USB2512A

USB 2.0 Hi-Speed 2-Port Hub Controller

PRODUCT FEATURES

Data Brief

General Description

The SMSC 2-Port Hub is a low power, OEM configurable, STT (Single transaction translator) hub controller IC with 2 downstream ports for embedded USB solutions. The 2-port hub is fully compliant with the USB 2.0 Specification and will attach to an upstream port as a Full-Speed Hub or as a Full-/Hi-Speed Hub. The 2-Port Hub supports Low-Speed, Full- Speed, and Hi-Speed (if operating as a Hi-Speed Hub) downstream devices on all of the enabled downstream ports.

General Features

- Hub Controller IC with 2 downstream ports
- Enhanced OEM configuration options available through either a single serial I^2C EEPROM, or SMBus Slave Port
- 36-pin (6x6mm) QFN lead-free, RoHS compliant package

Hardware Features

- Low power operation
- Full Power Management with individual or ganged power control of each downstream port
- On-chip Power On Reset (POR)
- Internal 1.8V Voltage Regulator
- Fully integrated USB termination and Pull-up/Pull-down resistors
- On Board 24MHz Crystal Driver, Resonator or External 24MHz clock input
- Enhanced EMI rejection and ESD protection performance

OEM Selectable Features

- Customizable Vendor ID, Product ID, and Device ID
- Select whether the hub is part of a compound device (When any downstream port is permanently hardwired to a USB peripheral device, the hub is part of a compound device)
- Flexible port mapping and disable sequence. Ports can be disabled/reordered in any order to support multiple product SKUs. Hub will automatically reorder the remaining ports to match the Host controller's numbering scheme.
- Programmable USB differential-pair pin location. Ease PCB layout by aligning USB signal lines directly to connectors
- Programmable USB signal drive strength. Recover USB signal integrity due to compromised system environment using 2-level driving strength resolution
- Select the presence of a permanently hardwired USB peripheral device on a port by port basis
- Configure the delay time for filtering the over-current sense inputs
- Configure the delay time for turning on downstream port power
- Indicate the maximum current that the 2-port hub consumes from the USB upstream port
- Indicate the maximum current required for the hub controller
- Pin Selectable Options for Default Configuration
  - Select Downstream Ports as Non-Removable Ports

Applications

- LCD monitors and TVs
- Multi-function USB peripherals
- PC mother boards
- Set-top boxes, DVD players, DVR/PVR
- Printers and scanners
- PC media drive bay
- Portable hub boxes
- Mobile PC docking
- Embedded systems

ORDER NUMBER:

