RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

TEP0524PLC

Ultra Low Capacitance ESD Protection Array

DESCRIPTION

TEP0524PLC is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.6pF only, TEP0524PLC is designed to protest 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. TEP0524PLC uses ultra-small DFN2510 package. Each TEP0524PLC device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make TEP0524PLC ideal for high-speed data ports and high-frequency lines (e.g., HDMI &DVI) applications. The low clamping voltage of the TEP0524PLC guarantees a minimum stress on the protected IC.

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:0.6pF 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 guaranted:260℃/10s
✧Reel size: 7 inch

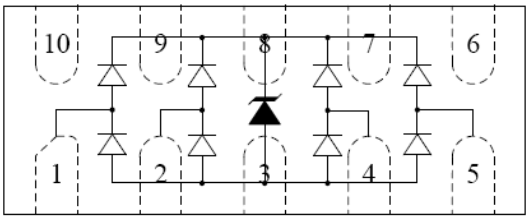
ORDERING INFORMATION

✧Device: TEP0524PLC
✧Package: DFN2510
✧Marking: 0524P
✧Material: Halogen free
✧Packing: Tape & Reel
✧Quantity per reel: 3,000pcs

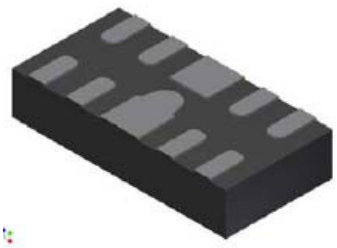
APPLICATIONS

✧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



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

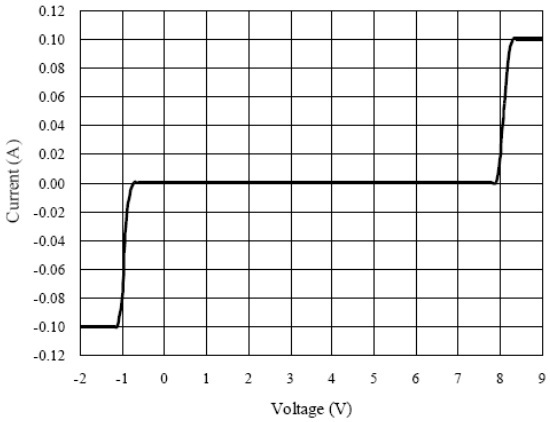
ELECTRICAL CHARACTERISTICS (Tamb=25°C)						
Symbol	**Parameter**	**Test Condition**	**Min**	**Typ**	**Max**	**Units**
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA Any I/O pin to GND	6.0	8.0	10.0	V
I_R	Reverse Leakage Current	V_{RWM} = 5V Any I/O pin to GND		0.1	1.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs Any I/O pin to GND			12	V
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz Between I/O and GND		0.6	0.8	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.

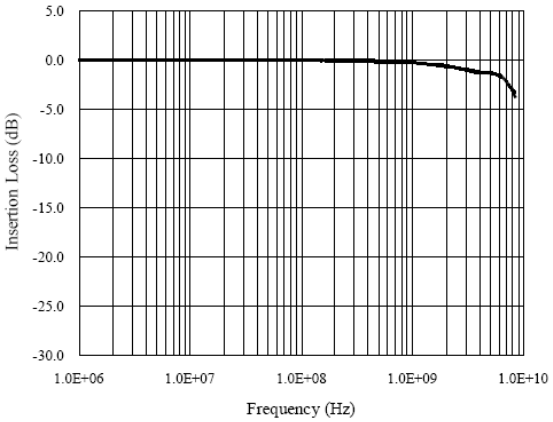
RATING AND CHARACTERISTIC CURVES (TEP0524PLC)

