

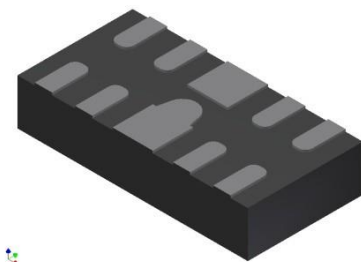
Ultra Low Capacitance Array for ESD Protection

The MESD3310 provides a typical line to line capacitance of 0.08pF 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.

It 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

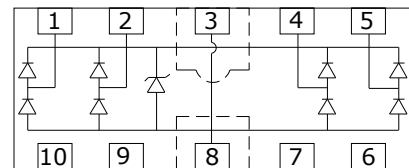
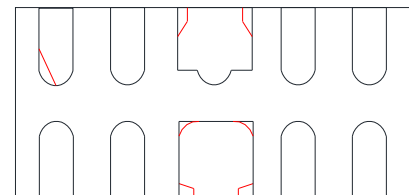
- Protects two or four I/O lines
- Low capacitance:0.08pf Typical between I/O channel
- Working voltages : 3.3V
- Low leakage current
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- **SCR technology**
- ROHS compliant



DFN2510

Main applications

- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Digital Visual Interface (DVI)
- Display Port Interface
- Serial ATA
- PCI Express
- USB 1.1/2.0/3.0/3.1/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Notebook Computers
- Set Top Box
- Projection TV



Protection solution to meet

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device	Marking	Qty per Reel	Reel Size
MESD3310	3324P	3000	7 Inch



Maximum ratings (Tamb=25°C Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
ESD Rating per IEC61000-4-2:	Contact	18	KV
	Air	18	
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Operating Temperature Range	T _J	-55 ~ 150	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

*Other voltages may be available upon request.

1. Non-repetitive current pulse, per Figure 1.

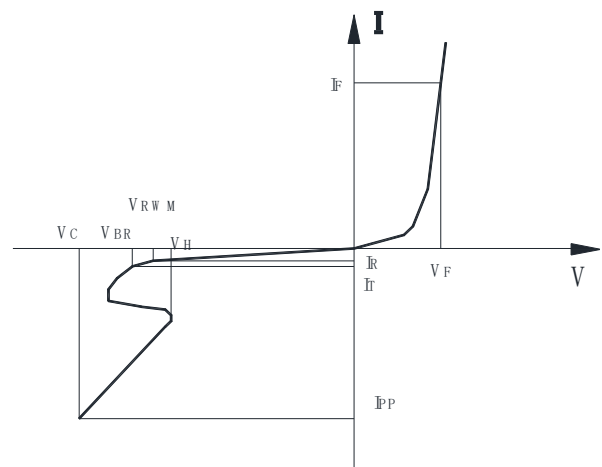
Electrical characteristics (Tamb=25°C Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{RWM}	Reverse Working Voltage	Any I/O to Ground			3.3	V
V _{BR}	Reverse Breakdown Voltage	I _T = 0.1mA,	4.0			V
I _R	Reverse Leakage Current	V _{RWM} = 3.3V,			1	μA
V _F	Diode Forward Voltage	I _F = 15mA		0.85	1.2	V
V _h	Hold Current Voltage	I _H = 10mA		1.85		V
V _c	Clamping Voltage	I _{PP} = 1A ⁽¹⁾ ,		1.7		V
		I _{PP} = 16A ⁽¹⁾ ,		5.1		V
R _{dyn}	dynamic resistance	positive transient(TLP)		0.26		Ω
		negative transient(TLP)		0.28		
C _J ⁽²⁾	Junction Capacitance	V _{IN} = 2.5V, f = 1MHz, between I/O pins		0.08	0.15	pF
		V _{IN} = 2.5V, f = 1MHz, any I/O pin to Ground		0.32	0.35	pF

Notes:(1)Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

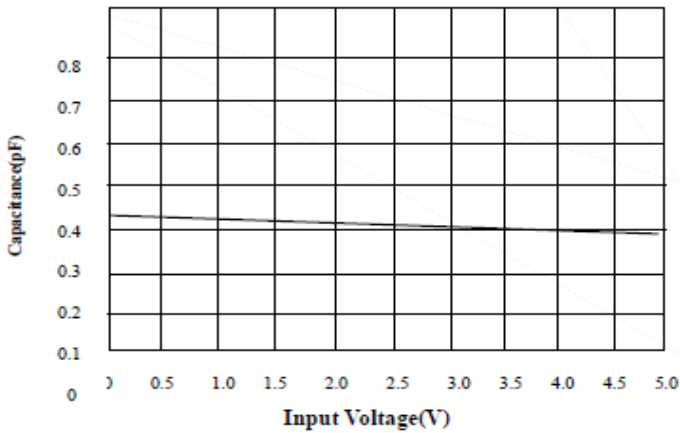
(2)Junction capacitance is measured in V_R=0V,F=1MHz

Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{BR}	Breakdown Voltage @ I _T
V _C	Clamping Voltage @ I _{PP} 100ns Transmission Line Pulse(TLP)
I _T	Test Current
I _{RM}	Leakage current at V _{RWM}
I _{PP}	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance

