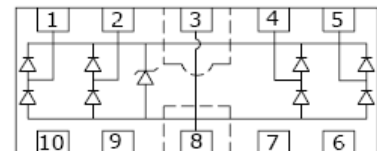
Features

- Protects two or four I/O lines
- Low capacitance: 0.5pF Typical between I/O channel
- Low leakage current
- 5V operating voltage
- Response time < 1ns
- Solid-state silicon avalanche technology
- Device meets MSL 1 requirements
- RoHS compliant



Applications

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- USB 1.1/2.0/3.0/OTG
- IEEE 1394 Firewire Ports
- Notebooks & Handhelds
- Projection TV & Monitors
- Set-top box
- Flat Panel Displays
- PCI Express



Mechanical Characteristics

- DFN2510 package
- Flammability Rating: UL 94V-0
- Terminal: Matte tin plated.
- Packaging: Tape and Reel
- High temperature soldering guaranteed:260°C/10s
- Reel size: 7 inch

Maximum Ratings And Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ s)	150	W
I_{PP}	Peak Pulse Current (8/20 μ s)	5	A
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 15 ± 8	kV
T_{OPT}	Operating Temperature	-55/+150	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics($T_{amb}=25^{\circ}C$)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$ Any I/O pin to GND	6.0			V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$ Any I/O pin to GND			1	μA
V_F	Diode Forward Voltage	$I_F = 15mA$		0.85	1.2	V
V_{C1}	Clamping Voltage 1	$I_{PP} = 1A, t_p = 8/20\mu s$ Any I/O pin to GND			15.5	V
V_{C2}	Clamping Voltage 2	$I_{PP} = 5, t_p = 8/20\mu s$ Any I/O pin to GND			25	V
C_{J1}	Junction Capacitance 1	$V_R = 0V, f = 1MHz$ Between I/O pins		0.3	0.6	pF
C_{J2}	Junction Capacitance 2	$V_R = 0V, f = 1MHz$ Any I/O pin to GND		0.45	0.8	pF

Note: I/O pins are pin 1,2,4,5.

