LXE0603F5BL

Ultra-Low Capacitance TVS Protection

Features

- Transient protection for high -speed data lines
  IEC 61000-4-2 (ESD) ±25kV (Air)
  ±22kV (Contact)
- Protects one high-speed data line
- Low reverse current:<10nA typical (V_R=5V)
- Working voltage:5V
- Low capacitance: 0.35pF typica l
- Dynamic resistance: 0.90 Ohms (Typ)
- Solid-state silicon-avalanche technology

Applications

- HDMI 1.3/1.4 and HDMI 2.0
- USB 2.0 and USB 3.0
- MHL
- LVDS Interfaces
- FM Antenna
- PCI Express
- eSATAInterfaces

Description

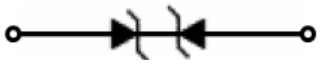
are ultra lowcapacitance ESD Protection devices designed to protect high speed data interfaces. They are designed to replace 0201 size mul- tilayer varistors (MLVs) in portable applications such as cell phones, notebook, computers,and other portable electronics. This device offers desirable characteristics for boand level protection including fast response time, low operating and clamping voltage, and no device degradation. has a typical capacitance of only 0.25pF. This allows it to be used on circuits operating. is in a 2-pin DFN0603 package. It measures 0.6 x 0.3 mm with a nominal height of only 0.25mm. Leads are finished with lead-free NiAu. Each device will protect one line operating at 5 volts . It gives the designer the flexibility to protect single lines in applications Wher arrays are not practical. The combination of small size and high ESD surge capability makes them ideal for use in portable applications such as cellular phones, digital cameras , and MP3 players .

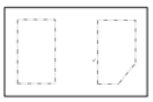
Mechanical Characteristics

- DFN0603 package
- Pb-Free , Halogen Free, RoHS/W EEE Compliant
- Nominal Dimensions : 0.6 x 0.3 x 0.25 mm
- Lead Finish: NiAu
- Molding compound flammability rating: UL 94V-0
- Packaging : Tape and Reel

Circuit Diagram

DFN0603 Package





Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	P_{PK}	60	Watts
Peak Pulse Current (tp = 8/ 20μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±25 ±22	kV
Operating Temperature	T_J	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics (T = 25 ℃)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	7	9	10	V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25℃			1	μA
Clamping Voltage	V_C	I_{PP}=1A,tp=8/20μs			11	V
Clamping Voltage	V_{CPP}	I=4A,tp=8/20μs			15	V
Dynamic Resistance2,3,4	R_D	tp=100ns		0.90		Ohms
Junction Capacitance	C_J	V_R=0V,f=1MHz		0.35	0.5	pF

Notes

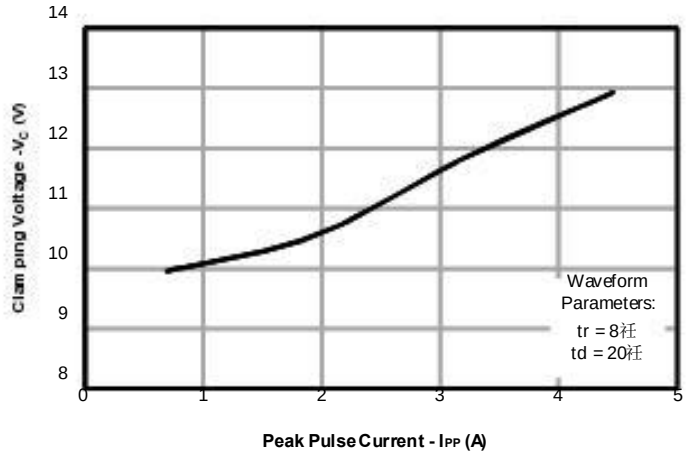
1)ESD gun return path connected to ESD ground reference plane.

2)Transmission Line Pulse Test (TLP) Settings : tp= 100ns , tr= 0.2ns , IT and VT averaging window: t1 = 70ns to t2= 90ns .

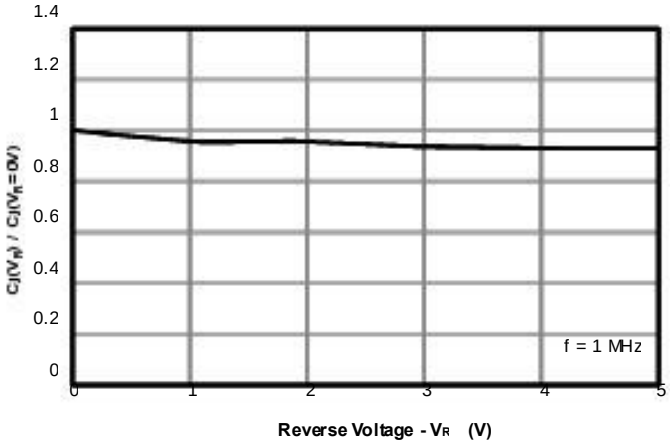
3) Dynamic resistance calculated from IT = 4A to IT = 16A

