KUUESD3V3S1BL

ESD Protection Diode

Datasheet

DESCRIPTION

KUUESD3V3S1BL **a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.5pF,**KUUESD3V3S1BL **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.**

Each KUUESD3V3S1BL **device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make** KUUESD3V3S1BL **ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.**

FEATURES

- ◇**Transient protection for high-speed data lines**
  - **IEC 61000-4-2 (ESD) ±15kV (Air)**
  - **±8kV (Contact)**
  - **IEC 61000-4-4 (EFT) 40A (5/50 ns)**
  - **Cable Discharge Event (CDE)**
- ◇**Package optimized for high-speed lines**
- ◇**Ultra-small package (1.0mm×0.6mm×0.5mm)**
- ◇**Protects one data, control line**
- ◇**Low capacitance: 0.5pF (Typical)**
- ◇**Low leakage current**
- ◇**Low clamping voltage**

MACHANICAL DATA

- ◇**DFN1006 package**
- ◇**Packaging: Tape and Reel**
- ◇**High temperature soldering guaranteed: 260℃/10s**
- ◇**Reel size: 7 inch**

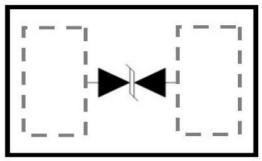
ORDERING INFORMATION

- ◇**Package: DFN1006**
- ◇**Marking: 3BL or 3BU**
- ◇**Material: Halogen free**
- ◇**Packing: Tape & Reel**
- ◇**Quantity per reel: 10,000pcs**

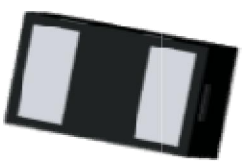
APPLICATIONS

- ◇**Serial ATA**
- ◇**Desktops, Servers and Notebooks**
- ◇**Cellular Phones**
- ◇**MDDI Ports**
- ◇**USB Data Line Protection**
- ◇**Display Ports**
- ◇**Digital Visual Interfaces (DVI)**

PIN CONFIGURATION



PACKAGE OUTLINE



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±20 ±20	kV
P_{PP}	Peak Pulse Power (8/20μs)	100	W
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				3.3	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	4.2			V
I_R	Reverse Leakage Current	V_{RWM} = 3.3V			100	nA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			12	V
		I_{PP} = 4A, t_p = 8/20μs			25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.5		pF