Electrical Characteristics Curve

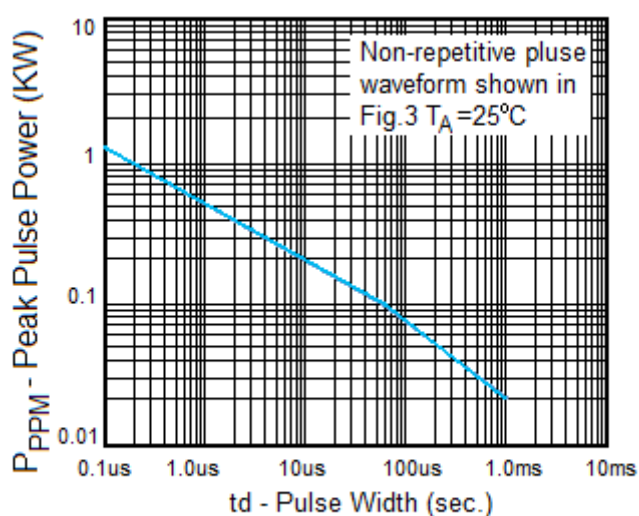


Fig. 1 Peak Pulse Power Rating

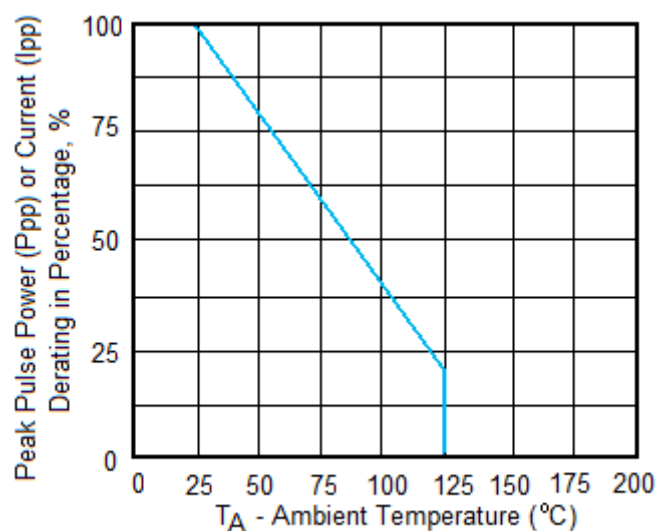


Fig.2 Pulse Derating Curve

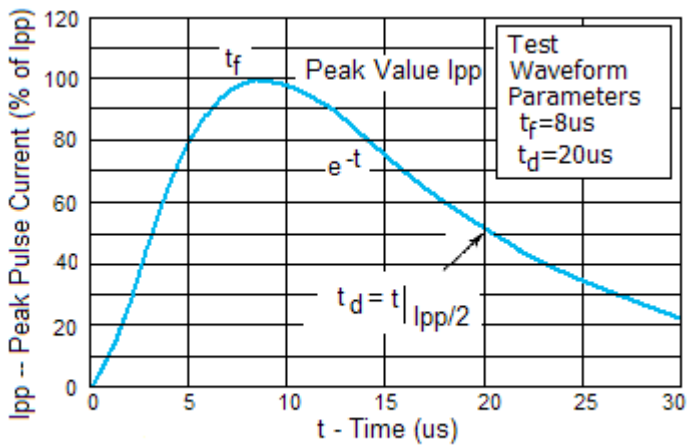
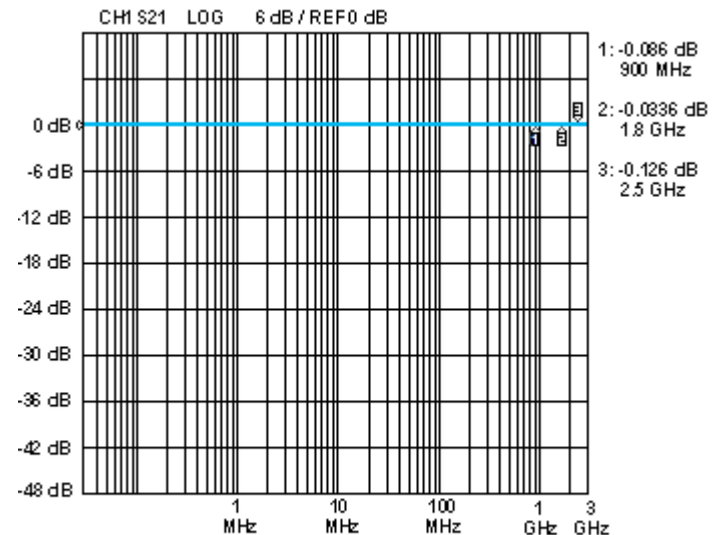


Fig. 3 Pulse Waveform

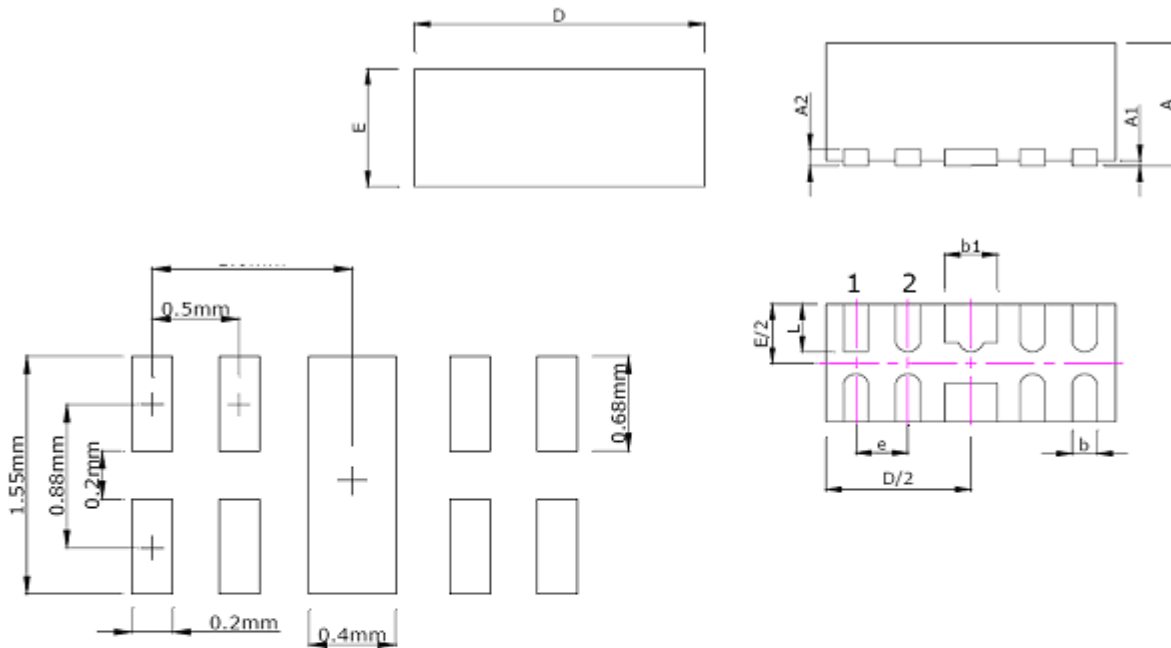


START .030 MHz STOP 3000.000000 MHz

Fig. 4 Insertion Loss S21 - I/O to I/O

Recommended Pad outline

DFN2510



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.5	0.65	0.020	0.023
A1		0.05		0.002
A2	0.13		0.005	
b	0.15	0.25	0.006	0.010
b1	0.35	0.45	0.014	0.018
D	2.40	2.60	0.094	0.102
E	0.90	1.10	0.035	0.043
e	0.5		0.020	
L	0.30	0.43	0.012	0.017