

DESCRIPTION

The RCLAMP0524P is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed for protection of high-speed data interfaces. With a typical capacitance of 0.2pF (I/O to I/O) only, the RCLAMP0524P 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.

FEATURES

- ◇ Transient protection for high-speed data lines
IEC 61000-4-2(ESD) ±25KV(Air)
±20KV(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*0.5mm)
- ◇ Protects four data lines
- ◇ Low capacitance: 0.2pF (I/O to I/O)
- ◇ Low leakage current
- ◇ 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

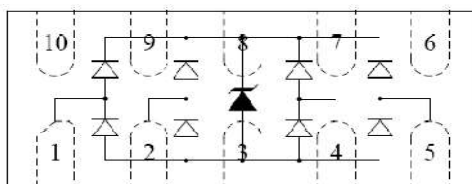
ORDERING INFORMATION

- ◇ Package: DFN2510
- ◇ Material: Halogen free
- ◇ Packing: Tape & Reel
- ◇ Quantity per reel: 3,000pcs

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
P_{PP}	Peak Pulse Power (8/20 μ s)	60	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	$^{\circ}$ C
T_{STG}	Storage Temperature	-55/+150	$^{\circ}$ 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	$I_T = 1\text{mA}$ Any I/O pin to GND	6.0		9.0	V
I_R	Reverse Leakage Current	$V_{RWM} = 5\text{V}$ Any I/O pin to GND			1.0	μ A
V_C	Clamping Voltage	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$ Any I/O pin to GND			10	V
V_C	Clamping Voltage	$I_{PP} = 4\text{A}$, $t_p = 8/20\mu\text{s}$ Any I/O pin to GND			15	V
C_{ESD}	Parasitic Capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Between I/O and GND		0.4	0.5	pF
C_{ESD}	Parasitic Capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$ Between I/O and I/O		0.2	0.3	pF

Note: I/O pins are pin 1,2,4,5, GND pins are pin 3,8.

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 Power Derating Curve

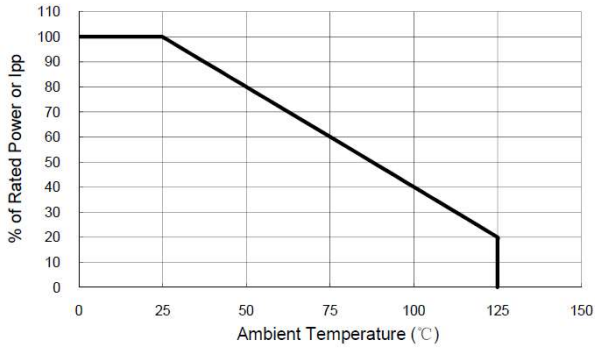


Fig 2 Clamping Voltage vs Peak Pulse Current

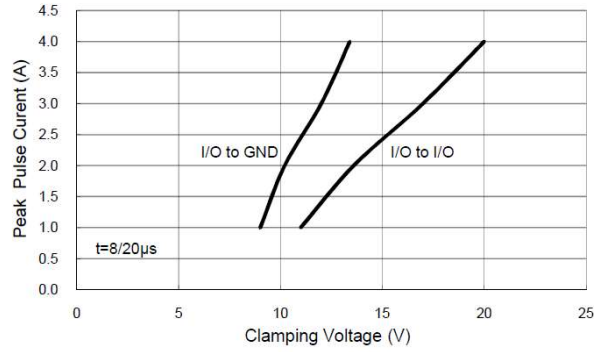


Fig 3 Voltage Sweeping of I/O to I/O

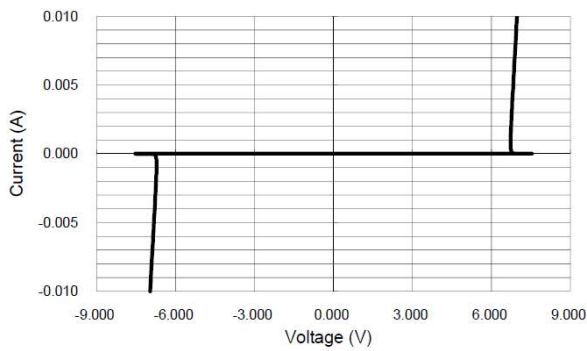


Fig 4 Voltage vs Capacitance

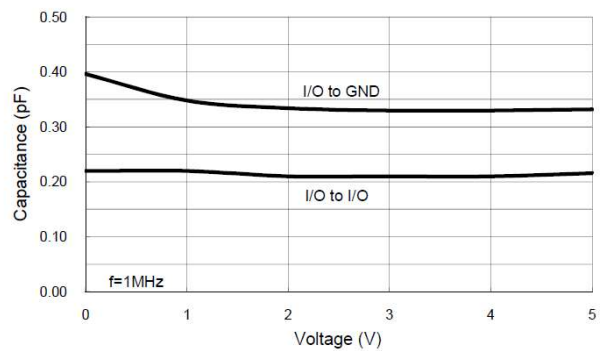


Fig 5 ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)

