



PCT 433MHz TX/RX Module

General Description:

PCT 433MHz TX/RX module is designed for low cost 433MHz ISM band wireless applications using AMICCOM A7108 FSK transceiver with Microchip PIC16LF1824 MCU. Module can be controlled by UART port. Transmitted data will be encrypted by CRC. The maximum data rate is 250kbps. Maximum output power is 1.67dBm.

Interface:

I/O Port

Pin No.	Symbol	Function Description
1	VCC	3.3V power supply
2	OSC	Grond
3	RX	UART RX Pin
4	TX	UART TX Pin
5	GND	Ground

Firmware Upgrade Port

Pin No.	Symbol	Function Description
1	VDD	3.3V power supply
2	VPP	MCU programming voltage
3	SPDAT	MCU program data pin
4	SPCLK	MCU program clock pin
5	GND	Ground

Application:

- Logistic,
- Container,
- Warehouses,
- Access Control,
- Properties Tracking,
- Security,
- Home automation,
- Wireless Sensor,

Communication Protocol:**1. UART Specification**

Baud Rate : 9600

Data : 8 bit

Parity : None

Stop : 1 bit

Flow control: None

Package Size: 32bytes

2. Data Format:

Address	Description
1	Start byte 0XAA
2~3	Customer ID
4~5	Machine ID
6~31	Data
32	Checksum

3. Paring

Press and hold 2 buttons on RX module will start paring. Machine ID (2 bytes) will be stored in RX/TX module.

4. Transmitter

Initialization: (System to Module)

Address	Name	Type	No. of Byte	Description
1	Start byte		1	0XAA (0XAA for TX module)
2	TX/RX		1	0X00 (TX: 0X00, RX: 0X01)
3	Test Mode		1	Normal: 0X00, Test Mode: 0x01. No frequency hopping in test mode.
4-31	Data		28	TBC
32	Checksum		1	Checksum

Data: (System to Module)

Address	Name	Type	No. of Byte	Description
1	Start Byte		1	Start byte equal to 0x55
2	Machine ID		1	Machine ID of RX module to be sent (ID: 1 to 64)
3-31	Data		29	Customer can define the data format
32	Checksum		1	Checksum of 31 bytes data

Data: (Module to System)

Address	Name	Type	No. of Byte	Description
1	Start Byte		1	0X88 Data Transmitted success, No Data received. 0X8A Data Transmitted success, Data Received. 0X80 UART Transmitted failed 0X81 Data Transmitted failed
2	Machine ID		1	Machine ID of RX module that data received (ID: 1 to 64)
3-30	Data		29	Customer can define the data format
32	Checksum		1	Checksum of 31 bytes data

5. Receiver

Initialization: (System to Module)

Address	Name	Type	No. of Byte	Description
1	Start byte		1	0XAA
2	TX/RX		1	0X01 (TX: 0X00, RX: 0X01)
3	Test Mode		1	Normal: 0X00, Test Mode: 0x01. No frequency hopping in test mode.
4-31	Data		28	TBD, All data equal to 0X00
32	Checksum		1	Checksum

