USB2517

USB 2.0 Hi-Speed 7-Port Hub Controller

PRODUCT FEATURES

Data Brief

General Description

The SMSC 7-Port Hub is a low power, OEM configurable, MTT (multi transaction translator) hub controller IC with 7 downstream ports for embedded USB solutions. The 7-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 7-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 7 downstream ports
- High-performance multiple transaction translator MultiTRAK™ Technology provides one transaction translator per port
- Enhanced OEM configuration options available through either a single serial I^2C^{TM} EEPROM, or SMBus Slave Port
- 64-Pin (9x9 mm) 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
- USB host/device speed indicator. Per-port 3-color LED drivers indicate the speed of USB host and device connection - hi-speed (480 Mbps), full-speed (12 Mbps), low-speed (1.5 Mbps)
- 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
  - — Eases PCB layout by aligning USB signal lines directly to connectors
- Programmable USB signal drive strength. Recover USB signal integrity due to compromised system environments using 4-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 7-port hub consumes from the USB upstream port
- Indicate the maximum current required for the hub controller
- Support Custom String Descriptor up to 31 characters in length for:
  - – Product String
  - – Manufacturer String
  - – Serial Number String
- Pin Selectable Options for Default Configuration
  - — Select Downstream Ports as Non-Removable Ports
  - — Select Downstream Ports as Disabled Ports
  - — Select Downstream Port Power Control and Over-Current Detection on a Ganged or Individual Basis
  - — Select USB Signal Drive Strength
  - — Select USB Differential Pair Pin location

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(s):

USB2517-JZX for 64-pin, QFN lead-free RoHS compliant package

This product meets the halogen maximum concentration values per IEC61249-2-21

For RoHS compliance and environmental information, please visit www.smsc.com/rohs

