SuperESD - USBLC6-2SC6-ES

1. Description

The USBLC6-2SC6-ES is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±12kV Contact Discharge
  - ±17kV Air Discharge
- 70W Peak pulse Power (8/20us)
- Low leakage current

- Working voltage: 5V
- RoHS compliant
- Protecting two unidirectional lines
- Low clamping voltage

3. Applications

- Portable electronics
- USB 2.0 and USB 3.0
- HDMI 1.3 and HDMI 1.4
- SATA and eSATA

- DVI
- IEEE 1394
- PCI Express
- Notebooks

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
USBLC6-2SC6-ES	SOT23-6L	.UL26	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1   Ordering information

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5. Pin Configuration and Functions
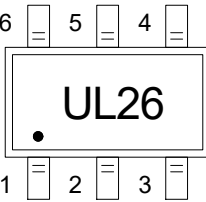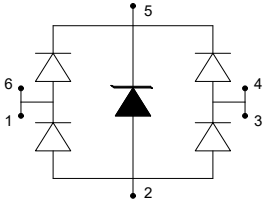
Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to I/O		
2	GND	Connect to GND		
3	IO2	Connect to I/O		
4	IO2	Connect to I/O		
5	Vcc	Connect to Vcc		
6	IO1	Connect to I/O		

Table-2   Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	70	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		4.5	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±17	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±12	kV
Junction temperature	T_J	-	125	℃
Operating temperature	T_{OP}	-40	85	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3   Absolute Maximum rating

## 6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	6.0			V
Reverse Leakage Current	I_R	V_{RWM}=5V			1.0	uA
Clamping Voltage	V_C	IPP=1A; tp=8/20us		9.0	11.0	V
Clamping Voltage	V_C	IPP=4.5A; tp=8/20us		12.0	15.0	V
Junction Capacitance	C_J	VR=0V; f=1MHz		0.8	1.2	pF

Table-4   Electrical Characteristics

Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F
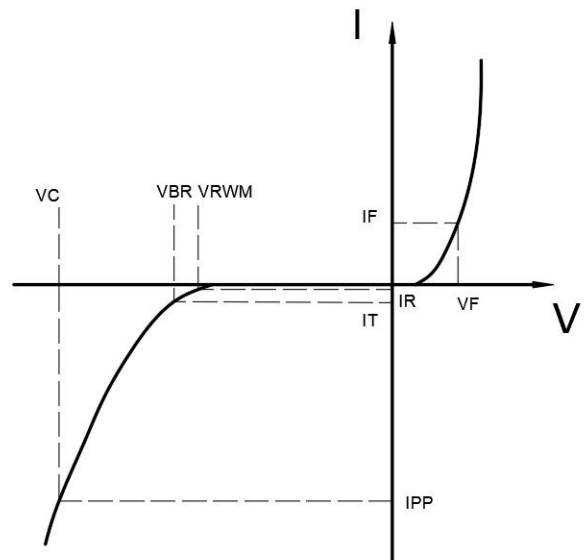
7. Typical Characteristic
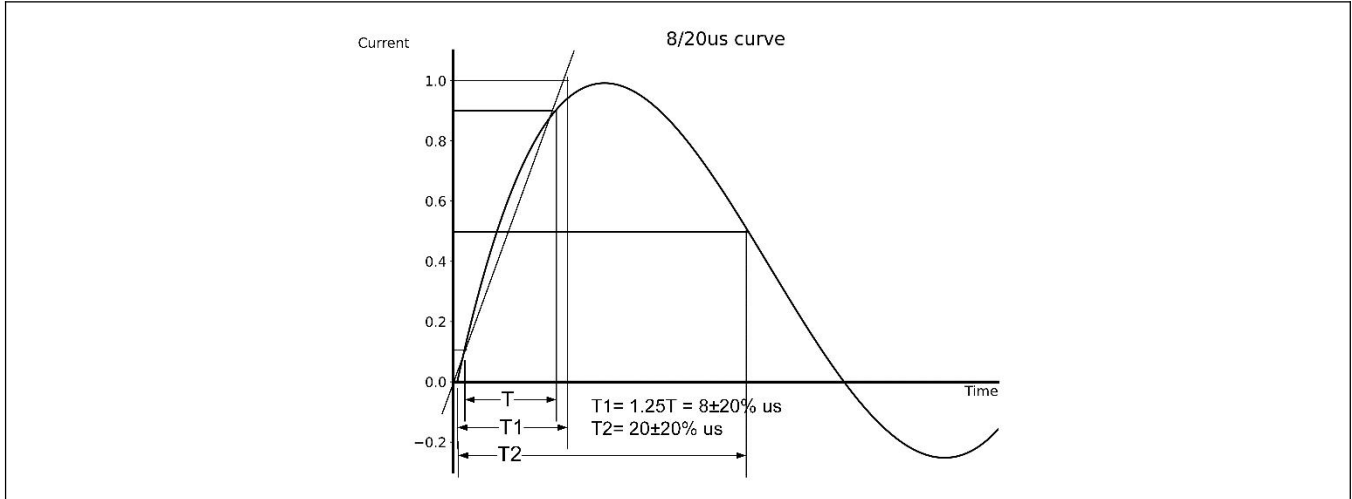
8. Typical Application