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 Power Derating Curve

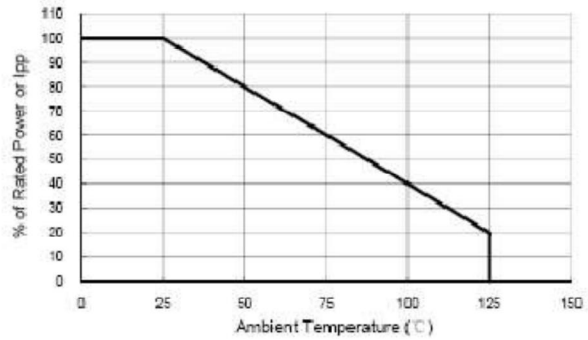


Fig 2 Clamping Voltage vs Peak Pulse Current

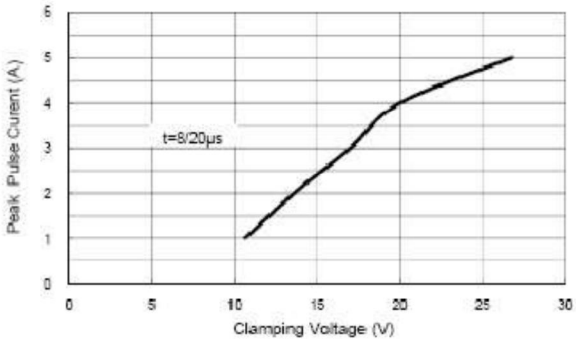


Fig 3 Voltage Sweeping

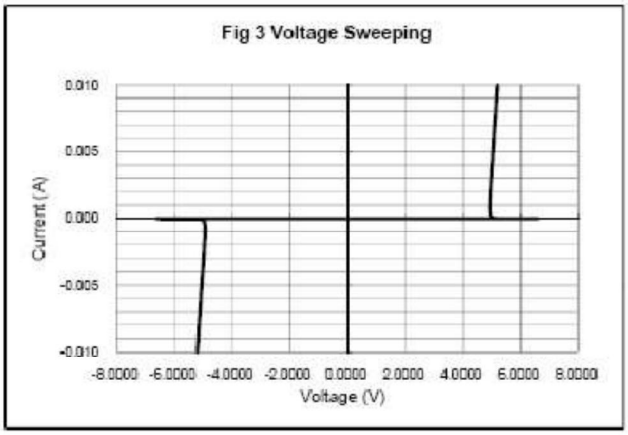


Fig 4 Voltage vs Capacitance

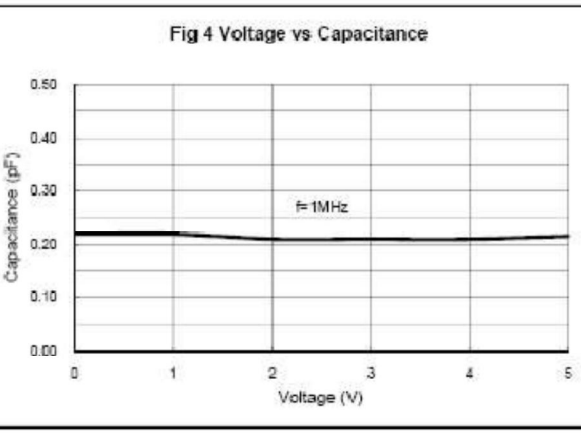


Fig 5 ESD Clamping
(+8kV Contact per IEC 61000-4-2)

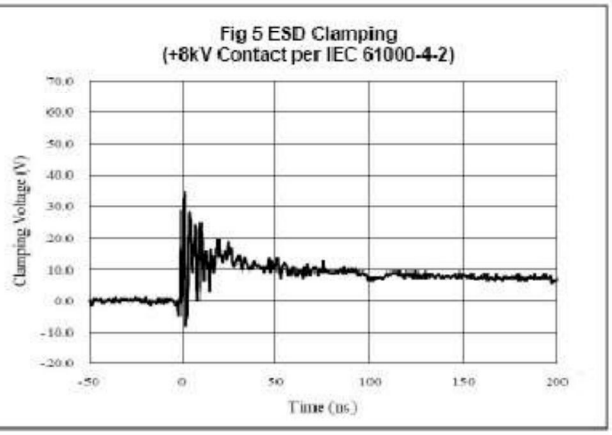
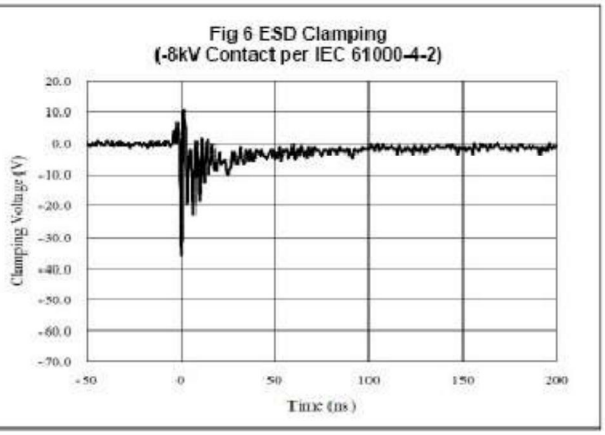
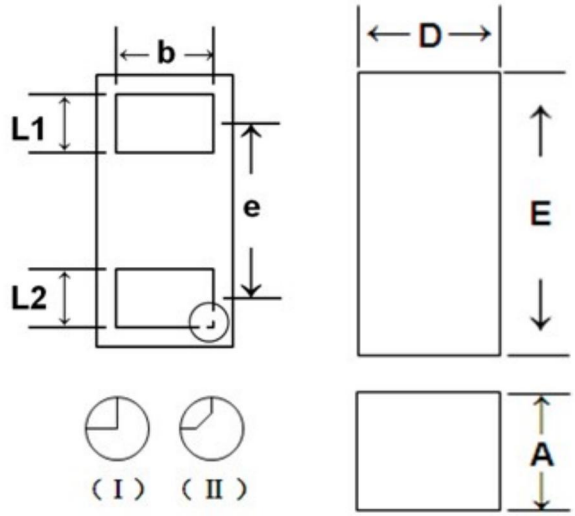


Fig 6 ESD Clamping
(-8kV Contact per IEC 61000-4-2)



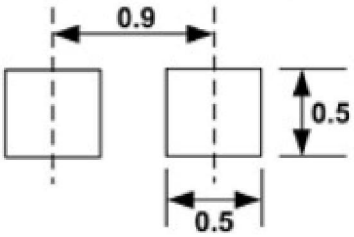
DFN1006 PACKAGE OUTLINE DIMENSIONS



NOTE:ALL DIMENSIONS IN MM

	MIN	NOM	MAX
D	0.55	0.60	0.65
E	0.95	1.00	1.05
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
A	0.45	0.50	0.55
b	0.45	0.50	0.55
e		0.64BSC	

Dimension: Millimeter
(Stencil thickness: 0.1)



Soldering Footprint