Features

- Transient protection for high-speed data lines
  - IEC 61000-4-2 (ESD) ±30kV (Air)
  - ±30kV (Contact)
  - IEC 61000-4-4 (EFT) 40A (5/50 ns)
  - 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: 0.4pF (Typical)
- Low leakage current: 0.1μA @ V_{RWM} (Maximum)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge
- ROHS compliant

Description

TS0334SPX is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance 0.4 only, pF TS0334SPX 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), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

TS0334SPX uses ultra-small DFN-10L package. Each TS0334SPX device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make TS0334SPX ideal for high-speed data ports and high-frequency lines (e.g., HDMI & DVI) applications. The low clamping voltage of the TS0334SPX guarantees a minimum stress on the protected IC.

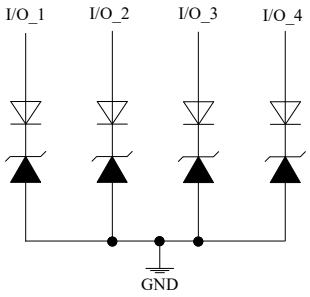
Applications

- Serial ATA
- PCI Express
- Desktops, Servers and Notebooks
- MDDI Ports
- USB 2.0/3.0/3.1 Power and Data Line Protection
- Display Ports
- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interfaces (DVI)

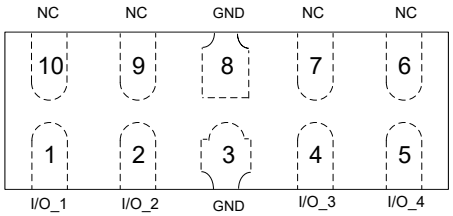
Mechanical Characteristics

- DFN-10L package
- Flammability Rating: UL 94V-0
- Marking: Part number
- Packaging: Tape and Reel

Circuit Diagram

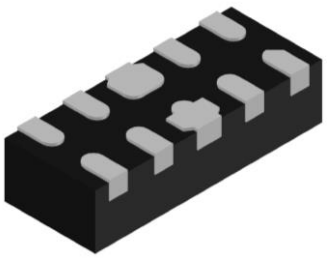


Pin Configuration



DFN-10L

(Top View)



DFN2510-10L

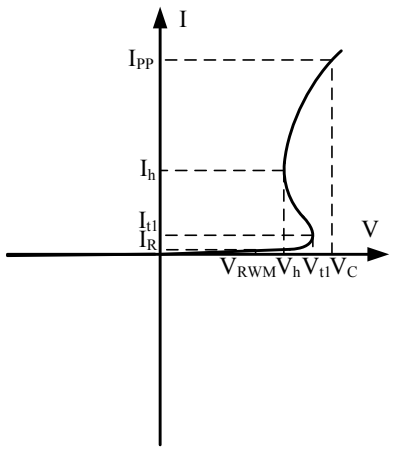
(Bottom View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current(tp=8/20us)	24	A
V_{ESD}	ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics (T = 25°C)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
V_F	Forward Voltage @ I_F
C_{ESD}	Parasitic Capacitance