ELECTRICAL CHARACTERISTICS CURVE

Voltage Sweeping of I/O to GND

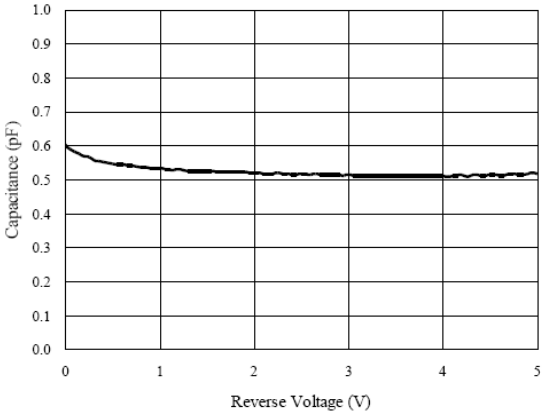


Insertion Loss S21 of I/O to GND

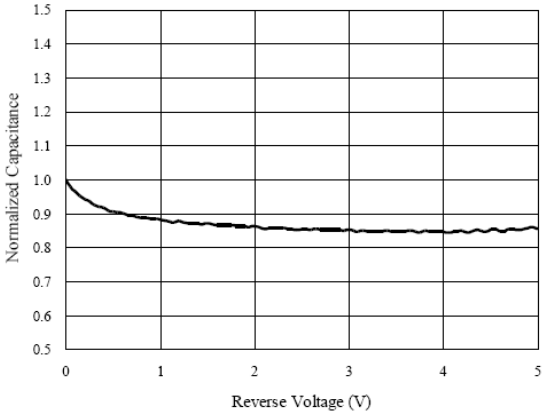


Capacitance *vs.* Voltage of I/O to GND (f = 1MHz)

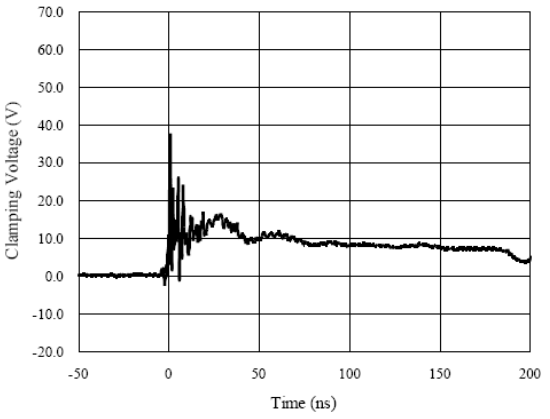
Capacitance *vs.* Reverse Voltage



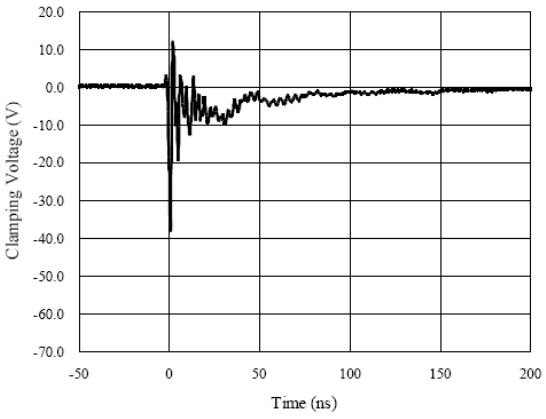
Normalized Capacitance *vs.* Reverse Voltage



