DESCRIPTION

The BTRD10A03 **is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF only,** BTRD10A03 **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.**

The BTRD10A03 **uses ultra-small DFN2510 package. Each** BTRD10A03 a is **device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make** The BTRD10A03 **ideal for high-speed data ports and high-frequency lines (e.g., HDMI &DVI) applications. The low clamping voltage of the** BTRD10A03 **guarantees a minimum stress on the protected IC.**

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*0.50mm)**
- ◇**Protects four data lines**
- ◇**Low capacitance:0.2pF for each channel**
- ◇**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 guaranted:260℃/10s**
- ◇**Reel size: 7 inch**

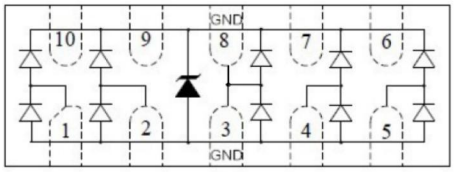
ORDERING INFORMATION

- ◇**Package: DFN2510**
- ◇**Marking: T54SP**
- ◇**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 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(8/20μs)	100	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 (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		10.0	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 = 8/20μs Any I/O pin to GND			15	V
		I_{PP} = 4A, t_p = 8/20μs Any I/O pin to GND			25	V
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz Between I/O and GND		0.2	0.25	pF
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz Between I/O and I/O		0.2	0.25	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

