USB2.0 HUB Controller IC

USB 2.0 HIGH SPEED 4-PORT HUB CONTROLLER

SL2.1S

Data Book

Data Sheet

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Chapter 1 Pin Assignment

SL2.1S Pinout Diagram

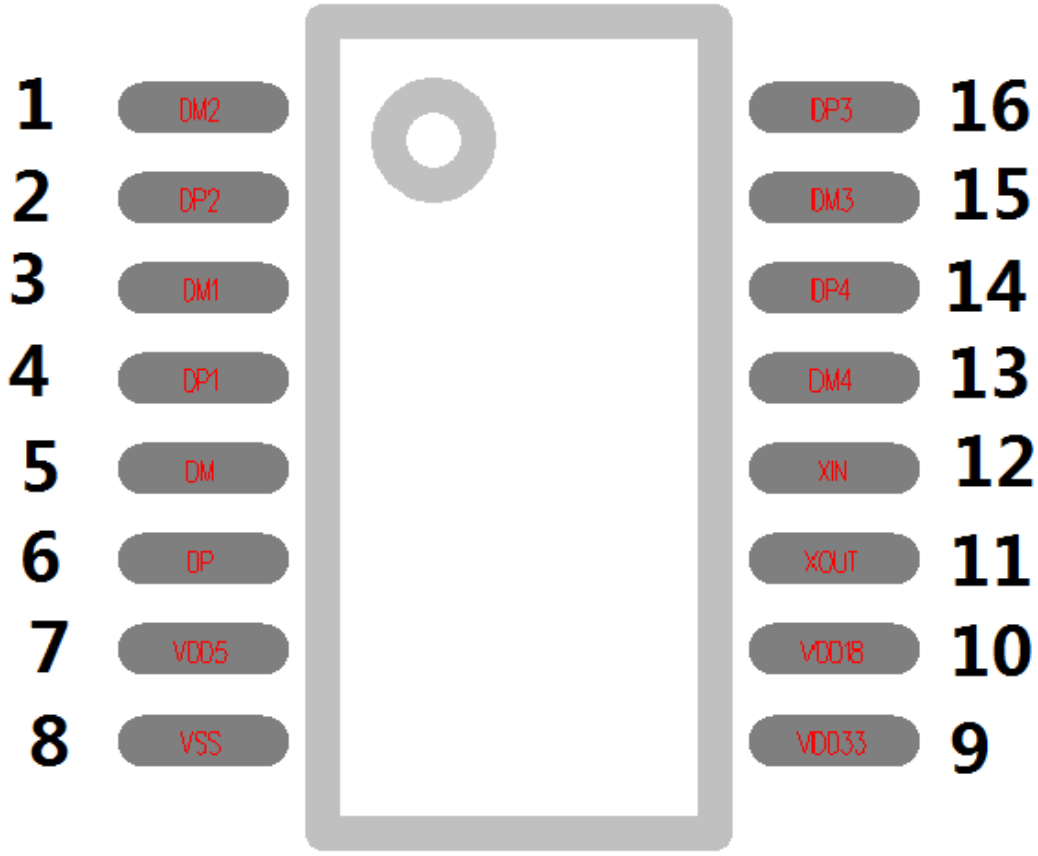

Figure **1**: **SL2.1S** Pinout Diagram

SL2.1S Pin Definition

Pin Name	**16 Pin#**	**Die**	**IO** Type	meaning
DM2	1		B	USB DM signal for downlink port 2
DP2	2		B	USB DP signal for downlink port 2
DM1	3		B	USB DM signal for downlink port 1
DP1	4		B	USB DP signal for downlink port 1
UDM	5		B	USB DM signal for the uplink port
UDP	6		B	USB DP signal for the uplink port
VDD5	7		P	5v input
VSS	8		P	chip land
VDD33	9		P	Internal 3.3v
VDD18	10		P	Internal 1.8v
XOUT	11		O	Crystal Output
XIN	12		I	Crystal Input
DM4	13		P	USB DM signal for downlink port 4
DP4	14		P	USB DM signal for downlink port 4
DM3	15		B	USB DM signal for downlink port 3
DP3	16		B	USB DP signal for downlink port 3

Notes. O, output; I input; B bidirectional; P Power/ground.

Chapter 2 Functional description

2.1 a general narrative

SL2.1S is a highly integrated, high-performance, low-power USB2.0 hub master chip; the chip uses STT technology, single power supply mode, the chip power supply voltage of 5v, internal integration of 5V to 3.3V, only need to add filter capacitors in the external power supply; the chip comes with reset circuit, low-power technology makes it more outstanding.