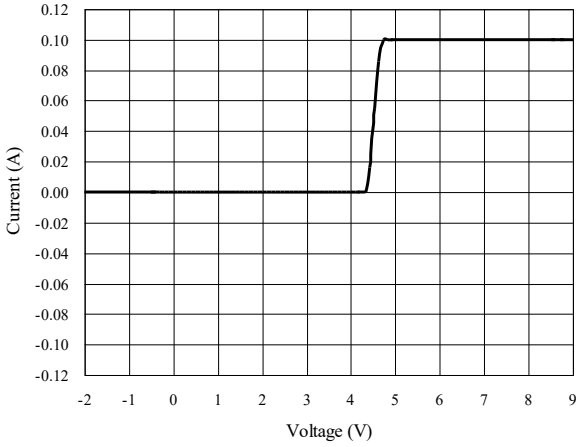


Uni-Directional TVS

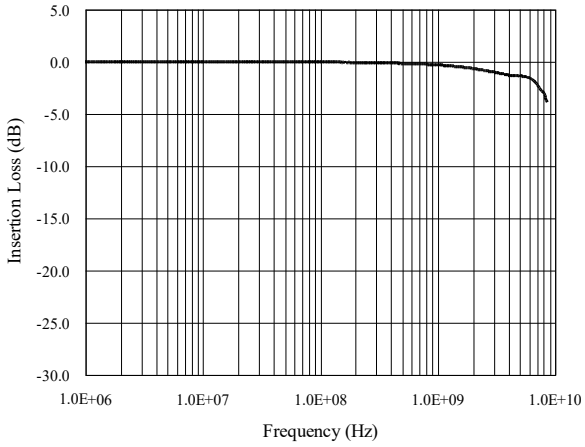
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}			3.3		V
I_R	V_{RWM} = 3.3V, T = 25°C		0.01	0.1	μA
V_{t1}	I_{t1} = 1μA	7.0		8.0	V
V_h	I_h = 10mA	4.0		5.0	V
V_C	Any I/O to Ground I_{PP} =24 A, t_p = 8/20μs			16.0	V
V_C	I_{PP}=8.0A, t_p =100ns (1)		7.0		V
	I_{PP}=16.0A, t_p= 100ns(1)		8.0		V
C_{ESD}	V_R = 0V, f = 1MHz Between I/O and GND		0.4	0.5	pF

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

Voltage Sweeping of I/O to GND

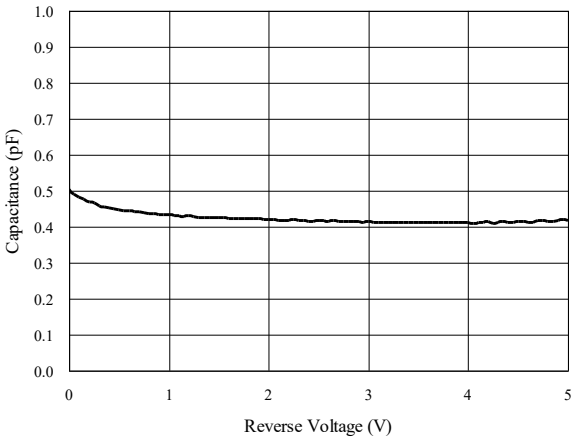


Insertion Loss S21 of I/O to GND

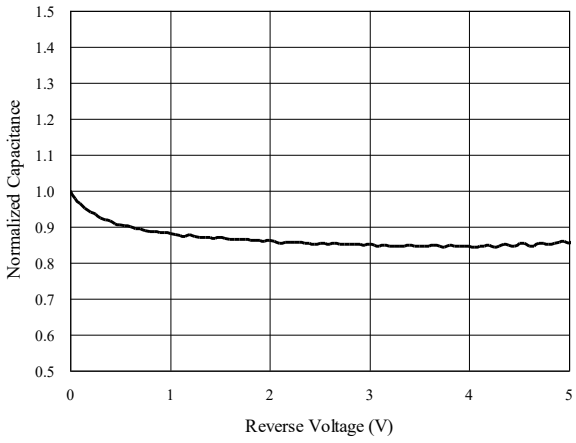


Capacitance *vs.* Voltage of I/O to GND (f = 1MHz)

