



USB2512



USB 2.0 High-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-/High-Speed Hub. The 2-Port Hub supports Low-Speed, Full-Speed, and High-Speed (if operating as a High-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 I²C 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

- Customize 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:**USB2512-AEZG FOR 36 PIN, QFN LEAD-FREE ROHS COMPLIANT PACKAGE**

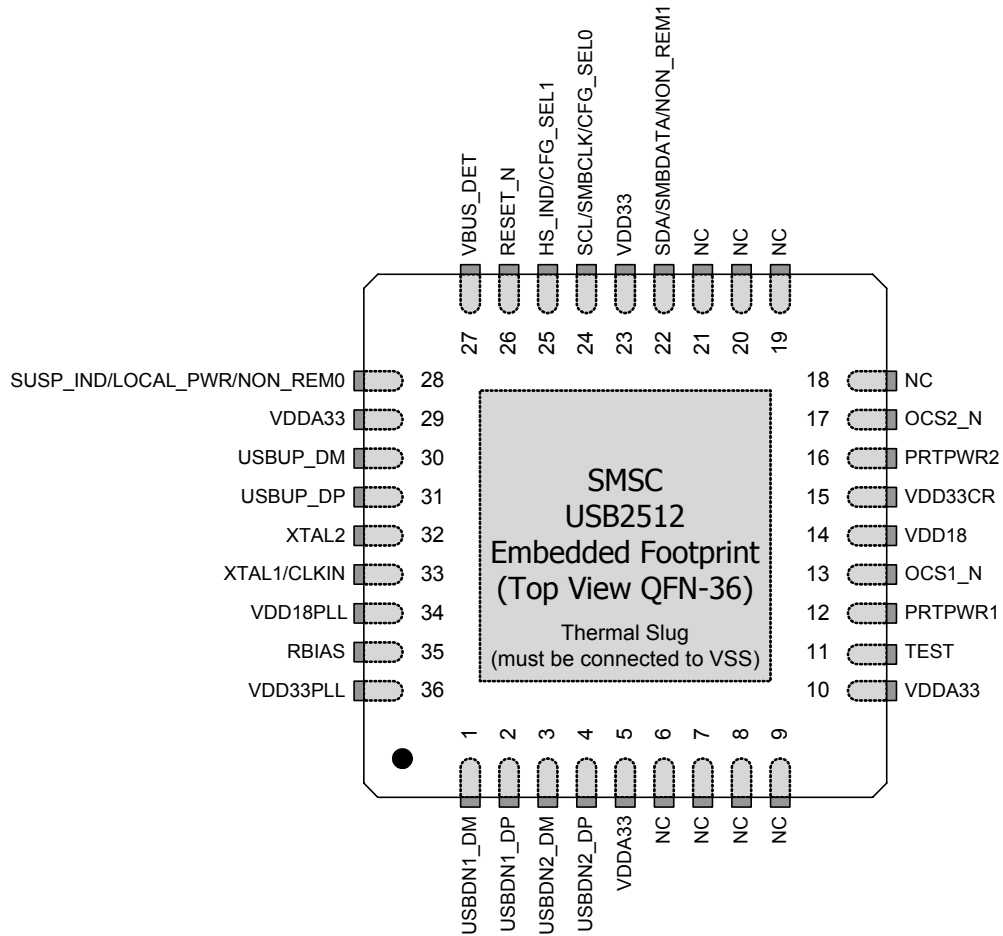
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Pin Configuration



Indicates pins on the bottom of the device.

Figure 1 USB2512 36-Pin QFN (Embedded Footprint)

