

DESCRIPTION

CSE0504LD2510 is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed for protection for high-speed data interfaces. With typical capacitance of 0.45pF (I/O to GND) only, CSE0504LD2510 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.

CSE0504LD2510 uses ultra-small DFN2510 package. Each CSE0504LD2510 device can protect four high- speed data lines. The combined features of ultra- low capacitance, ultra-small size and high ESD robustness make CSE0504LD2510 ideal for high-speed data ports and high-frequency lines (e.g.,HDMI & DVI)applications.

The low clamping voltage of the CSE0504LD2510 guarantees a minimum stress on the protected IC.

ORDERING INFORMATION

Device:

CSE0504LD2510

Package: DFN2510

Material: Halogen free

Packing: Tape & Reel

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: 0.45pF (I/O to GND)
- Low leakage current:0.1uA@VRWM(Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD Strikes for ±8KV contact discharge

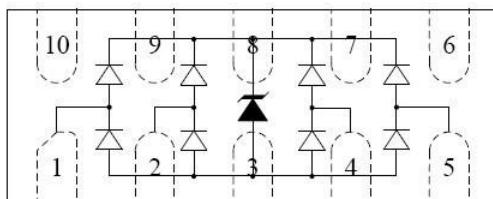
MACHANICAL DATA

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

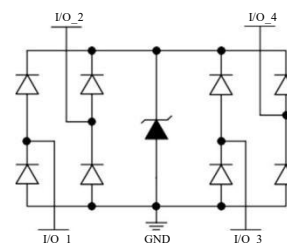
APPLICATIONS

- 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



CIRCUIT DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ s)	50	W
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 25 ± 20	kV
T_{OPT}	Operating Temperature	-55/+125	C
T_{STG}	Storage Temperature	-55/+150	C

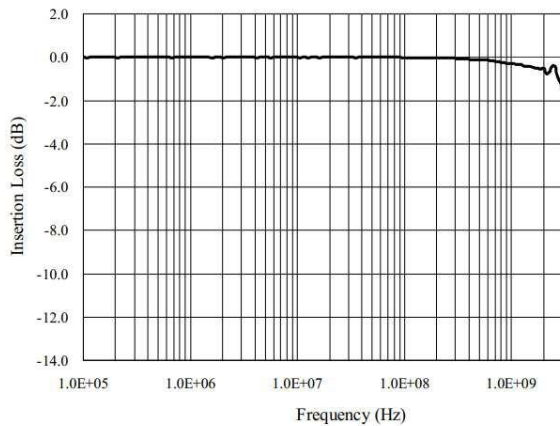
ELECTRICAL CHARACTERISTICS($T_{amb}=25^{\circ}C$)

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	6.0		9.0	V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$ Any I/O pin to GND			1.0	μA
V_C	Clamping Voltage	$I_{PP} = 1A$, $t_p = 8/20\mu s$ Any I/O pin to GND			10	V
C_{ESD}	Parasitic Capacitance	$V_R = 0V$, $f = 1MHz$ Between I/O and GND		0.45	0.5	pF
C_{ESD}	Parasitic Capacitance	$V_R = 0V$, $f = 1MHz$ Between I/O and I/O		0.2	0.3	pF

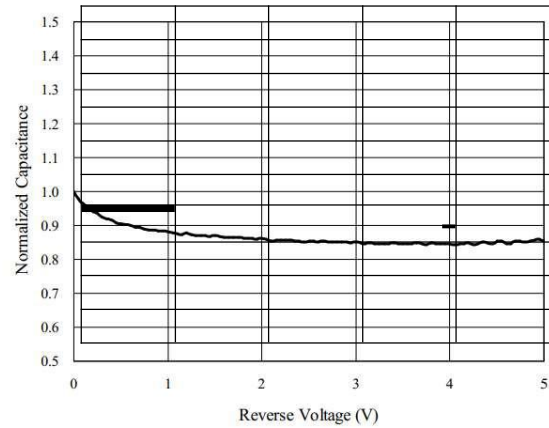
Note: I/O pins are pin 1,2,4,5.

