FAIRCHILD SEMICONDUCTOR®

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FSUSB42 — Low-Power, Two-Port, Hi-Speed, USB2.0 (480Mbps) Switch

Features

- Low On Capacitance: 3.7pF Typical
- Low On Resistance: 3.9Ω Typical
- Low Power Consumption: 1µA Maximum
  - 15µA Maximum I_{CCT} over an Expanded Voltage Range (V_{IN}=1.8V, V_{CC}=4.3V)
- Wide -3db Bandwidth: > 720MHz
- Packaged in:
  - 10-Lead UMLP (1.4 x 1.8mm)
  - 10-Lead MSOP
- 8kV ESD Rating, >16kV Power/GND ESD Rating
- Over-Voltage Tolerance (OVT) on all USB Ports Up to 5.25V without External Components

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.

Description

The FSUSB42 is a bi-directional, low-power, two-port, Hi-Speed, USB2.0 switch. Configured as a double-pole, double-throw switch (DPDT) switch, it is optimized for switching between two Hi-Speed (480Mbps) sources or a Hi-Speed and Full-Speed (12Mbps) source.

The FSUSB42 is compatible with the requirements of USB2.0 and features an extremely low on capacitance (C_{ON}) of 3.7pF. 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 FSUSB42 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 SEL 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. Other applications include switching and connector sharing in portable cell phones, PDAs, digital cameras, printers, and notebook computers.

Ordering Information

Part Number	Top Mark	Operating Temperature Range	Eco Status	Package
FSUSB42UMX	HE	-40 to +85°C	Green	10-Lead, Quad, Ultrathin Molded Leadless Package (UMLP), 1.4 x 1.8mm
FSUSB42MUX	FSUSB42	-40 to +85°C	RoHS	10-Lead, Molded Small Outline Package (MSOP) JEDEC MO-187, 3.0mm Wide

For Fairchild's definition of "green" Eco Status, please visit: http://www.fairchildsemi.com/company/green/rohs_green.html.

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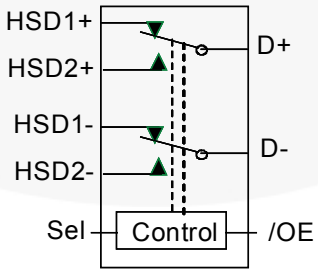

Figure 1. Analog Symbol

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Definition of Terms

Datasheet Identification	Product Status	Definition
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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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