4)Guaranteed by design. Not production tested

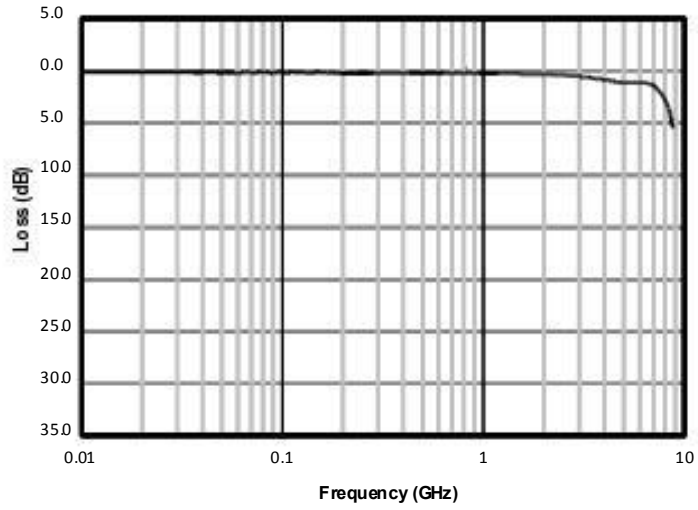
Clamping Voltage vs. Peak Pulse Current



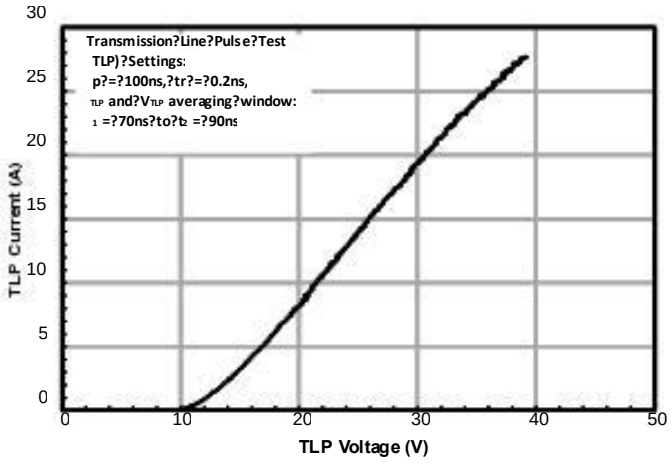
Typical Capacitance vs. Reverse Voltage



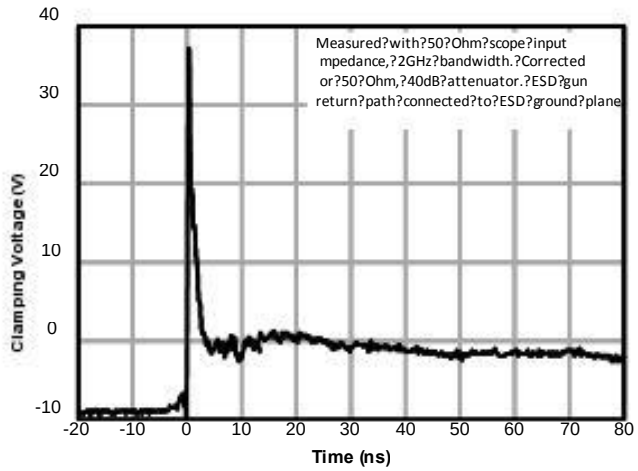
Typical Insertion Loss (S21)



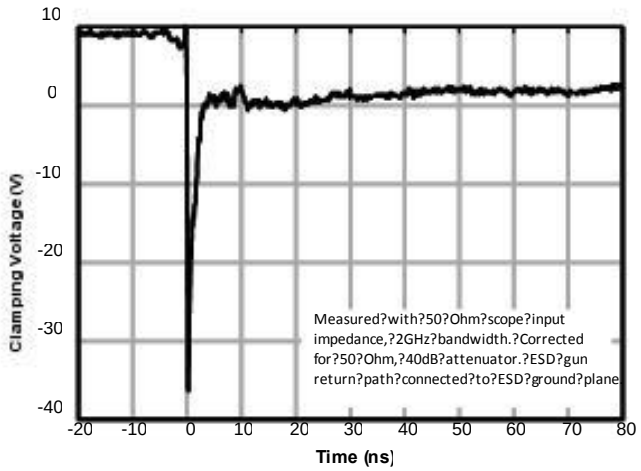
TLP Characteristic



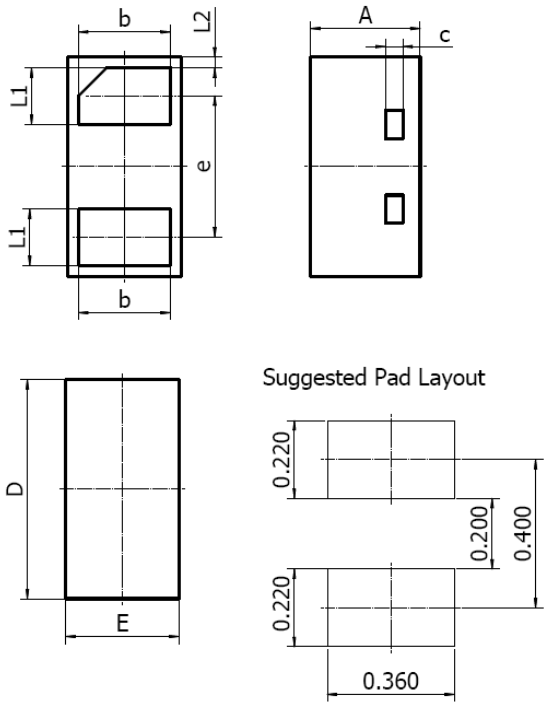
ESD Clamping (+8kV Contact per IEC 61000-4-2)



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



Package Outline



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.27	0.35	0.011	0.013
D	0.57	0.67	0.022	0.026
E	0.27	0.37	0.011	0.015
b	0.225	0.295	0.009	0.012
c	0.050REF		0.002REF	
e	0.365	0.435	0.014	0.017
L1	0125	0.195	0.005	0.008
L2	0.030REF		0.001REF	