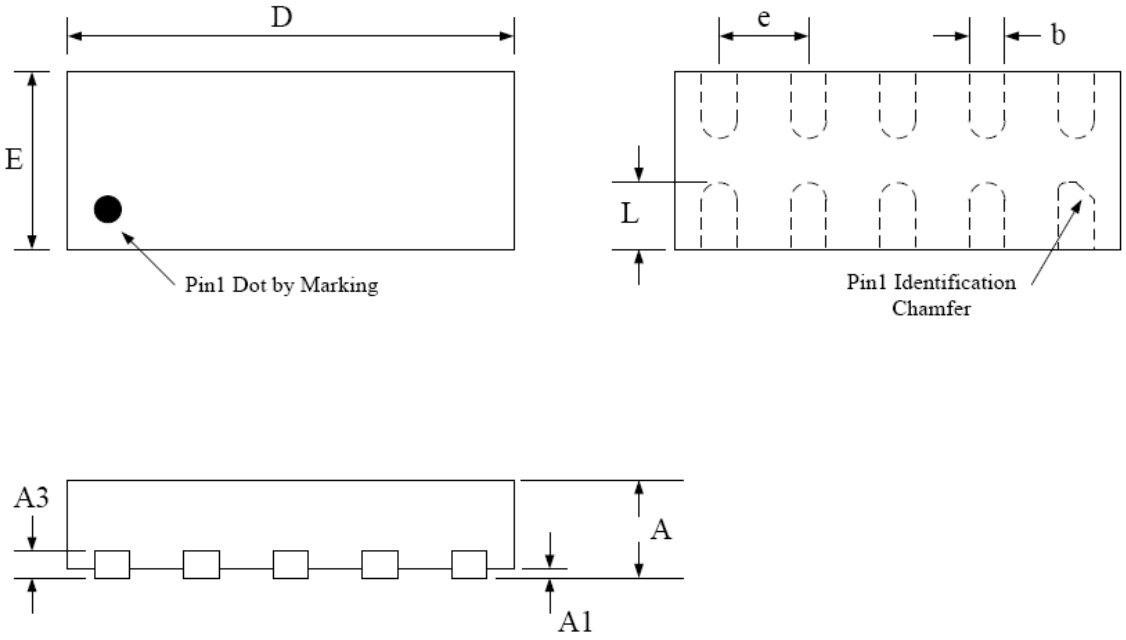
ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



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



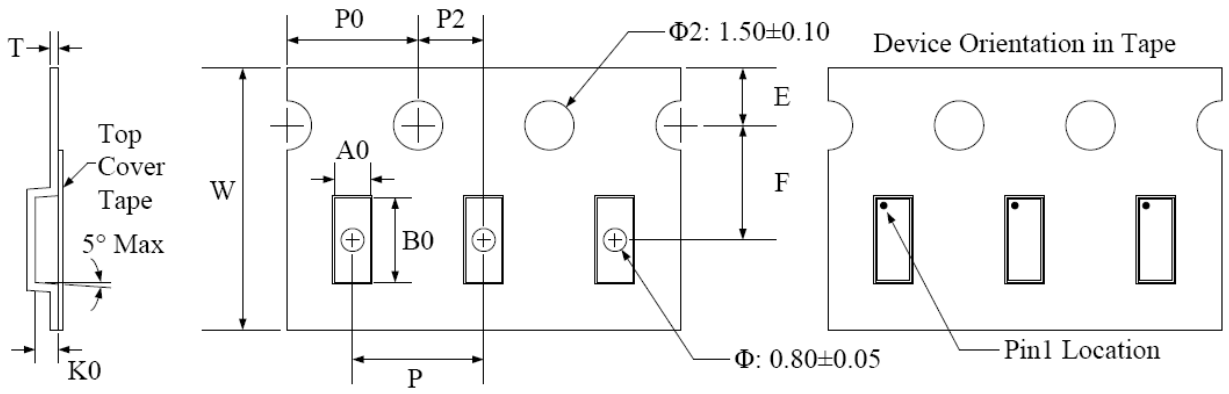
DFN2510 PACKAGE OUTLINE DIMENSIONS



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

Carrier Tape



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00+0.3 -0.1	1.23±0.05	2.7±0.05	0.7±0.05	1.75±0.1	3.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	0.25±0.02

Packing Quantity

Reel		Inner Box		Carton	
Size	Quantity Per Reel	Size	Quantity Per Reel	Size	Quantity Per Reel
7 (inch)	3,000pcs	210*208*203 (mm)	45,000pcs	440*440*230 (mm)	180,000pcs
7 (inch)	3,000pcs	183*188*80 (mm)	18,000pcs	386*265*215 (mm)	108,000pcs

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