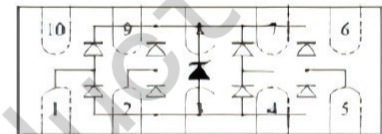


DESCRIPTION

ESD5304D is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF (I/O to I/O) only, ESD5304D 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($\pm 15\text{KV}$ air, $\pm 8\text{KV}$ 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. ESD5304D uses ultra-small DFN2510 package. Each ESD5304D device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make ESD5304D ideal for high-speed data ports and high frequency lines (e.g, HDMI & DVI) applications. The low clamping voltage of the ESD5304D guarantees a minimum stress on the protected IC.



FEATURES

- ◆ Transient protection for high-speed data lines
 - IEC61000-4-2(ESD) $\pm 25\text{KV}$ (Air)
 - $\pm 20\text{KV}$ (Contact)
 - IEC61000-4-4(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 $\pm 8\text{KV}$ contact discharge

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)

MACHANICAL DATA

- ◆ DFN2510 package
- ◆ Flammability Rating: UL94V-0
- ◆ Terminal: Matte tin plated.
- ◆ Packaging: Tape and Reel
- ◆ High temperature soldering guaranteed: 260°C/10s
- ◆ Reel size: 7 inch

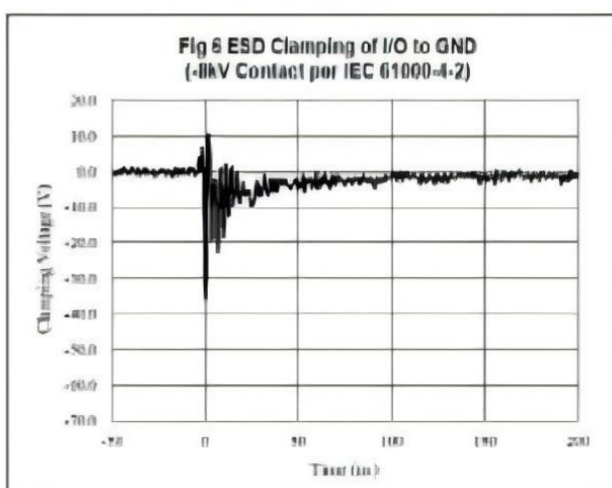
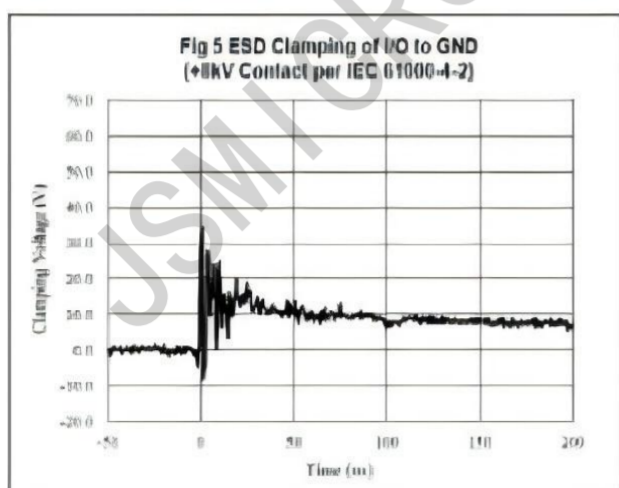
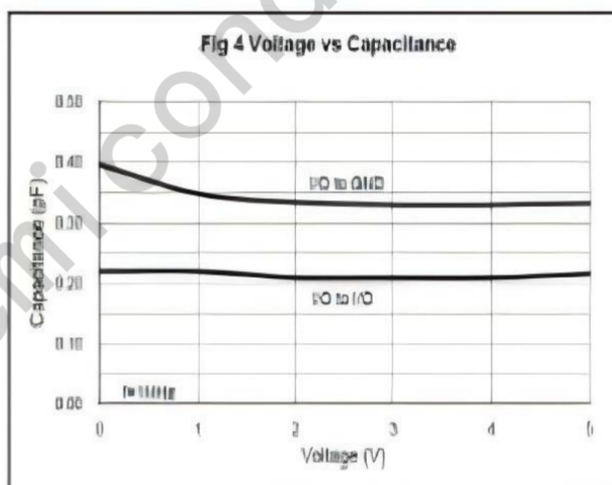
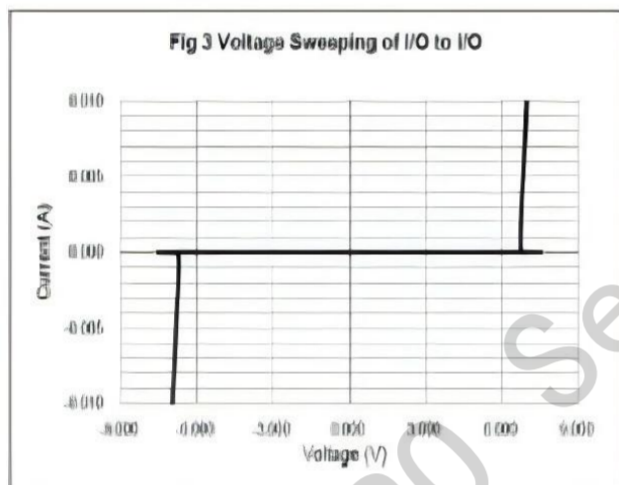
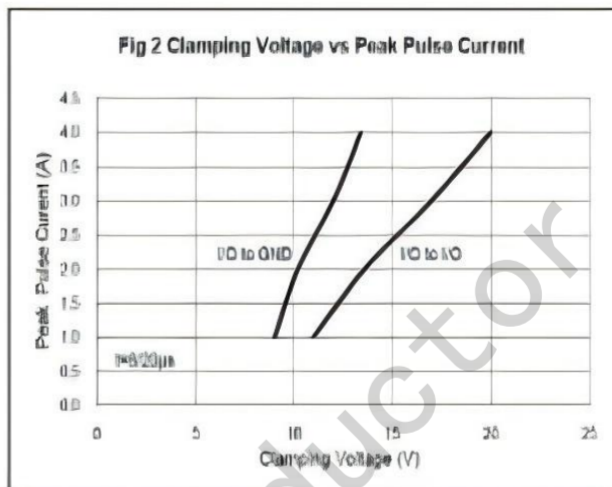
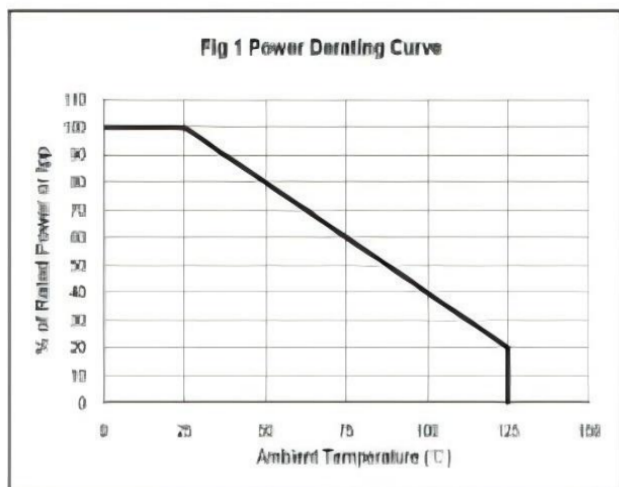
ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power (8/20μs)	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	°C
T _{STG}	Storage Temperature	-55/+150	°C