Pin Configuration

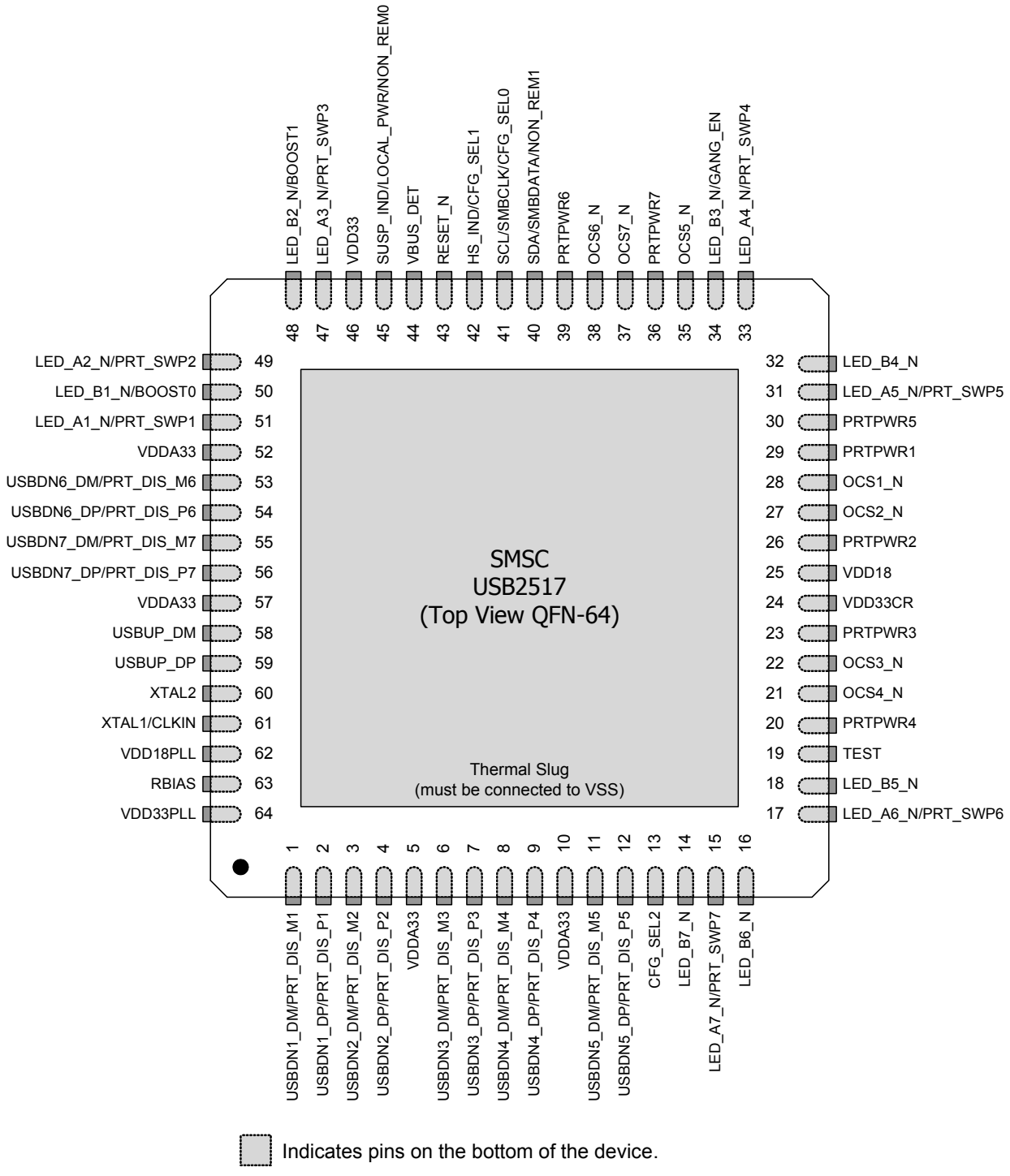


Figure 1 USB2517 64-Pin QFN Diagram

PRODUCT PREVIEW

Block Diagram

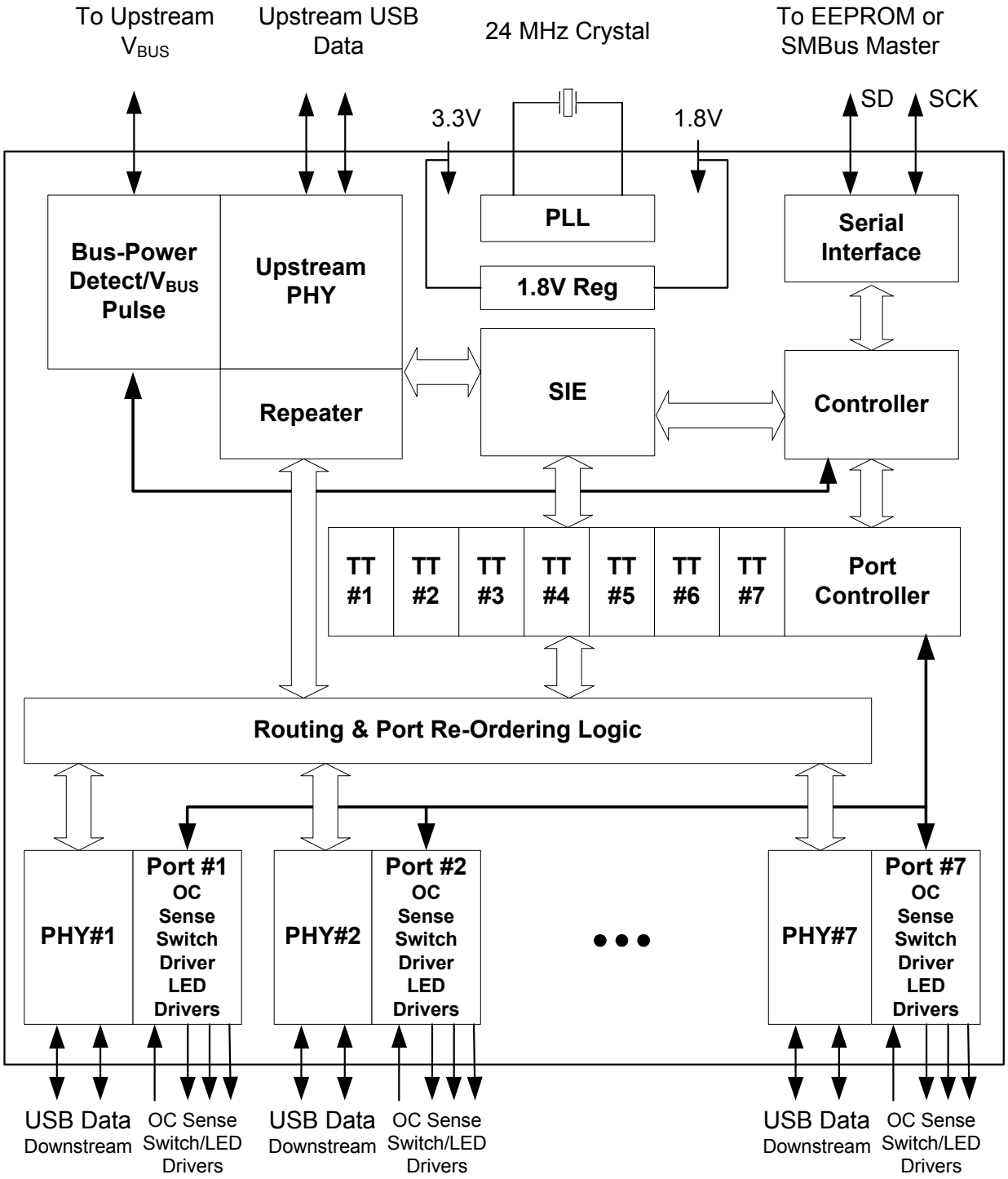
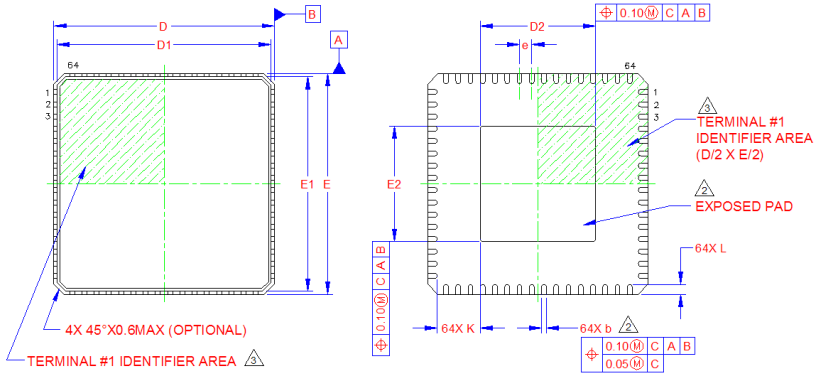
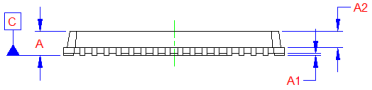