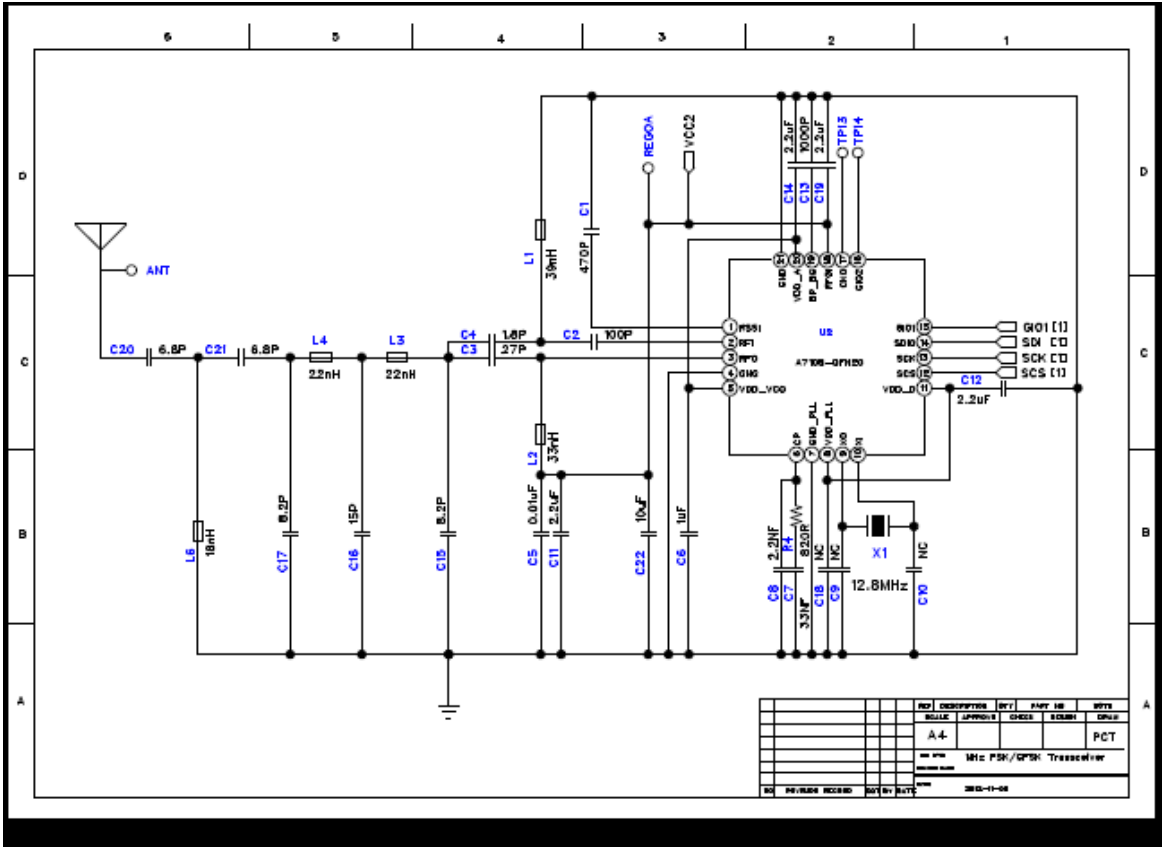
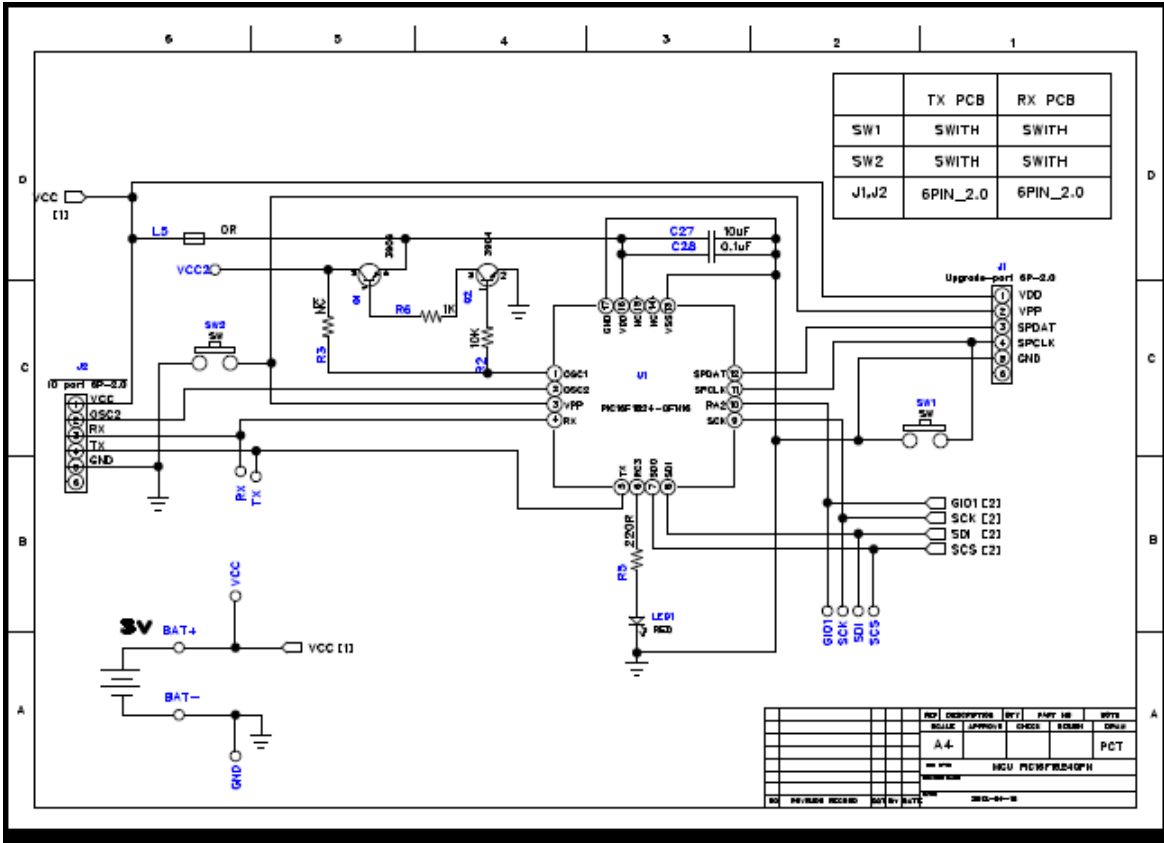
Data: (Module to System)

Address	Name	Type	No. of Byte	Description
1	Start Byte		1	0X88 Data Transmitted success, No Data received. 0X8A Data Transmitted success, Data Received. 0X80 UART Transmitted failed 0X81 Data Transmitted failed
2	Machine ID		1	Machine ID of RX module(ID: 1 to 64)
3-30	Data		29	Customer can define the data format
32	Checksum		1	Checksum of 31 bytes data

