USB2.0 HUB Controller IC

USB 2.0 HIGH SPEED 4-PORT HUB CONTROLLER

SL2.1A

Data Sheet

Data Sheet

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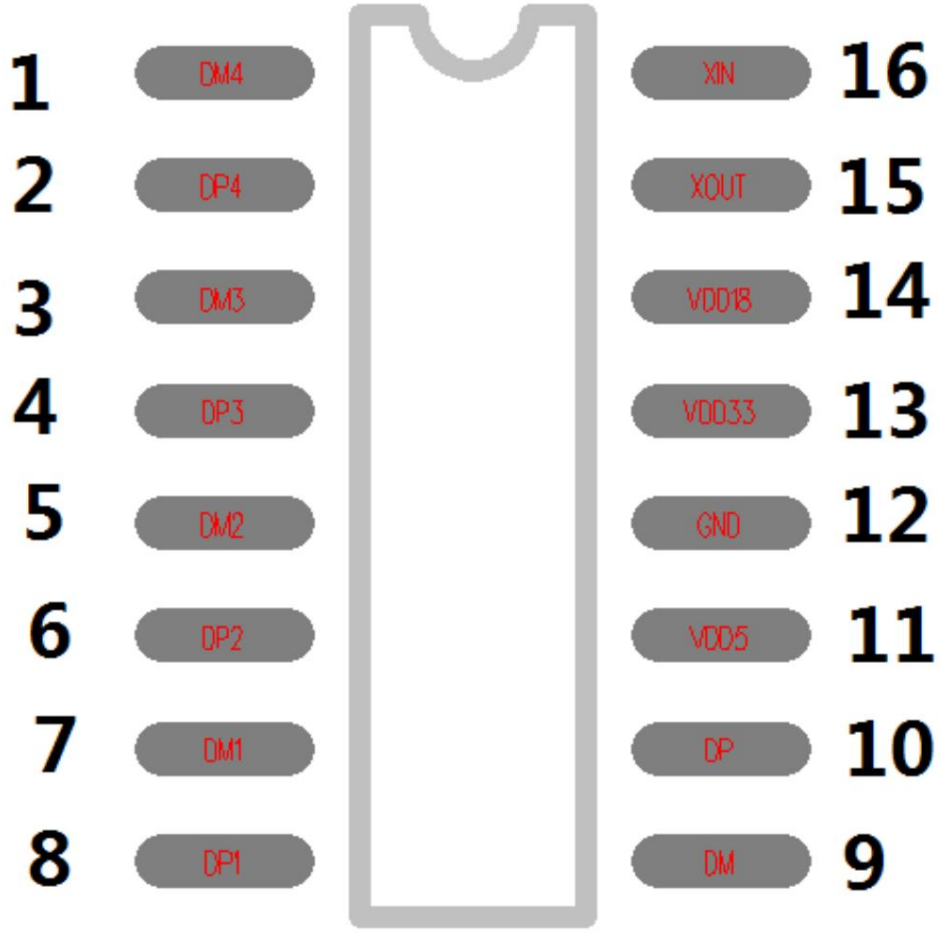

Figure **1: SL2.1A** pinout

SL2.1A Pin Definition

Pin Name	16 Pin#	Die IO type		definition
DM4	1		B	USB DM signal of downstream port 4
DP4	2		B	USB DP signal of downstream port 4
DM3	3		B	USB DM signal of downstream port 3
DP3	4		B	USB DP signal of downstream port 3
DM2	5		B	USB DM signal of downstream port 2
DP2	6		B	USB DP signal of downstream port 2
DM1	7		B	USB DM signal of downstream port 1
DP1	8		B	USB DP signal of downstream port 1
DM	9		B	USB DM signal of uplink port
DP	10		B	USB DP signal of the upstream port
VDD5	11		P	5v input
GND	12		P	Chip Ground
VDD33	13		P	Internal 3.3v
VDD18	14		P	Internal 1.8v
XOUT	15		O	Crystal Oscillator PAD
ASK FOR	16		I	

Note: O, output; I input; B bidirectional; P power/ground;

Chapter 2 Functional Description

2.1 Overview

SL2.1A is a highly integrated, high-performance, low-power USB2.0 hub controller chip;

Using STT technology, single power supply mode, the chip power supply voltage is 5v, the internal integrated 5V to 3.3V converter only needs

Add filter capacitors to the external power supply; the chip has its own reset circuit, and the low-power technology makes it even more outstanding.

The chip can use either an external crystal or a built-in crystal. If using the built-in crystal, it is required

Connect the XI input of the chip to ground, It is recommended that you use an external crystal oscillator, which is more stable*. *

Perfectly supports **USB2.0 high speed (480MHz), USB2.0** full speed (12MHz), and low speed mode (1.5MHz)

Integrated 12M crystal oscillator

Integrated 12MHz-to-480MHz PPL (Phase Lock Loop)

Using Single Transaction Translator (STT) technology, it is the most cost-effective and efficient solution in the TT series

Supports automatic enumeration switching from self-powered to bus-powered

2.2 Charging support

SL2.1A supports the standard BC1.2 charging protocol.