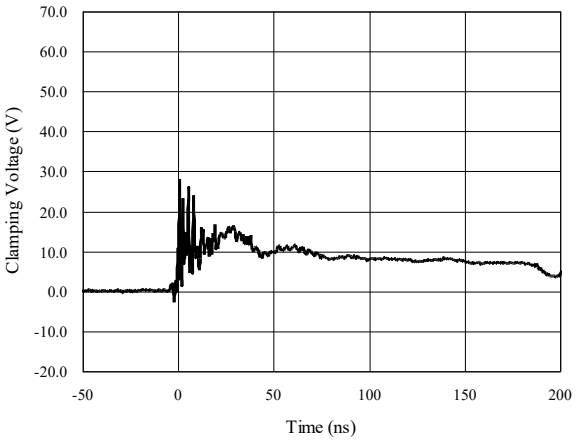
Capacitance *vs.* Reverse Voltage



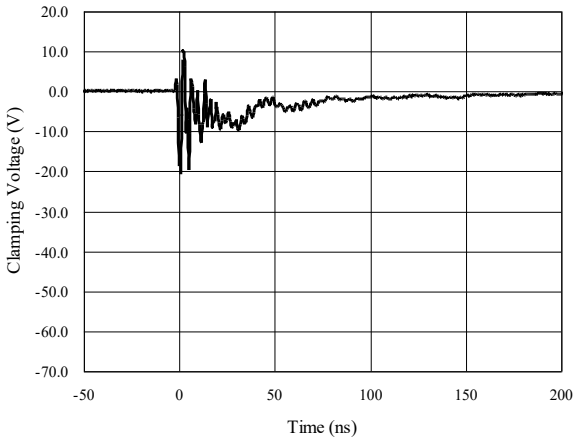
Normalized Capacitance *vs.* Reverse Voltage



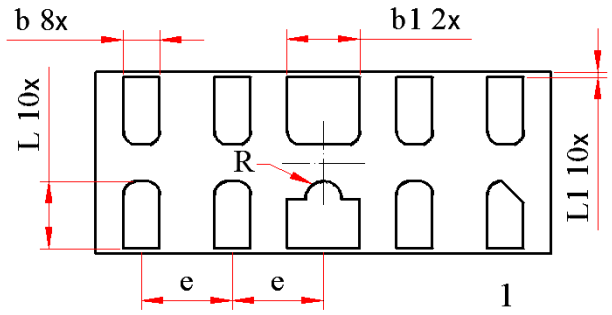
ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



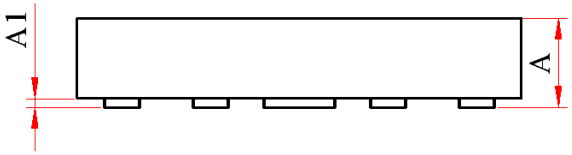
ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



