

## Application: Hand-held Devices Pericom Device: PI3USB10 Dual 1:2 Multiplexer / USB2.0 Switch

### Overview

As the mobile market is still blooming the request for a friendlier human interface is required. Also, external appearance is becoming a major factor when choosing a mobile phone.

Every mobile owner has seen a bulky, and most of the time useless connector located at the bottom side of the handset. How about changing it to a smaller connector? E.g.: The application idea is to use mini-USB or a 1394 connector, (Fig 1) which are much smaller and aesthetics. But by using this simple connector, you'll need to switch the signal to processor between conventional UART and USB anytime it's needed.

### System request

The system is asking for the input port to have little signal distortion effect. Also when the cell phone is power-off, the input signal state at the port should not affect the normal working of the chips. A miniature package is also a must as it's to be easily included in the space constrained design.

Important criteria for the switch:

1. Low signal distortions
2. Able to switch differential and analog signals
3. High-Impedance I/O while power-Off
4. Low On resistance
5. Low power consumption
6. Bandwidth flexibility
7. Small package, ease of use
8. Good ESD protection

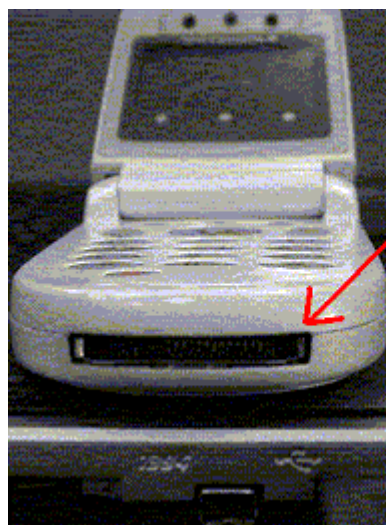


Fig. 1: Typical Cell Phone connector

### The Pericom Solution

Pericom's PI3USB10 switch fulfills the system request. The device offers a very small size package, and is hot-swap capable. PI3USB10 is perfectly fit for differential data switching with low noise, and low cross-talk.

### PI3USB10 is Key In this App because:

- Alternate solution requires blocking diode (Fig 2). And this blocking diode will affect the supply voltage supply to the switch, thus affecting the On-resistance.
- No concern of damaging inadvertently backend devices while the input data pins are logic high while handset power-off.
- I/O 5V resistance will allow the designer to have a larger selection for the application the mobile can link.
- High flexibility for data transfer rate since the switch maximum frequency bandwidth is over 500MHz.

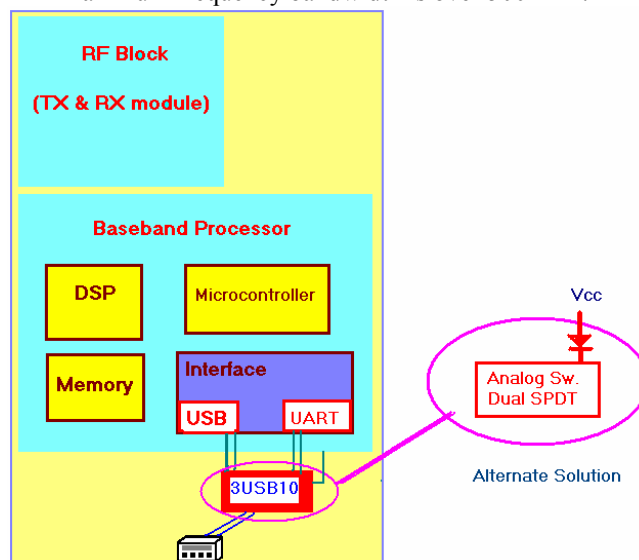


Fig 2. Simplified Cell Phone block diagram with USB connection

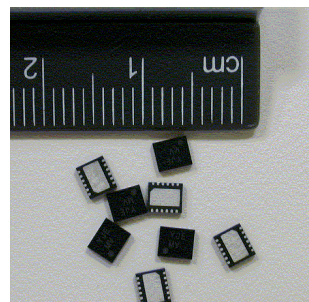


Fig 3. PI3USB10 in 12-contact TDFN package

## Key Features & Specifications

- ❑ PI3USB10
  - Hot-Swap capable
    - No effect at the I/O while Vcc=0V
  - High-Bandwidth: > 500MHz
  - Near-Zero propagation delay
  - Differential signal switching
  - Rail-to-Rail output
  - Low On-Resistance: 4-ohms
  - ESD protection > 2000V HBM
  - 3x3.5mm 12-contact TDFN package

## Key Benefits

- ❑ Good replacement for analog switch with higher bandwidth.
- ❑ No need of blocking diodes, no voltage drop.
- ❑ Low profile package is Pb-Free and Green

## Product Status

- ❑ Samples Now
- ❑ Production Now

Application idea not limited to mobile phone. PDA, Digital Media player as Digital Album also requires such a switch.

## Additional Information

- ❑ Website
  - Datasheets, IBIS models, Package Data
- ❑ <http://www.pericom.com/products/switch/assp/psempart.php?productID=PI3USB10>
- ❑ Order Literature Online
  - Product Selection Guide
  - Databook CD

## Contact Information

Please contact your local Pericom Sales Representative or franchised distributor. Contact list provided on the web:

<http://www.pericom.com/contact>

Or receive [Application Support](#)