Future Technology Devices International Ltd.
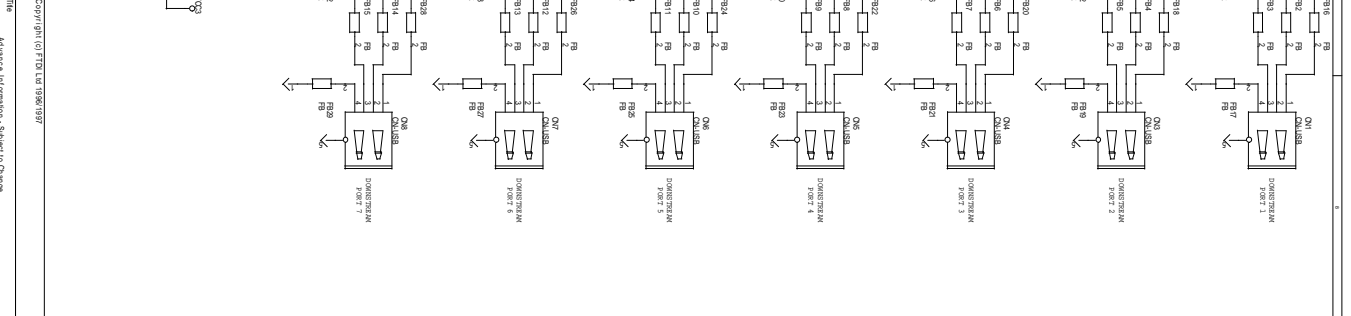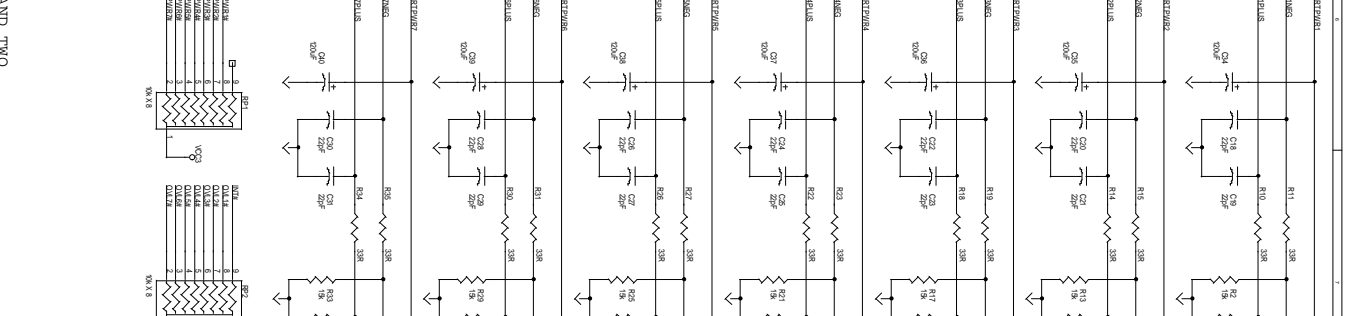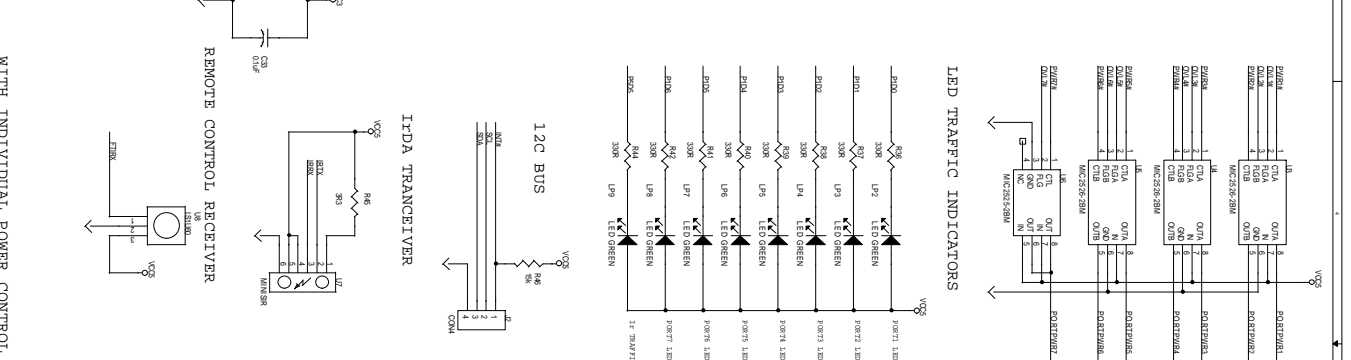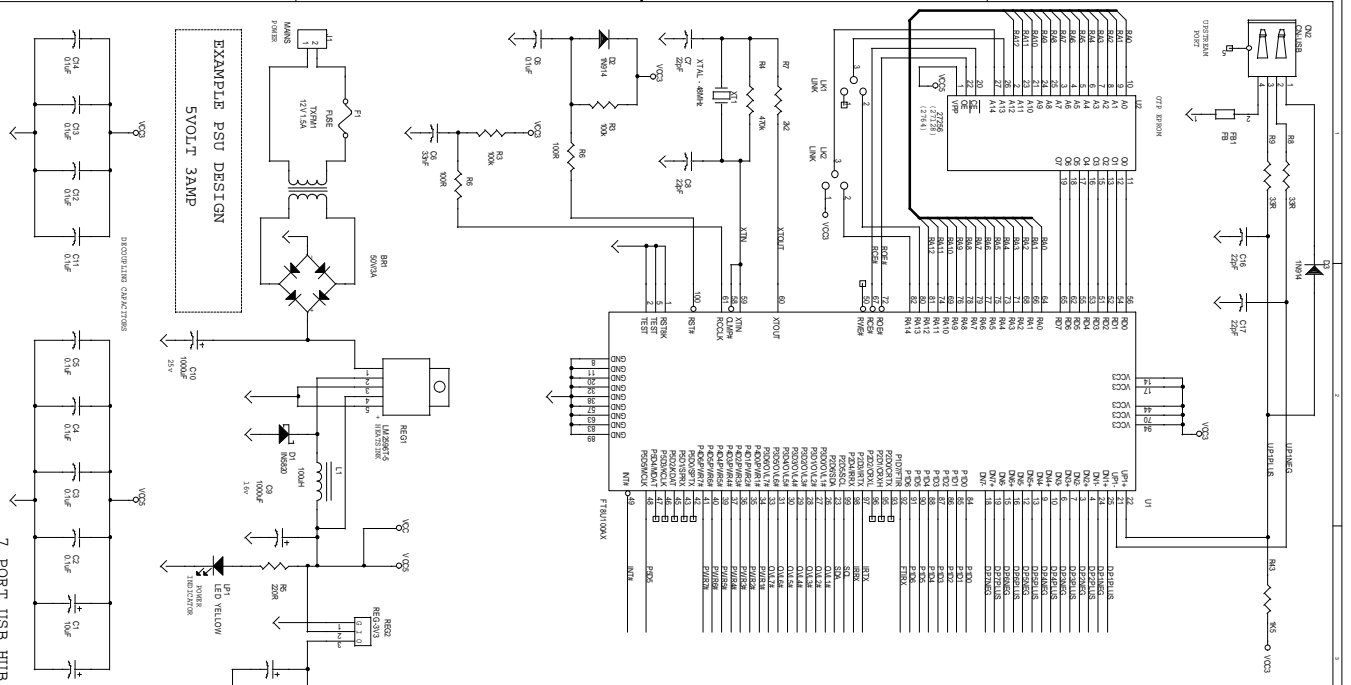## FT8U100AX USB Compound Hub Controller

