

DESCRIPTION

CSE0504UD2510 is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF only, CSE0504UD2510 is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4(±15KV air, ±8KV contact discharge), IEC61000-4-4 (electrical fast transient-EFT) (40A,5/50ns),very fast charged device model (CDM)ESD and cable discharge event(CDE),etc.

CSE0504UD2510 uses ultra-small DFN2510 package. Each CSE0504UD2510 device can protect four high-speed data lines.The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make

CSE0504UD2510 L ideal for high-speed data ports and high-frequency lines (e.g.,HDMI&DVI) applications. The low clamping voltage of the CSE0504UD2510 guarantees a minimum stress on the protected IC.

ORDERING INFORMATION

Device: ESD0524PL
Package: DFN2510
Material: Halogen free
Quantity per reel: 3,000pcs

FEATURES

Transient protection for high-speed data lines
IEC 61000-4-2(ESD) ±25KV(Air)
±17KV(Contact)
IEC 61000-4-4(EFT)40A(5/50ns)
Cable Discharge Event(CDE)
Package optimized for high-speed lines
Ultra-small package(2.5mm*1.0mm*0.55mm)
Protects four data lines
Low capacitance:0.2pF for each channel
Low leakage current:0.1uA@VRWM(Typical)
Low clamping voltage
Each I/O pin can withstand over 1000 ESD strikes
for±8KV contact discharge

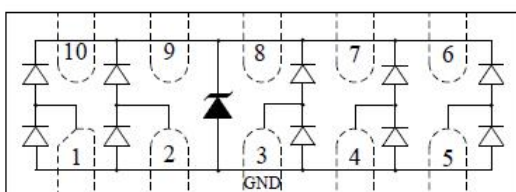
MACHANICAL DATA

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

APPLICATIONS

Serial ATA
PCI Express
Desktops, Servers and Notebooks
MDDI Ports
USB 2.0/3.0 Power and Data Line Protection
Display Ports
High Definition Multi-Media Interface (HDMI)
Digital Visual Interface (DVI)

PIN CONFIGURATION



PACKAGE OUTLINE



ABSOLUTE MAXIMUM RATING

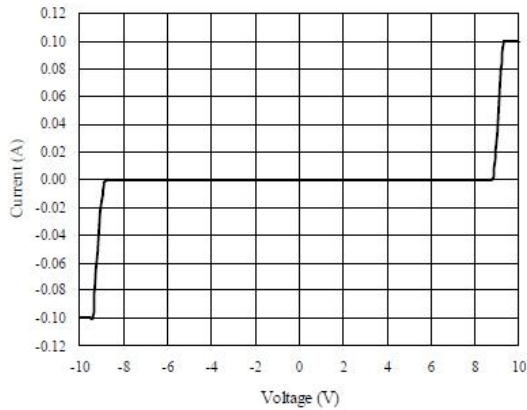
Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air)	± 25	kV
	ESD per IEC 61000-4-2 (Contact)	± 17	
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$)

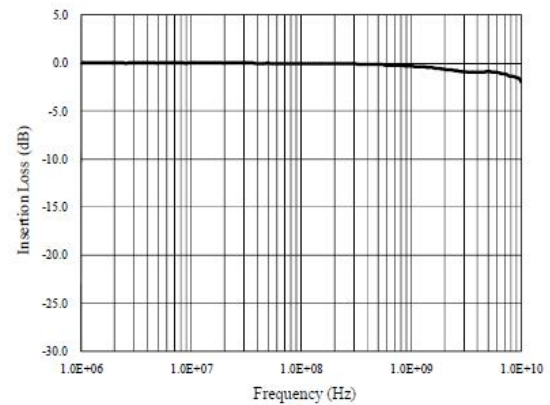
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$ Any I/O pin to GND	7.0		11.0	V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$ Any I/O pin to GND		0.1	1.0	μA
V_C	Clamping Voltage	$I_{PP} = 1A$, $t_p = 8/20\mu s$ Any I/O pin to GND			12	V
C_{ESD}	Parasitic Capacitance	$V_R = 0V$, $f = 1MHz$ Between I/O and GND		0.2	0.4	pF
C_{ESD}	Parasitic Capacitance	$V_R = 0V$, $f = 1MHz$ Between I/O and I/O		0.2	0.4	pF

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

Voltage Sweeping of I/O to GND

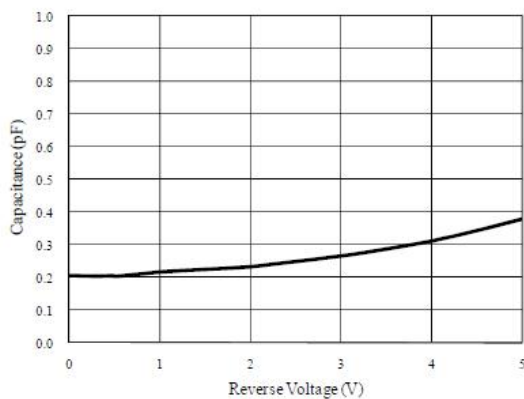


Insertion Loss S21 of I/O to GND

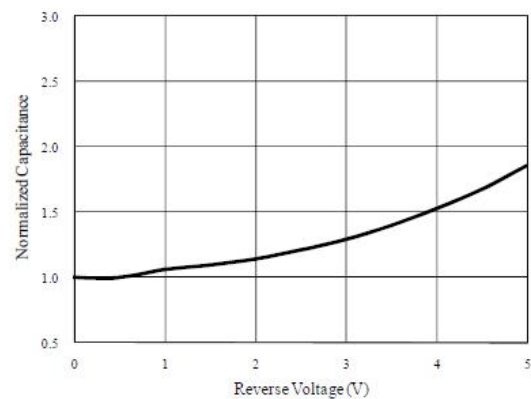


Capacitance vs. Voltage of I/O to GND (f = 1MHz)