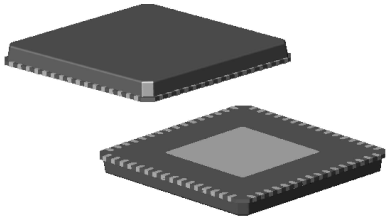
Figure 2 USB2517 Block Diagram

Package Outline

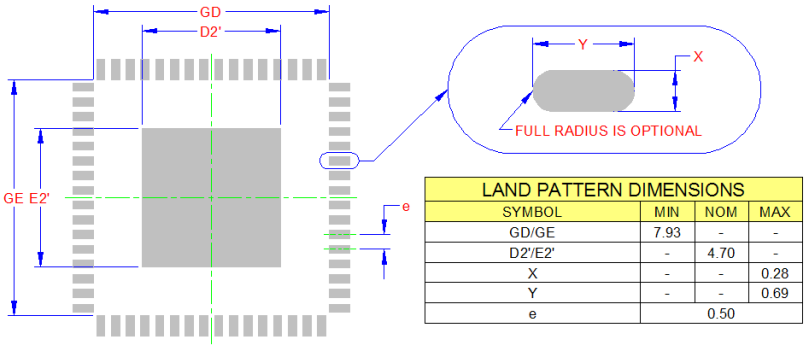




SIDE VIEW



3-D VIEWS



LAND PATTERN DIMENSIONS			
SYMBOL	MIN	NOM	MAX
GD/GE	7.93	-	-
D2'/E2'	-	4.70	-
X	-	-	0.28
Y	-	-	0.69
e		0.50	

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

RECOMMENDED PCB LAND PATTERN

COMMON DIMENSIONS					
SYMBOL	MIN	NOM	MAX	NOTE	REMARK
A	0.80	0.85	1.00	-	OVERALL PACKAGE HEIGHT
A1	0	0.02	0.05	-	STANDOFF
A2	-	0.65	0.80	-	MOLD CAP THICKNESS
D/E	8.90	9.00	9.10	-	X/Y BODY SIZE
D1/E1	8.65	8.75	8.85	-	X/Y MOLD CAP SIZE
D2/E2	4.60	4.70	4.80	2	X/Y EXPOSED PAD SIZE
L	0.30	0.40	0.50	4	TERMINAL LENGTH
b	0.18	0.25	0.30	2	TERMINAL WIDTH
e	0.50 BSC			-	TERMINAL PITCH

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETER.
2. 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. THE TERMINAL #1 IDENTIFIER MAY BE EITHER A MOLD OR MARKED FEATURE.

Figure 2.1 64-Pin QFN, 9x9mm Body, 0.5mm Pitch

Mouser Electronics

Authorized Distributor

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Microchip:

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