ELECTRICAL CHARACTERISTICS CURVE

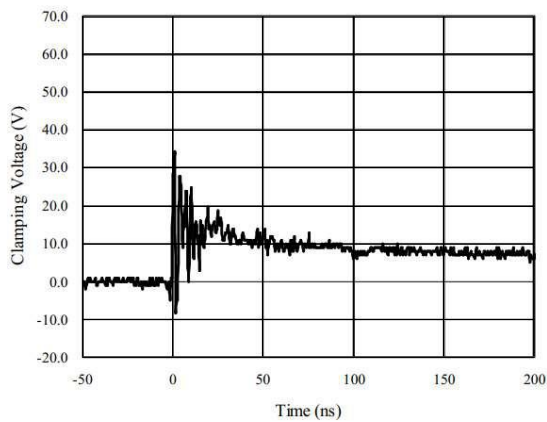
Insertion Loss S21 of I/O to GND



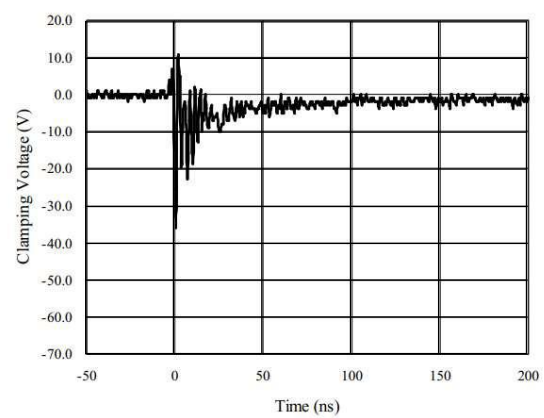
Normalized Capacitance vs. Reverse Voltage

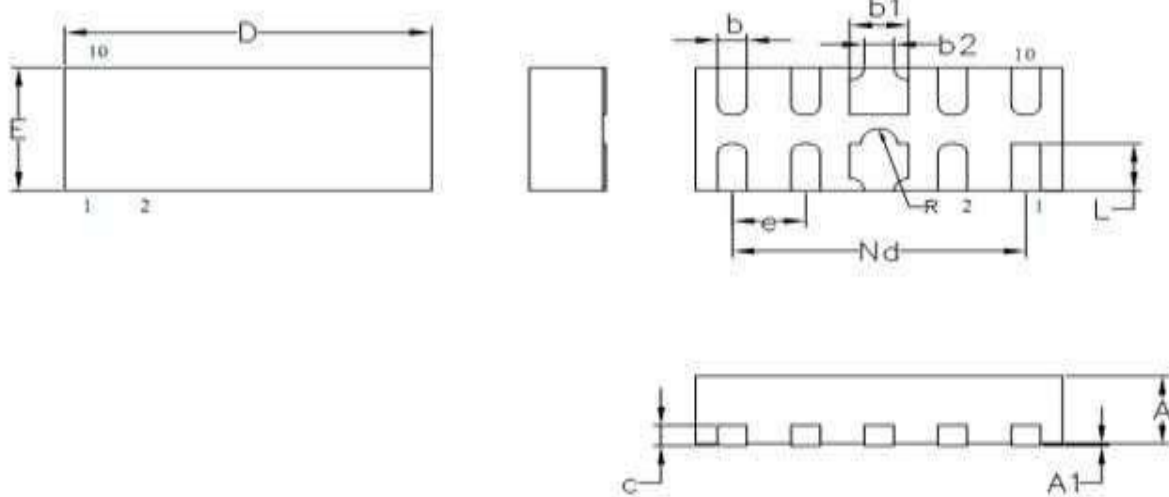


ESD Clamping
(+8kV Contact per IEC 61000-4-2)



ESD Clamping
(-8kV Contact per IEC 61000-4-2)





Symbol	Dimensions (mm)		
	Min.	Nom.	Max.
D	2.45	2.50	2.55
E	0.95	1.00	1.05
b1	0.35	0.40	0.45
b2	0.20REF		
b	0.15	0.20	0.25
L	0.33	0.38	0.43
Nd	2.00BSC		
e	0.50BSC		
R	0.10	0.125	0.15
A	0.45	0.50	0.55
c	0.15REF		
A1	0.00	-	0.05

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.