Overview

The FT8U100AX USB hub and peripheral controller is specifically designed for implementing a wide range of USB hub devices including those with embedded functions such as Ir remote controls, IrDA and wireless communications, monitor controllers etc.. The device includes the USB repeater and hub controller blocks together with an embedded EMCU micro-controller and many associated peripheral blocks to perform the embedded functions. Included is support for legacy devices such as PS/2 keyboards and mice, serial and parallel ports and a master/slave Access Bus (I^2C) controller for monitor applications. Firmware is in a low-cost external OTP ROM which allows maximum flexibility for many different product configurations.

With its 7 downstream ports and support for self powered or bus powered power sources and gang switched or per-port switched USB power management the FT8U100AX USB hub represents a very wide ranging and flexible solution for most USB hub requirements whilst its low external part count keeps manufacturer's product cost to a minimum.

The FT8U100AX's wide ranging capabilities make it the ideal choice for application areas such as stand-alone hub boxes (self or bus powered) with value added functions such as Ir multi-media wireless remote and game-pad controllers, USB monitor-hubs with extended Ir capabilities, USB keyboard hubs etc. The FT8U100AX uses 3.3 volt process technology which lowers power consumption and reduces electrical noise emissions thus making it easier for products using this device to conform to FCC and CE emission requirements.

Features

- Integral high speed USB interface (UPI) and hub repeater / controller block compliant with USB Specification 1.0

- Integral EMCU micro-controller with external OTP ROM, 256 byte data memory, timer and parallel I/O ports.

- Up to 7 USB downstream ports and 1 upstream USB port.

- Support for self powered and bus powered device configurations.

- Gang switched or Per-Port switched power management support.

- Support for IrDA standard SIR and CIR wireless communication protocols.

- Support for FT-Ir multimedia remote control, Ir game-pad and Monitor Remote controller using associated FT8IR24 Ir transmitter device.

- Master / Slave Access Bus (I^2C) controller for USB Monitor-HUB applications.

- Low power USB Suspend / Resume mode

- 3.3 volt technology provides consistent performance over the entire operating voltage spectrum of USB, and eliminates USB drop and droop voltage supply problems

- Reduced electrical noise emission through the use of 3.3v technology helps products to conform with FCC and CE electrical interference regulations.

- Low component count even for applications with embedded functions.

- 100 pin PQFP package

EXAMPLE PSU DESIGN
5VOLT 3AMP

DECOUPLING CAPACITORS

7 PORT USB HUB

WITH INDIVIDUAL POWER CONTROL
STATUS INDICATORS ON EACH PORT

OVER-CURRENT DETECT AND TWO

REMOTE CONTROL RECEIVER

IrDA TRANCEIVER

I2C BUS

LED TRAFFIC INDICATORS

FT8U100AX

27256 (27128)
(27C64)
EPROM

UPSTREAM PORT

DOWNSTREAM PORT 1
DOWNSTREAM PORT 2
DOWNSTREAM PORT 3
DOWNSTREAM PORT 4
DOWNSTREAM PORT 5
DOWNSTREAM PORT 6
DOWNSTREAM PORT 7

XTAL - 48MHz

LM2925T-5

1N4148

POWER INDICATOR
LED YELLOW

MAINS POWER
TXFMR1 12V1.5A

Document Number
FT8U100AA APPLICATION SCHEMATIC

Size C

Date Monday, December 08, 1997

Rev 1.0