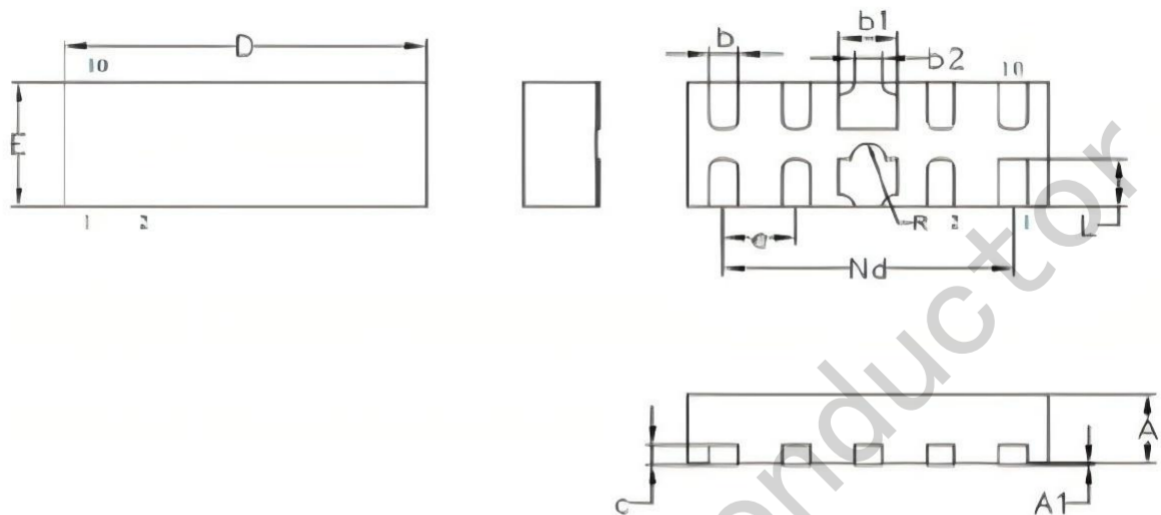
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

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		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 _o =8/20μs Any I/O pin to GND			10	V
V _C	Clamping Voltage	I _{pp} =4A, t _o =8/20μs Any I/O pin to GND			15	V
C _{ESD}	Parastic Capactance	V _R =0V, f=1MHz Between I/O and GND		0.4	0.5	pF
C _{ESD}	Parasitic Capacitance	V _R =0V, f=1MHz Between I/O and I/O		02	0.3	pF

ELECTRICAL CHARACTERISTICS CURVE



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