Chapter 3 Electrical Characteristics

3.1 Extreme working conditions

Table **1:** Maximum ratings

symbol	parameter	Minimum	Maximum	Unit
VDDM	**Power Supply**	**-0.5**	+5.5	**IN**
COME	**Input Voltage for digital I/O**	**-0.5**	**+5.5**	**IN**
VINUSB	**Input Voltage for USB signal (DP, DM) pins**	**-0.5**	**+3.6**	**IN**
TS	**Storage Temperature under bias**	**-60**	**+100**	ÿ
FOSC	**Frequency**	**12 MHz ± 0.05%**		

3.2 Scope of work

Table **2:** Scope of work

symbol	parameter	Min Typical Max Uni			
VDD	**Power Supply**	**4.0**	**5.0**	**5.25**	**IN**
FIND	**Input Voltage for digital I/O pins**	**-0.5**	**3.3**	**5.5**	**IN**
VINUSB	**Input Voltage for USB signal (DP, DM) pins**	**0.5**	**3.3**	5.25 **V**	
TA	**Ambient Temperature**	**0**		**70**	ÿ

3.3 DC characteristics

Table **3:** DC characteristics

symbol	parameter	Min. Typ. Max. Unit			
IDD	**Supply Current**	**50**		**120**	**mA**
JESUS	**Suspend Current**			**2.5**	**mA**

3.4 HS/FS/LS electrical characteristics

See USB2.0 standard.

3.5 ESD characteristics

The ESD capability of this chip port is ±4KV (HBM).

Appendix package

SL2.1A SOP16

标注 \ 尺寸	最小(mm)	最大(mm)	标注 \ 尺寸	最小(mm)	最大(mm)
A	9.80	10.00	$C3_2$	0.05	0.15
A1	0.356	0.456	C4	0.203	0.233
A2	1.27TYP		D	1.05TYP	
A3	0.302TYP		D1	0.40	0.70
B	3.85	3.95	D2	0.15	0.25
B1	5.84	6.24	R1	0.20TYP	
B2	5.00TYP		R2	0.20TYP	
C	1.40	1.60	θ1	8° ～ 12° TYP4	
C1	0.61	0.71	θ2	8° ～ 12° TYP4	
C2	0.54	0.64	θ3	0° ～ 8°	
$C3_1$	0.05	0.25	θ4	4° ～ 12°	

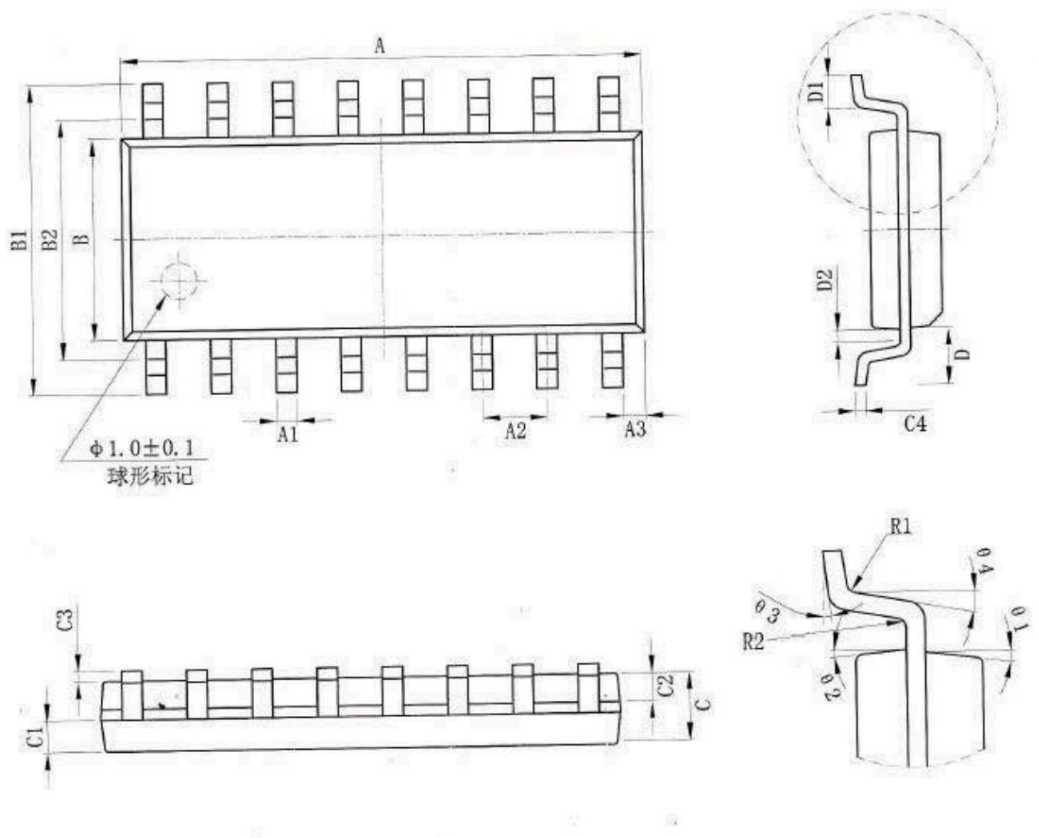

Figure 2: Package size diagram