Block Diagram

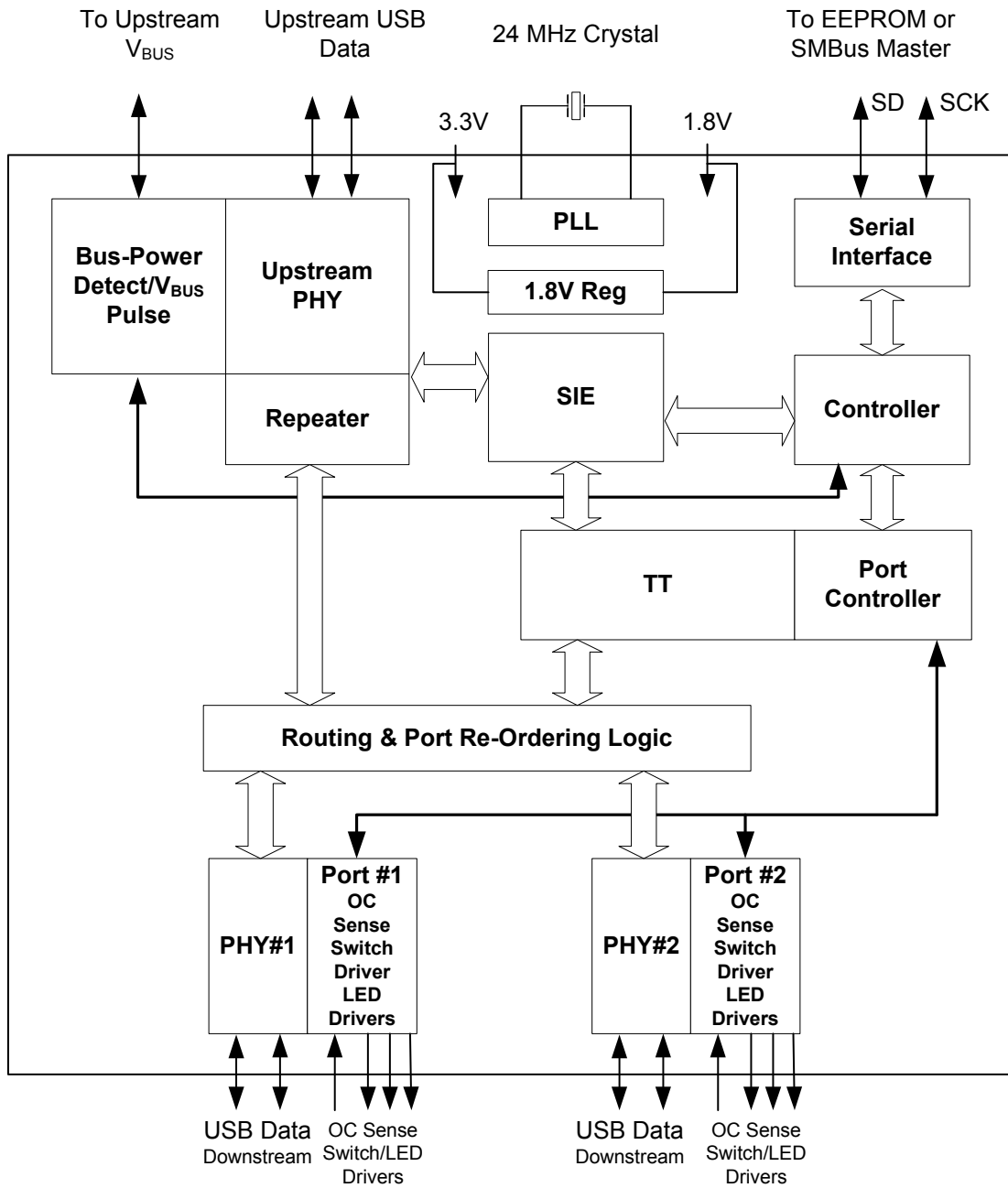
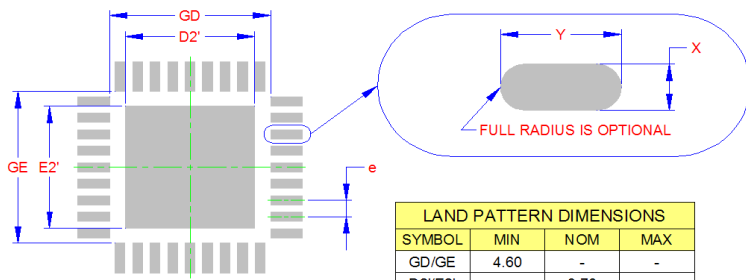
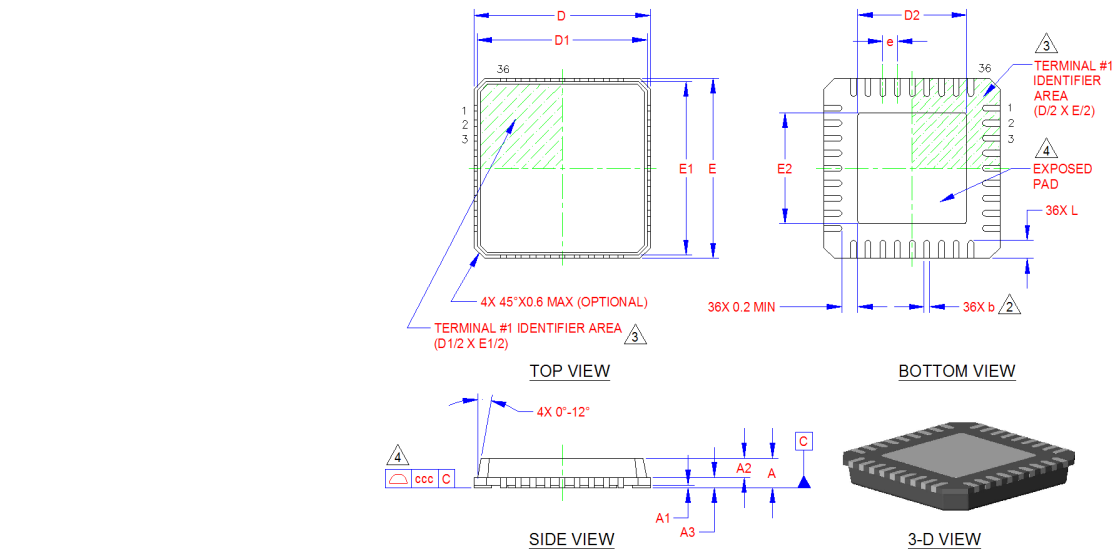


Figure 2 USB2512 Block Diagram

Package Outline



THE USER MAY MODIFY THE PCB LAND PATTERN DIMENSIONS BASED ON THEIR EXPERIENCE AND/OR PROCESS CAPABILITY

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	
A	0.80	-	1.00	-	OVERALL
A1	0	0.02	0.05	-	
A2	0.60	-	0.80	-	MOLD
A3	-	0.20 REF	-	-	LEADFF
D/E	5.85	6.00	6.15	-	X/Y
D1/E1	5.55	-	5.95	-	X/Y M
D2/E2	3.55	3.70	3.85	2	X/Y EX
L	0.50	0.60	0.75	-	TER
b	0.18	0.25	0.30	2	TER
e	-	0.50 BSC	-	-	TER

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

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

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