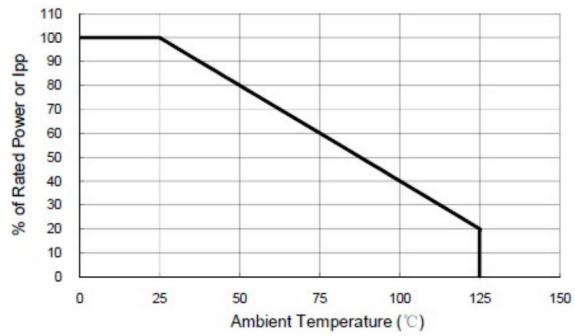


Fig 2 Clamping Voltage vs Peak Pulse Current

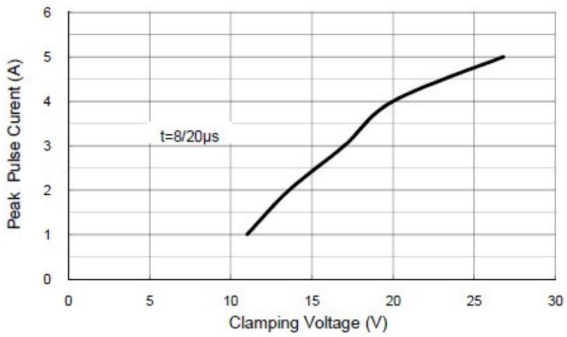


Fig 3 Voltage Sweeping of I/O to I/O or GND

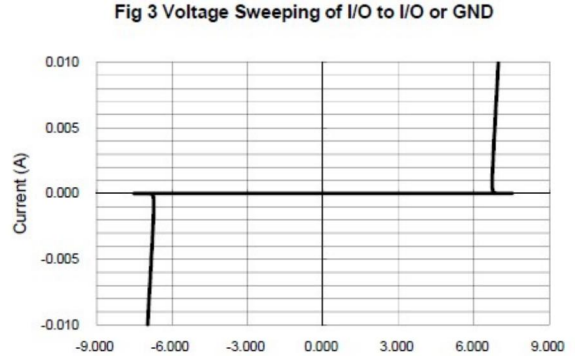


Fig 4 Voltage vs Capacitance I/O to I/O or GND

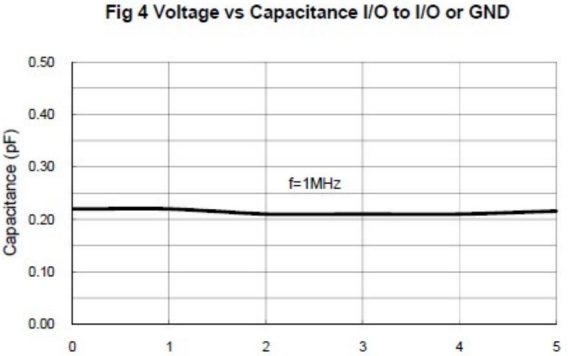


Fig 5 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

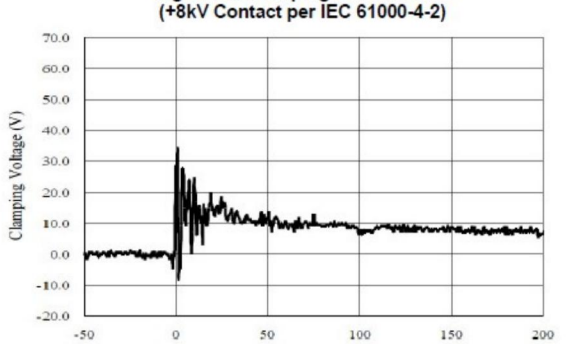
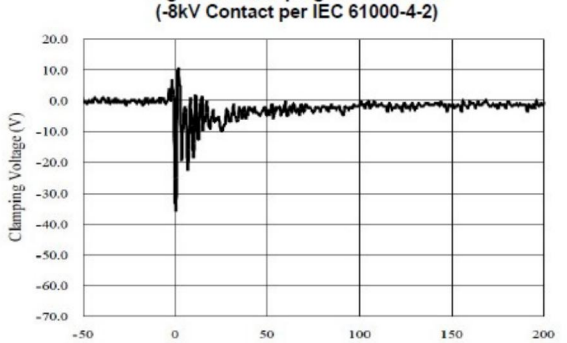
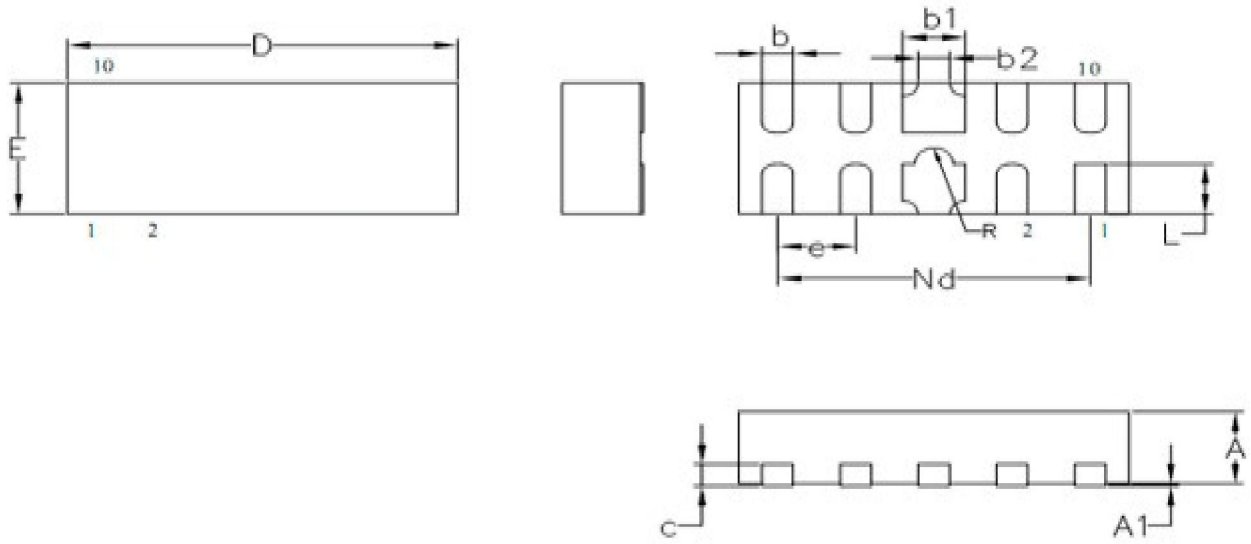


Fig 6 ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)



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