USB2512A-AEZG FOR 36 PIN, QFN LEAD-FREE ROHS COMPLIANT PACKAGE

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Pin Configuration

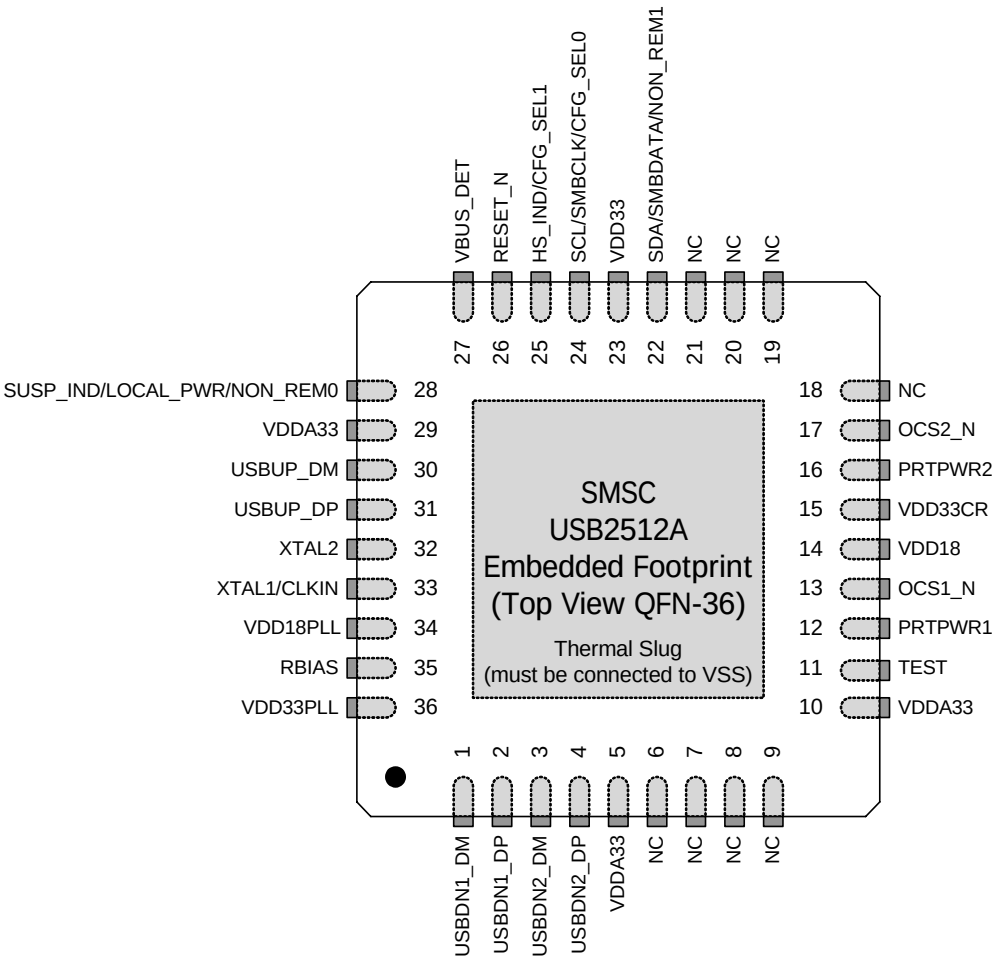


Figure 1 USB2512A 36-Pin QFN (Embedded Footprint)