- Perfectly supports USB2.0 High Speed (480MHz), USB2.0 Full Speed (12MHz), and Low Speed Mode (1.5MHz)
- The SL2.1S requires 12M crystal oscillation externally.
- Integrated 12MHz-to-480MHz PPL (Phase Lock Loop)
- Single Transaction Translator (STT) technology, the most cost effective solution in the *TT series
- Supports automatic enumeration switching from self-powered to bus-powered

2.2 Charging support

The SL2.1S supports the standard BC1.2 charging protocol.

Chapter 3 Electrical characteristics

3.1 Extreme working conditions

Table 1: Maximum Ratings

symbolic	parameters	minimum value	maximum value	unit
V_{DDM}	Power Supply	-0.5	+5.5	V
V_{IN}	Input Voltage for digital I/O	-0.5	+5.5	V

VINUSB	Input Voltage for USB signal (DP, DM) pins	-0.5	+3.6	V
TS	Storage Temperature under bias	-60	+100	℃
FOSC	Frequency	12 MHz ± 0.05%		

3.2 Scope of work

Table 2: Scope of work

symbolic	parameters	minimum value	typical	maximum value	unit
VDD	Power Supply	4.0	5.0	5.25	V
VIND	Input Voltage for digital I/O pins	-0.5	3.3	5.5	V
VINUSB	Input Voltage for USB signal (DP, DM) pins	0.5	3.3	5.25	V
TA	Ambient Temperature	0	-	70	℃

3.3 DC Characteristics

Table 3: DC Electrical Characteristics

symbolic	parameters	minimum value	typical	maximum value	unit
IDD	Supply Current	50	-	120	mA
ISUS	Suspend Current	-	-	2.5	mA

3.4 HS/FS/LS Electrical Characteristics

See the USB 2.0 standard.

3.5 ESD Characteristics

This chip port ESD capability is ±4KV (HBM).

Appendix Packaging

SL2.1S SSOP16

尺寸 / 标注	最小(mm)	最大(mm)	尺寸 / 标注	最小(mm)	最大(mm)
A	4.50	4.70	C	0.85	1.05
A1	0.29	0.39	C1	0.00	0.15
e	0.53 (BSC)		C2	0.15	0.18
B	2.50	2.70	L	0.40	0.60
B1	3.85	4.15	θ	0°	8°
b	0.16	0.26			

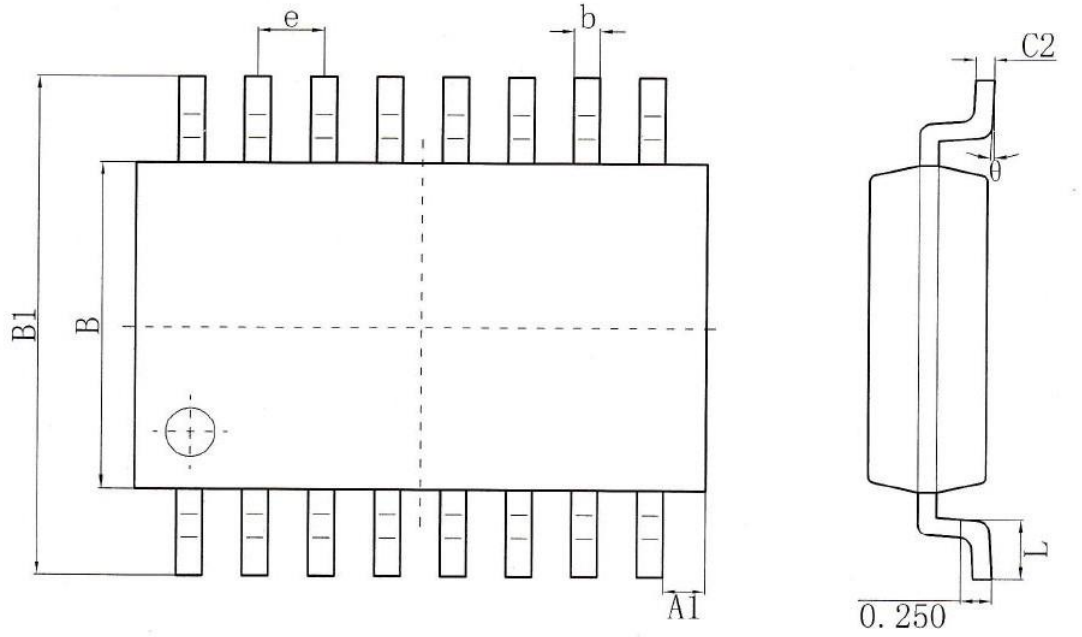

Figure 2: Package Size Diagram