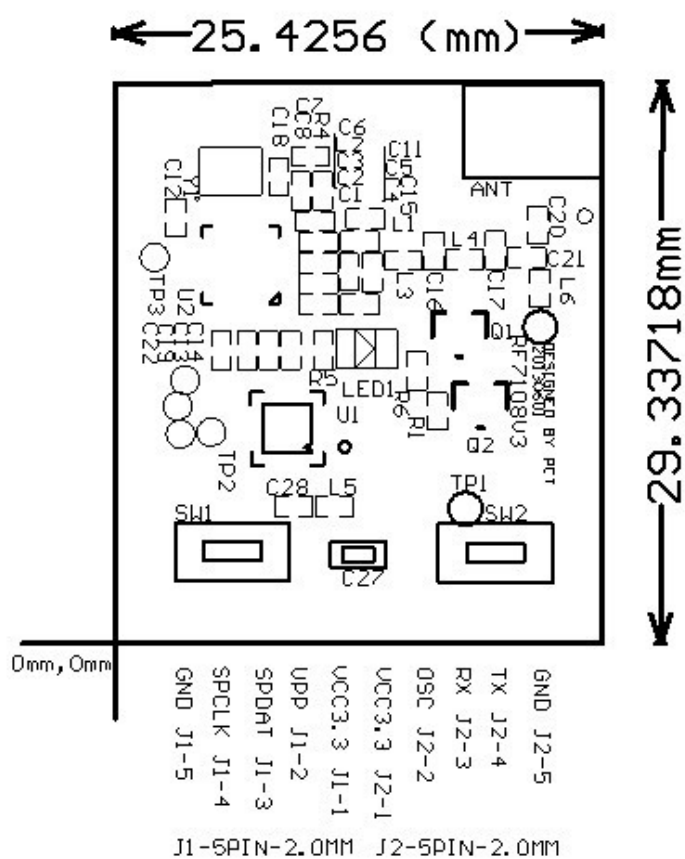
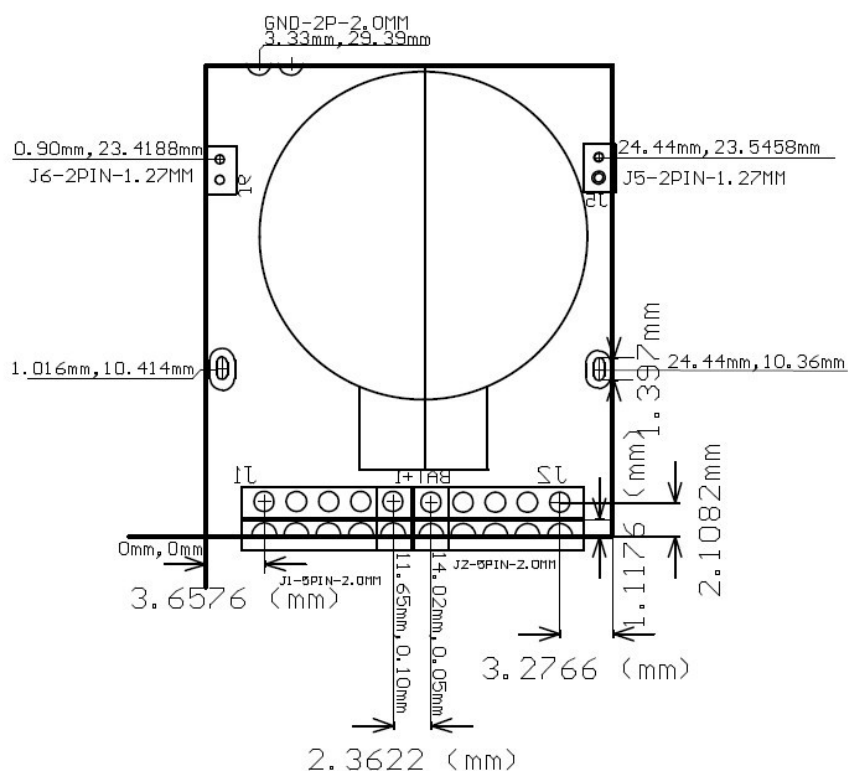
Data: (System to Module)

Address	Name	Type	No. of Byte	Description
1	Start Byte		1	Start byte equal to 0x55
2	Machine ID		1	Machine ID of RX module(ID: 1 to 64)
3-30	Data		29	Customer can define the data format
32	Checksum		1	Checksum of 31 bytes data

Application Circuit:



Module Dimension Drawing



Module Specification

433MHz Transceiver IC	Amicom A7108
Data Rate	150k bps
Modulation	FSK
Typical range	10~200M
Output TX Power	Max 1.67dBm
Frequency Hooping	NO
Operation Power	433MHz:30mA@10dBm, 70mA @ 17dBm
Standby Power	< 10uA
NT1R	N = 64
Encryption	Microchip KEELOQ /CRC
GPIO	1
Switch	2
LED	1
Communication Port	UART

FCC Warning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications are not expressly approved by the manufacturer could void the user's authority to operate the equipment. The following sentence has to be displayed on the outside of device in which the transmitter module is installed "Contains FCC ID: TFJFSK7108"