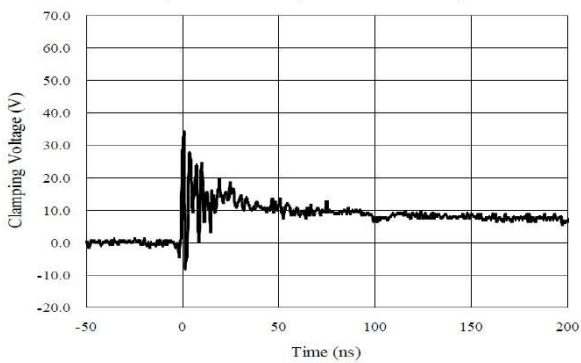
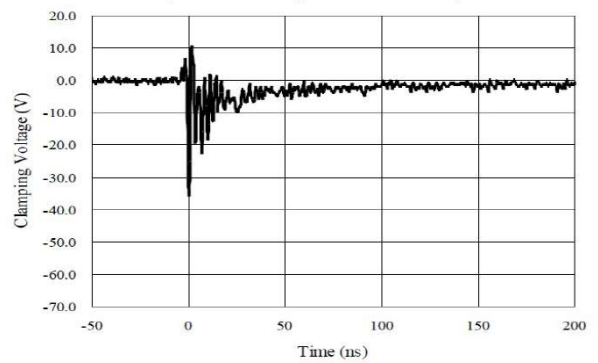
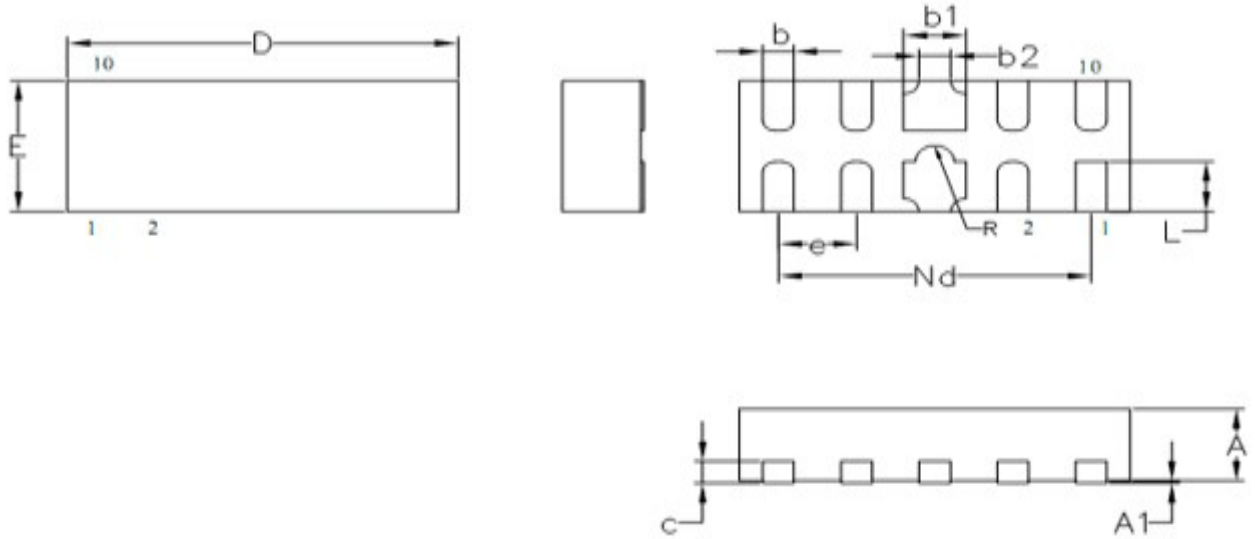


Fig 6 ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



DFN2510 PACKAGE OUTLINE DIMENSIONS



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