Block Diagram

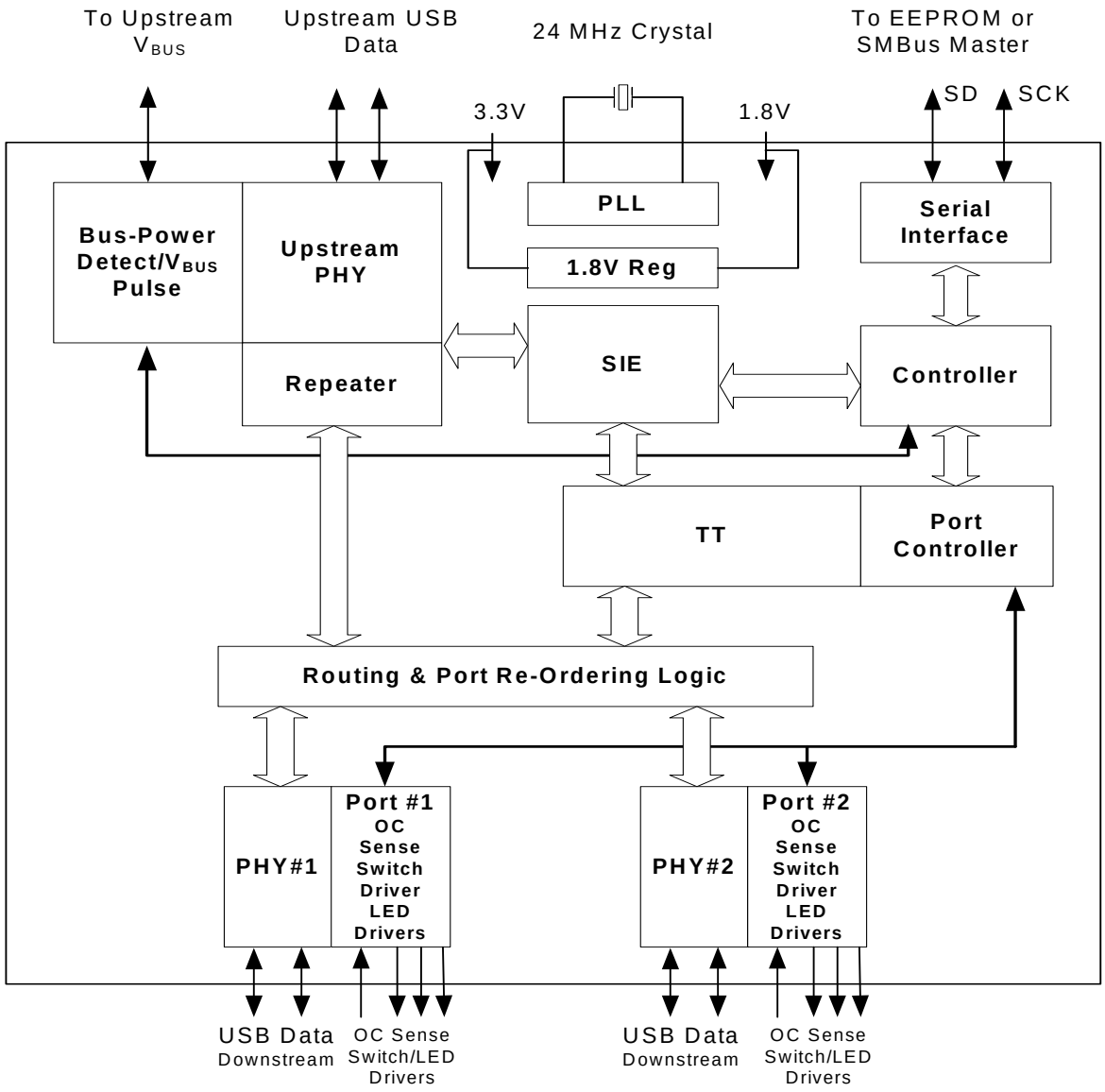
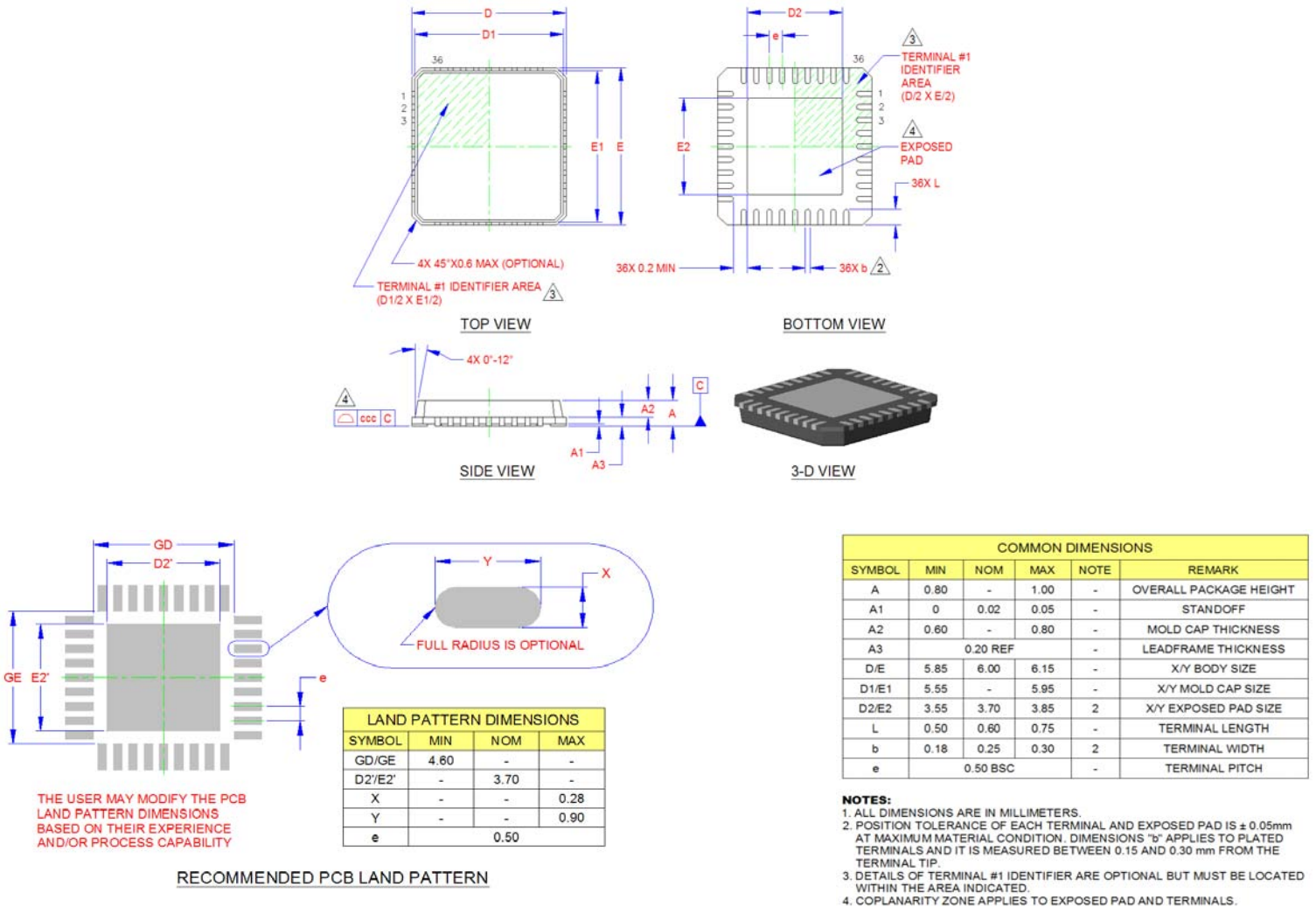


