

### **USBLC6-4SC6**

#### Very low capacitance ESD protection

www.sot23.com.tw

#### **Features**

Ultra low capacitance: 0.3pF typical (I/O to I/O)

Ultra low leakage: nA level

Low operating voltage: 5V

Low clamping voltage

Up to 4 data lines and one power line protects

Complies with following standards:

- IEC 61000-4-2 (ESD) immunity test

Air discharge: ±25kV Contact discharge: ±20kV

- IEC61000-4-4 (EFT) 40A (5/50ns)

- IEC61000-4-5 (Lightning): 4.7A(8/20µs)

ROHS Compliant

#### **Mechanical Characteristics**

Package: SOT23-6Lead Finish: Matte Tin

Case Material: "Green" Molding Compound.

◆ UL Flammability Classification Rating 94V-0

♦ Moisture Sensitivity: Level 3 per J-STD-020

◆ Shipping Qty :3000/7Inch Tape & Reel

## **Applications**

♦ USB 2.0 and USB 3.0 Ports

◆ USB OTG

Digital video interface(DVI)

♦ Monitor and Flat Panel Displays

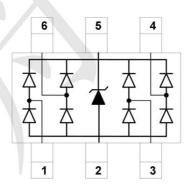
PCI Express and Serial SATA Ports

Gigabit Ethernet

♦ IEEE 1394 firewire ports

◆ Consumer products (STB, DVD, DSC, DVC...)

#### **Dimensions and Pin Configuration**



Circuit and Pin Schematic

Marking: UL46





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## Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs) (Vcc-GND)	Ppp	300	W
Peak Pulse Current (tp=8/20µs)	IPP	4.7	А
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±25 ±20	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

## Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Working Voltage	VRWM	$\prec$		5	V	Any I/O pin to ground
Breakdown Voltage	VBR	6		$\Lambda$	V	IT = 1mA, any I/O pin to ground
Reverse Leakage Current	IR		X	0.08	μA	VRWM = 5V, any I/O pin to ground
Clamping Voltage	Vc	7		11	V	IPP = 1A (8 x 20µs pulse) any I/O pin to ground
Clamping Voltage	Vc			15	V	IPP = 4.7 A (8 x 20µs pulse) any I/O pin to ground
Clamping Voltage	Cı			18	V	IPP =17 A (8 x 20μs pulse) VCC to ground
Junction Capacitance	Cı		0.3	0.4	pF	VR = 0V, f = 1MHz, between I/O pins
Junction Capacitance	Сл			0.8	pF	VR = 0V, f = 1MHz, any I/O pin to ground



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#### Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)

Fig1. 8/20µs Pulse Waveform

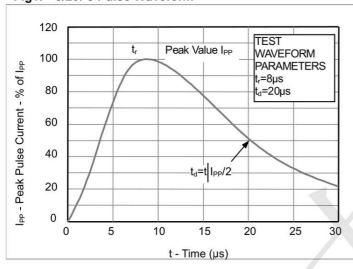


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

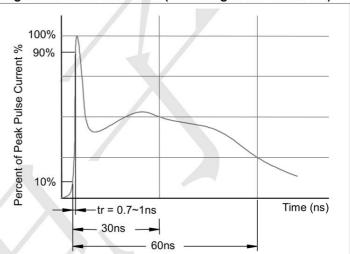
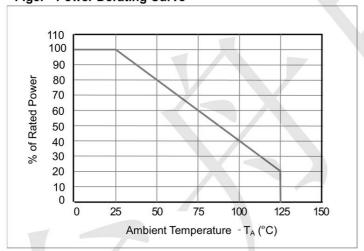


Fig3. Power Derating Curve

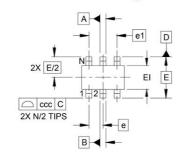


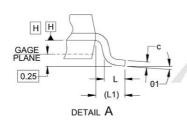


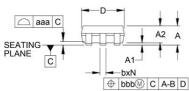
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# **Outline Drawing - SOT23-6**



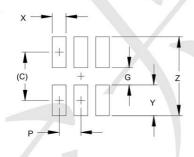






		DIN	IENSI	ONS		
INCHES		MILLIMETERS				
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	.035	-	.057	0.90	12	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.045	.051	.90	1.15	1.30
b	.010	1 -	.020	0.25	10.70	0.50
С	.003	- 2	.009	0.08	100	0.22
D	.110	.114	.118	2.80	2.90	3.00
E1	.060	.063	.069	1.50	1.60	1.75
E	.110 BSC			2.80 BSC		
е	.037 BSC		0.95 BSC			
e1	.075 BSC		1.90 BSC			
L	.012	.018	.024	0.30	0.45	0.60
L1	(.024)			N	(0.60)	
N	N 6		6			
01	0°	-	10°	0°		10°
aaa	.004		0.10			
bbb	.008		0.20			
ccc	.008			0.20		

## **Land Pattern - SOT23-6**



DIMENSIONS				
DIM	INCHES	MILLIMETERS		
С	(.098)	(2.50)		
G	.055	1.40		
Р	.037	0.95		
X	.024	0.60		
Y	.043	1.10		
7	141	3.60		