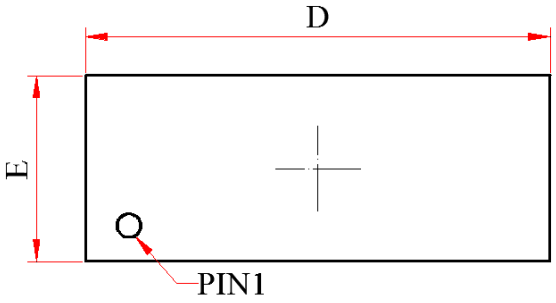
Package Outline



Bottom View

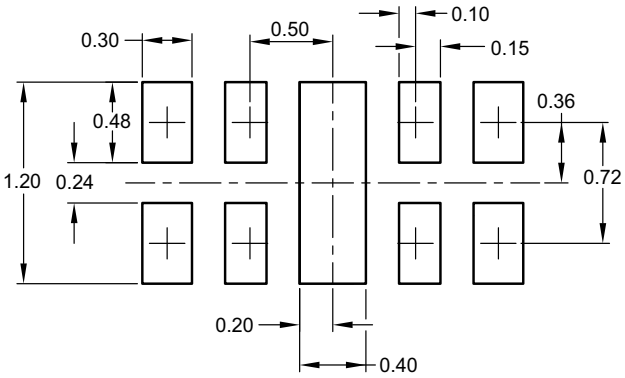


Side View



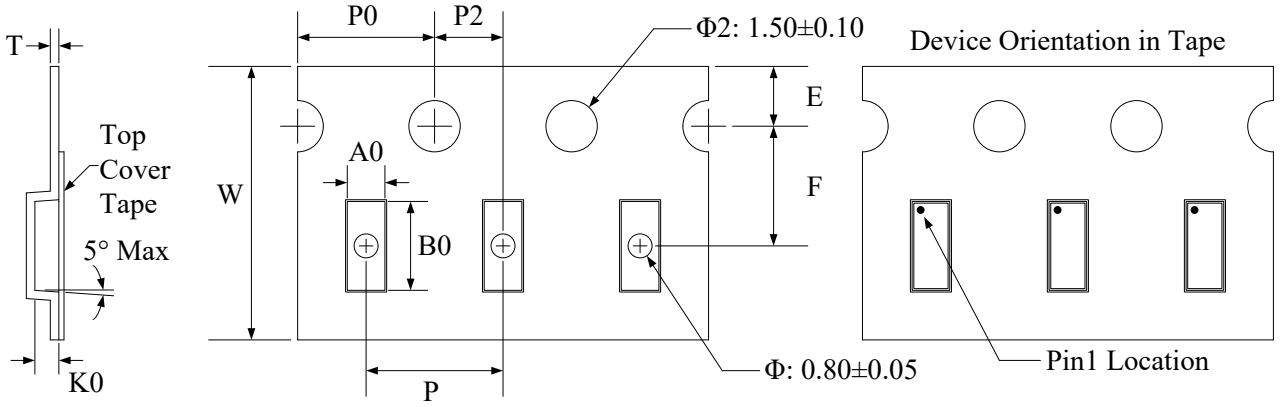
Top View

RECOMMENDED LAND PATTERN



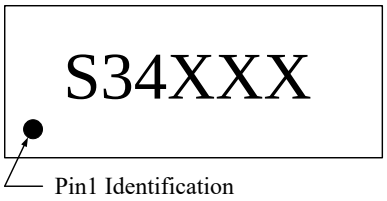
Symbol	Dimension In Millimeters			Dimension In Inches		
	Normal	Min	Max	Normal	Min	Max
A	--	0.450	0.550	--	0.018	0.026
A1	0.050	0.025	0.075	0.002	0.001	0.003
D	2.500	2.450	2.550	0.098	0.096	0.100
E	1.000	0.950	1.050	0.039	0.037	0.041
b	0.200	0.150	0.250	0.008	0.006	0.010
b1	0.400	0.350	0.450	0.016	0.014	0.018
L	0.370	0.320	0.420	0.015	0.013	0.017
L1	0.030	0.000	0.060	0.001	0.000	0.002
R	0.100 REF			0.004 REF		
e	0.500 BSC			0.020 BSC		

Tape and Reel Specification



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

Marking Codes



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS0334SPX	3.3V	3,000	7 Inch

Note:

(1) "S34" is part number, fixed.

(2) "XXX"is the last 3 characters of the wafer's Lot No.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for ESD Suppressors / TVS Diodes ***category:***

Click to view products by Shenzhen JingYang ***manufacturer:***

Other Similar products are found below :

60KS200C D18V0L1B2LP-7B D5V0F4U5P5-7 NTE4902 P4KE27CA P6KE11CA P6KE8.2A SA60CA SA64CA SMBJ12CATR SMBJ33CATR SMBJ6.5A SMBJ8.0A ESD101-B1-02ELS E6327 ESD112-B1-02EL E6327 ESD7451N2T5G 19180-510 CPDT-5V0USP-HF 3.0SMCJ33CA-F 3.0SMCJ36A-F HSPC16701B02TP JANTX1N6126A D3V3Q1B2DLP3-7 D55V0M1B2WS-7 SCM1293A-04SO ESD200-B1-CSP0201 E6327 SM12-7 CEN955 W/DATA VESD12A1A-HD1-GS08 CPDQC5V0-HF D1213A-01LP4-7B ESD101-B1-02EL E6327 AOZ8808DI-03 5KP15A 5KP48A 5KP90A ESD3V3D7-TP 15KPA36A-LF P4KE56CA P4KE68A P4KE91CATR P6KE120A P6KE13CA P6KE43CA P6KE6.8CA P6KE8.2 P6SMBJ20CA JANTX1N6072A SR2835ESKG SA90CA