USBLC6-2SC6-ES
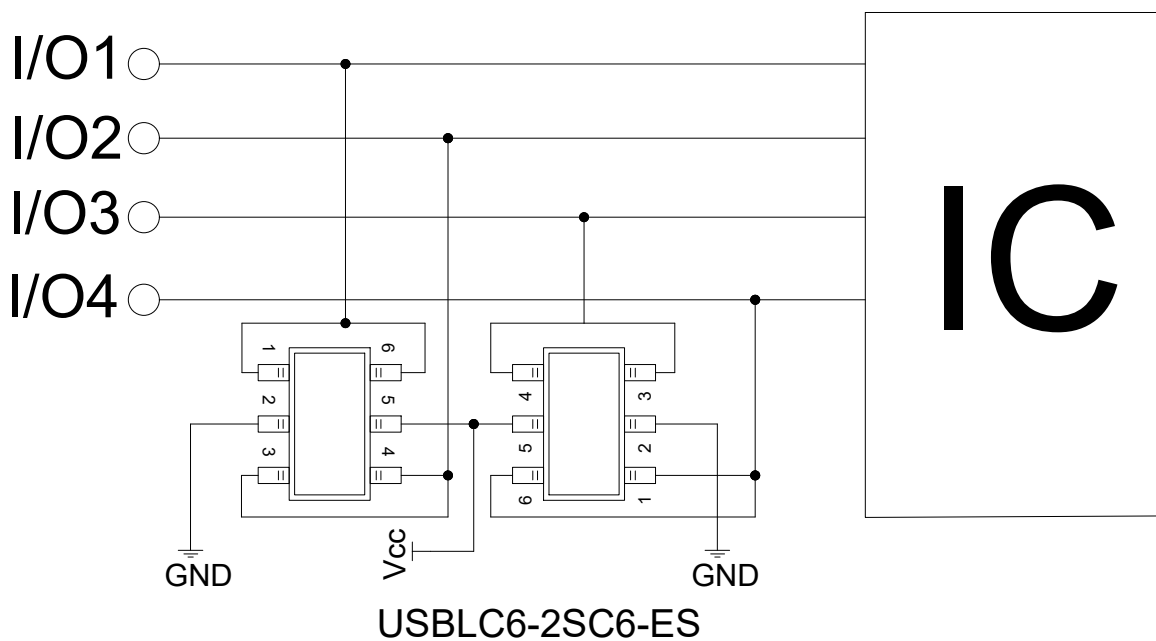
Typical Interface Application

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9. Dimension (SOT-23-6L)
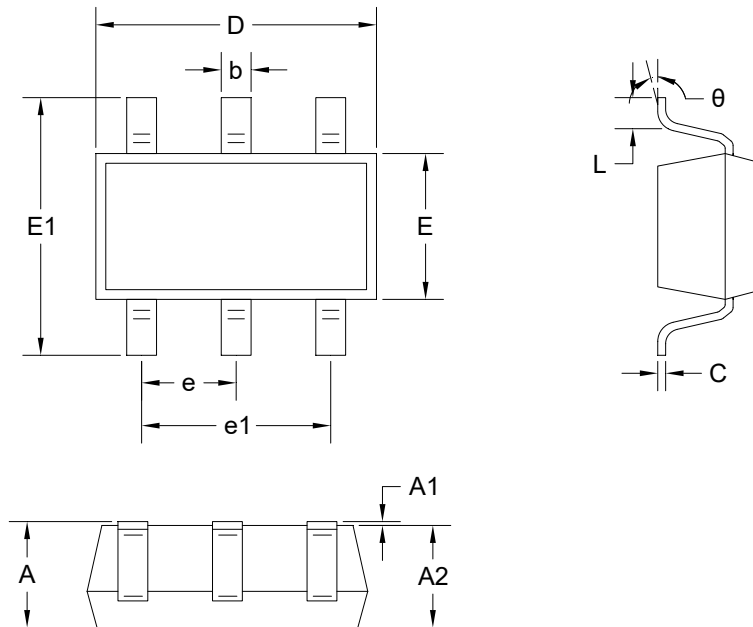
Unit: mm

Symbol		A	A1	A2	b	c	D
Spec	Min	1.050	0.000	1.050	0.300	0.100	2.820
	Max	1.250	0.100	1.150	0.500	0.200	3.020
Symbol		E	E1	e	e1	L	θ
Spec	Min	1.500	2.650	0.950BSC	1.800	0.300	0°
	Max	1.700	2.950		2.000	0.600	8°

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