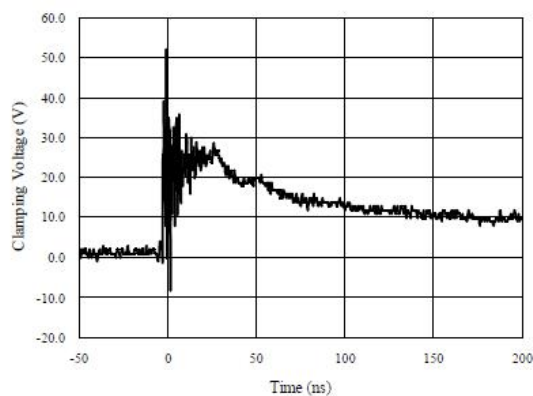
Capacitance vs. Reverse Voltage



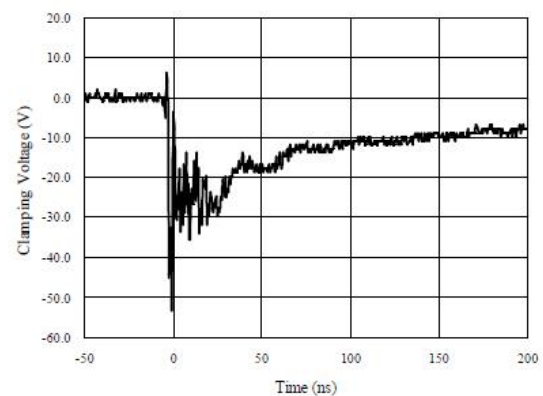
Normalized Capacitance vs. Reverse Voltage



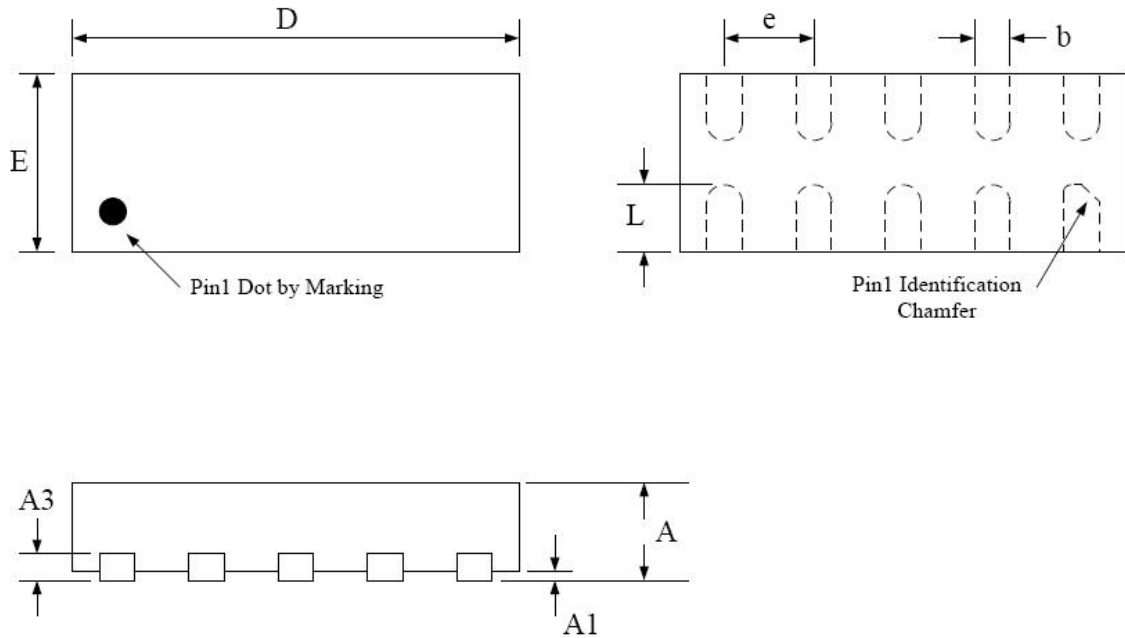
ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)



ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)



DFN2510 PACKAGE OUTLINE DIMENSIONS



Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions (mm)		Dimensions (Inches)	
	Minimum	Maximum	Minimum	Maximum
A	0.500	0.600	0.020	0.024
A1	0.000	0.050	0.000	0.002
A3	0.15REF.		0.006REF.	
b	0.150	0.250	0.006	0.010
D	2.450	2.550	0.096	0.100
E	0.950	1.050	0.037	0.041
e	0.500 BSC		0.020 BSC	
L	0.300	0.400	0.012	0.016

Notice

Specifications of the products displayed herein are subject to change without notice. CCS or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in CCS terms and conditions of sale for such products, CCS assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of CCS products including liability or warranties relating to fitness for a particular purpose, merchant ability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications.

Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CCS for any damages resulting from such improper use or sale.