2-Line ESD Protection Diode Array

General description

The USBLC6-2SC6 are monolithic application specific devices dedicated to ESD protection of high speed interfaces, such as USB 2.0, Ethernet links and video lines.The very low line capacitance secures a high level of signal integrity without compromising in protecting sensitive chips against the most stringently characterized ESD strikes.

Features and benefits

- ESD Protect for 2 high-speed I/O channels
- Provide ESD protechtion for each channel to IEC 61000-4-2(ESD)±30kV(air),±30kV(contact)
- Low Working Voltage: 5.0V
- Low Capacitance: 0.8pF (I/O-GND)
- Low Clamping Voltage
- Response time is typically < 1 ns
- Array of surge rated diodes with internal equivalent TVS diodes
- Small package saves board space
- RoHS compliant

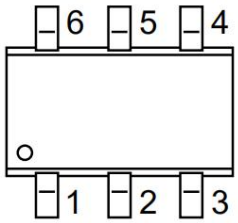
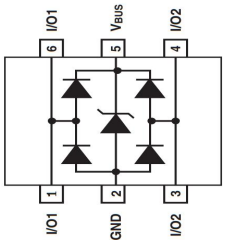
Application information

- Video Graphics Cards
- USB2.0 Power and Data lines protechtion
- 10/100/1000 Ethernet
- Notebooks and PC Computers
- IEEE 1394 Firewire Ports
- Portable electronics
- SIM ports

Ordering information

Device	Package	Marking	Packaging
USBLC6-2SC6	SOT23-6L	UL26	3000/Tape & Reel

Schematic & Pin configuration

Simplified outline	Graphic symbol
top view 	

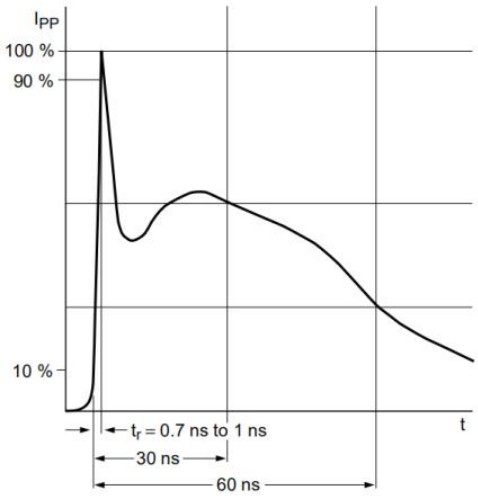
Maximum Ratings (T_{OP} = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (Tp = 8/20μs)	P_{PPM}	78	W
Rated Peak Pulse Current (Tp = 8/20μs)	I_{PPM}	6	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	30	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	kV
Maximum lead temperature for soldering during 10s	T_L	260	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C
Operating Temperature Range	T_{OP}	-40 to +125	°C

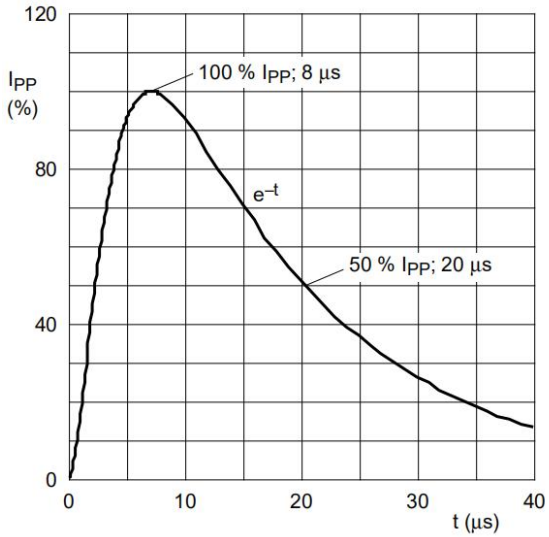
Electrical Characteristics (T_{OP} = 25 °C, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.5	--	9.0	V	I_T=1mA
Leakage Current ILeak	I_R	--	--	100	nA	V_{RWM}=5V
Clamping Voltage(I/O-GND)	V_C	--	11.0	13.0	V	I_{PP}=6A,Tp=8/20μs
Clamping Voltage(V_{DD}-GND)	V_C	--	11.0	13.0	V	I_{PP}=8A,Tp=8/20μs
Junction Capacitance	C_j	--	0.4	0.5	pF	V_R=0V, f=1MHz I/O to I/O
Junction Capacitance	C_j	--	0.8	1.0	pF	V_R=0V, f=1MHz I/O to GND

Typical Characteristics

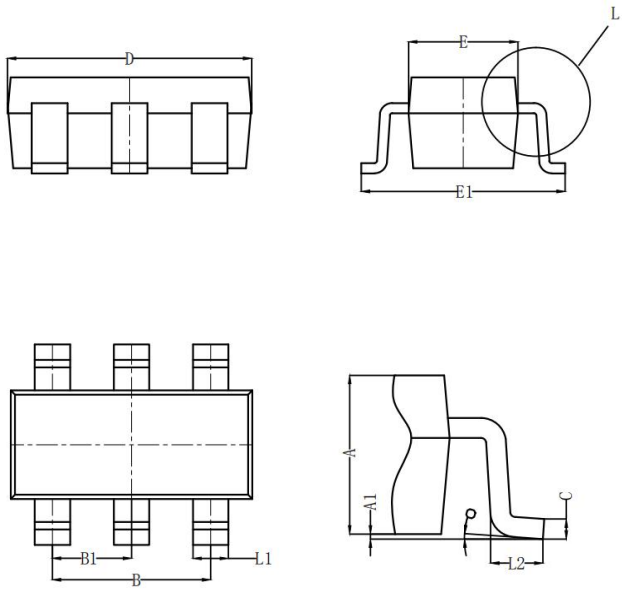


IEC61000−4−2 Waveform



IEC 61000-4-5 Waveform(8/20µs pulse)

Package Outline Dimensions (SOT23-6L)



Symbol	Dimensions In Millimet	
	Min	Max
A	1.050	1.150
A1	0.000	0.100
L1	0.300	0.500
C	0.100	0.200
D	2.810	3.030
E	1.500	1.700
E1	2.650	2.950
B	1.800	2.000
B1	0.950typ	
L2	0.300	0.600
O	0°	8°