



July 2008

# FSUSB46 — Hi-Speed USB2.0 (480Mbps) DPST Switch with Dedicated Charger Port Detection

## Features

- Low On Capacitance: 7.0pF Typical
- Low On Resistance: 3.9Ω Typical
- Low Power Consumption: 1μA Maximum
  - 15μA Maximum  $I_{OCT}$  over an Expanded Voltage Range ( $V_{IN}=1.8V$ ,  $V_{CC}=4.3V$ )
- Wide -3db Bandwidth: > 720MHz
- Packaged in Pb-free, 8-Lead MicroPak™ (1.6mm wide), US8 (3.1mm wide), and UMLP (1.4x1.4mm)
- 8kV ESD Rating, >16kV Power/GND ESD Rating
- Power-Off Protection on All Ports When  $V_{CC}=0V$ 
  - D+/D- Pins Tolerate up to 5.25V

## Applications

- Cell phone, PDA, Digital Camera, and Notebook
- LCD Monitor, TV, and Set-Top Box

## IMPORTANT NOTE:

For additional performance information, please contact [analogswitch@fairchildsemi.com](mailto:analogswitch@fairchildsemi.com).

## Description

The FSUSB46 is a bi-directional, low-power, Hi-Speed, USB2.0 switch. Configured as a double-pole, single-throw switch (DPST) switch, it is optimized for switching a Hi-Speed (480Mbps) source.

The FSUSB46 is compatible with the requirements of USB2.0 and features an extremely low on capacitance ( $C_{ON}$ ) of 3.9pF. The wide bandwidth of this device (720MHz) exceeds the bandwidth needed to pass the third harmonic, resulting in signals with minimum edge and phase distortion. Superior channel-to-channel crosstalk also minimizes interference.

The FSUSB46 contains special circuitry on the switch I/O pins for applications where the  $V_{CC}$  supply is powered-off ( $V_{CC}=0$ ), which allows the device to withstand an over-voltage condition. This device is designed to minimize current consumption even when the control voltage applied to the /OE pin is lower than the supply voltage ( $V_{CC}$ ). This feature is especially valuable to ultra-portable applications, such as cell phones, allowing for direct interface with the general-purpose I/Os of the baseband processor. An additional feature is the detection of the 1-1 (high/high) state on D+/D- to signal an interrupt (INT) to the processor when entering a dedicated charging port mode of operation.

## Ordering Information

| Part Number | Operating Temperature Range | Package                                                      | Eco Status |
|-------------|-----------------------------|--------------------------------------------------------------|------------|
| FSUSB46L8X  | -40 to +85°C                | 8-Lead MicroPak™ 1.6mm Wide                                  | RoHS       |
| FSUSB46K8X  | -40 to +85°C                | 8-Lead US8, JEDEC MO187, Variation CA 3.1mm                  | Green      |
| FSUSB46UMX  | -40 to +85°C                | 8-Lead Ultrathin Molded Leadless Package (UMLP), 1.2 x 1.4mm | Green      |

For Fairchild's definition of "green" Eco Status, please visit: [http://www.fairchildsemi.com/company/green/rohs\\_green.html](http://www.fairchildsemi.com/company/green/rohs_green.html).

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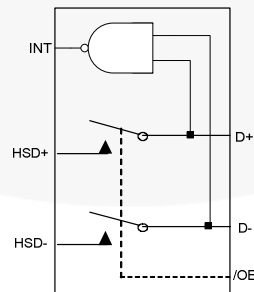


Figure 1. Analog Symbol

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| CorePLUS™                                                                         | F-PFST™                | Power-SPM™                                                                        | the power franchise                                                                 |
| CorePOWER™                                                                        | FRFET®                 | PowerTrench®                                                                      | TinyBoost™                                                                          |
| CROSSVOLT™                                                                        | Global Power Resource™ | Programmable Active Droop™                                                        | TinyBuck™                                                                           |
| CTL™                                                                              | Green FPST™            | QFET®                                                                             | TinyLogic®                                                                          |
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| FACT Quiet Series™                                                                | MillerDrive™           | SuperFET™                                                                         | UniFET™                                                                             |
| FACT®                                                                             | MotionMax™             | SuperSOT™.3                                                                       | VCX™                                                                                |
| FAST®                                                                             | Motion-SPM™            | SuperSOT™.6                                                                       | VisualMax™                                                                          |
| FAST®                                                                             | OPTOLOGIC®             | SuperSOT™.8                                                                       |                                                                                     |
| FastvCore™                                                                        | OPTOPLANAR®            | SupreMOS™                                                                         |                                                                                     |
| FlashWriter® *                                                                    |                        | SyncFET™                                                                          |                                                                                     |
|                                                                                   |                        |  |                                                                                     |

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