Figure 2 USB2512A Block Diagram

PRODUCT PREVIEW

Package Outline



LAND PATTERN DIMENSIONS			
SYMBOL	MIN	NOM	MAX
GD/GE	4.60	-	-
D2'/E2'	-	3.70	-
X	-	-	0.28
Y	-	-	0.90
e		0.50	

COMMON DIMENSIONS					
SYMBOL	MIN	NOM	MAX	NOTE	REMARK
A	0.80	-	1.00	-	OVERALL PACKAGE HEIGHT
A1	0	0.02	0.05	-	STANDOFF
A2	0.60	-	0.80	-	MOLD CAP THICKNESS
A3		0.20 REF		-	LEADFRAME THICKNESS
D/E	5.85	6.00	6.15	-	X/Y BODY SIZE
D1/E1	5.55	-	5.95	-	X/Y MOLD CAP SIZE
D2/E2	3.55	3.70	3.85	2	X/Y EXPOSED PAD SIZE
L	0.50	0.60	0.75	-	TERMINAL LENGTH
b	0.18	0.25	0.30	2	TERMINAL WIDTH
e		0.50 BSC		-	TERMINAL PITCH

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. POSITION TOLERANCE OF EACH TERMINAL AND EXPOSED PAD IS ± 0.05mm AT MAXIMUM MATERIAL CONDITION. DIMENSIONS "b" APPLIES TO PLATED TERMINALS AND IT IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.
3. DETAILS OF TERMINAL #1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE AREA INDICATED.
4. COPLANARITY ZONE APPLIES TO EXPOSED PAD AND TERMINALS.

Figure 3 36-Pin QFN, 6x6mm Body, 0.5mm Pitch

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USB2512A-AEZG USB2512A-AEZG-TR

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