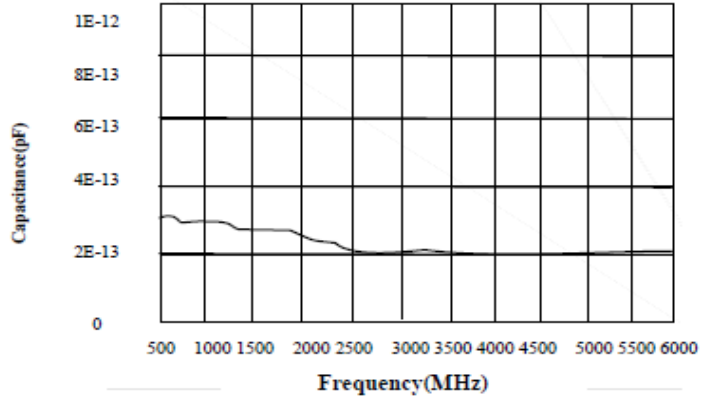


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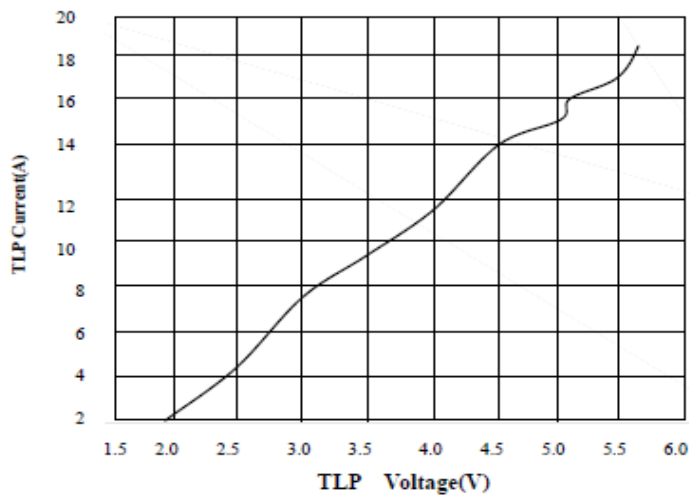
Typical electrical characterist applications



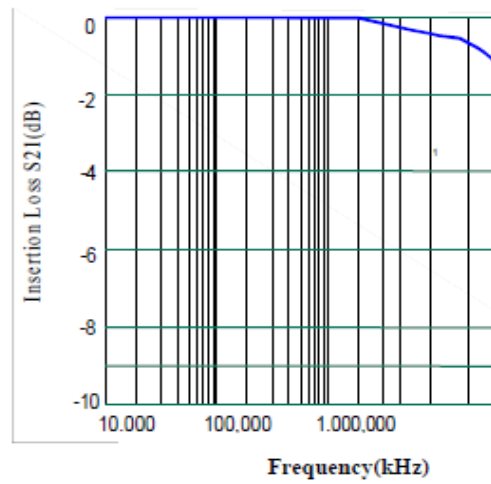
Typical Variation of CIN vs. VIN



Capacitance vs. Frequency (IO to GND)



Transmission Line Pulsing (TLP) Measurement



Insertion Loss vs. Frequency (IO to GND)



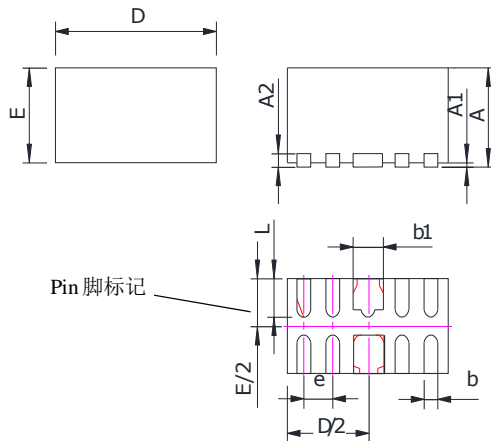
Package Information

DFN2510

Mechanical Data

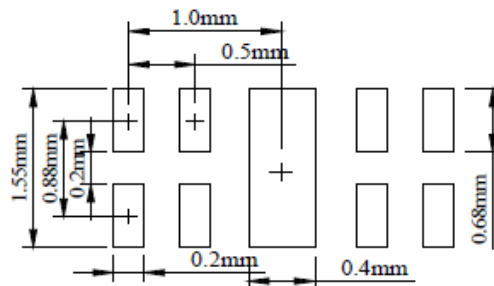
Case:DFN2510

Case Material: Molded Plastic. UL Flammability

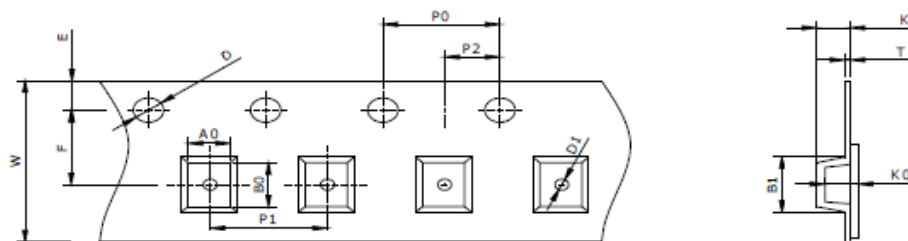


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.65	0.018	0.026
A1	0.05REF		0.002REF	
A2	0.15REF		0.006REF	
b	0.15	0.25	0.006	0.010
b1	0.30	0.50	0.012	0.020
D	2.424	2.576	0.095	0.101
E	0.924	1.076	0.036	0.042
e	0.50REF		0.020REF	
L	0.30	0.45	0.012	0.018

Recommended Pad outline



DFN2510 Reel Dim



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
DFN2510	2.50×1.00×0.60	2.70×1.20×0.80	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	0.2mm	1.75mm	3.5mm	0.65mm	0.2mm	8mm	