



TP6837

USB RF 2.4G Presenter Device

Application Note

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AMENDMENT HISTORY

Version	Date	Description
V1.0	Feb, 2011	New release

CONTENTS

AMENDMENT HISTORY	2
PRODUCT NAME	4
TITLE	4
APPLICATION NOTE	4
Introduction	4
Applications.....	4
Features	4
Circuit design	4
1. Function Key Circuit.....	4
2. PWM Output for LED Circuit.....	4
3. OSC Circuit	5
4. Accelerometer Circuit (optional)	5
5. RF module	5
6. Gyroscope Circuit.....	5
Application Circuit	6

PRODUCT NAME

TP6837

TITLE

USB RF 2.4G Presenter Device

APPLICATION NOTE**Introduction**

The TP6837 is a wireless presenter device. It uses tenx motion sensing technology and can control the windows cursor in the air to free you from desk. It is provided with presenter functions such as laser, magnifier, and marker pen.

Applications

1. Mice
2. Presenter Functions
3. Remote Controls
4. Virtual Reality

Features

1. TP6837 USB Full Speed motion sensing Controller.
2. Desk-off Mice
3. 2.4G Wireless transceiver.
4. tenx Motion sensor technology.
5. LED Indicators.

Circuit design

TP6837 wireless presenter device offers high performance and accurate sensor circuit.

1. Function Key Circuit

The TP6837 supports 5 function keys. All function keys are connected to the MCU GPIO. The firmware will poll GPIO to get the key status.

2. PWM Output for LED Circuit

The LED indicators display the connection status. For example: frequency scanning, connection strength, link quality and low battery. The MCU controls LED to light on/off through the PWM Duty cycle.

3. OSC Circuit

The Pin FX1/FX2 is connected to a 24 MHz crystal. In Fast mode, the circuit provides CPU clock and USB clock when TP6837 is plugged into a USB port. In Slow mode, the external RC, connected to the RCOSC pin, provides clock to the MCU. In addition, The TP6837 incorporates the wake up timer to trigger WUPINT per 0.5s. The wake up timer clock source comes from the 32.768 KHz crystal, which is connected to LX1 and LX2 pin.

4. Accelerometer Circuit (optional)

The three-axis accelerometer sensor is used to sense the momentum of hand motion so that the MCU can transform the momentum data through SPI bus from the accelerometer sensor. In addition, the decoupling capacitors (0.1 uF and 10 uF capacitors) in circuit can adequately decouple the accelerometer from the power supply noise.

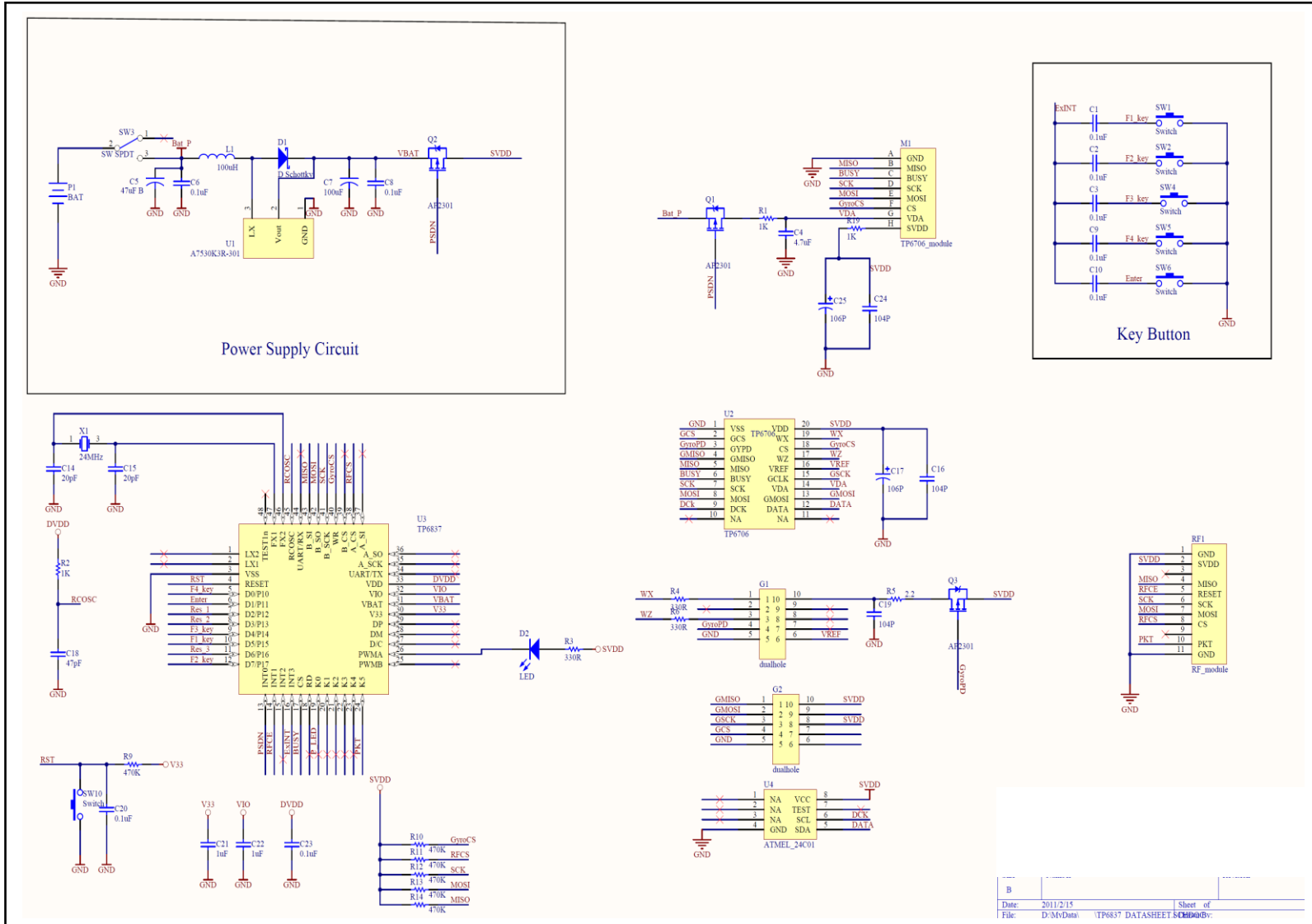
5. RF module

The RF module is a 2.4 GHz RF transceiver. The TP6837 firmware can control the RF module to avoid other noise baseband. Two TP6837 Presenter devices can be connected to one dongle at the same time, too.

6. Gyroscope Circuit

Power supply decoupling capacitors (100 nF and 10 μ F ceramic) should be placed as near as possible to the device (common design practice). The Gyroscope VDDA (pin 16) and VDDD (pin 15) lines should be kept separated to avoid switching noise coupling on the analog side.

Application Circuit



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