This is a USB Dongle for the PS3 THQ DRAWING PAD which is consisted by a drawing pad and a dongle. The dongle communicates with the drawing pad by wireless function with 75 channels. The dongle is powered by PS3 USB port.

Channel List:

2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415
2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428
2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441
2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454
2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467
2468 2469 2470 2471 2472 2473 2474 2475 2476 2477

Modulation Type: GFSK
Antenna Type: Integral antenna

The functions of main ICs are mentioned as below.

Main Board:

1) U1 acts as 8-bit microprocessor.

2) U2 acts as 2- Wire Serial EEPROM.

3) U3 acts as 2.4G RF module.

RF Module:

1) U1 acts 2.4 RF Chip.

2) X1 acts as 16MHz oscillator for U1.

Document Title

Denomination: 2.4G RF Module

Part No.: TH2G4M23

Circuit Diagram Version

Part No.	Function	Version
TH2G4M23	2.4G RF Module	V1.0

Revision History

Revision No.	History	Auther	Date
V1.0	Issue	Amber Huang	2010/12/04

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Low Power High Performance 2.4GHz RF Module

Features

- 2400-2483.5MHz ISM band operation
- Support 1 and 2 Mbps air data rate
- Programmable output power (-40dBm to 5dBm)
- Low power consumption
- Variable payload length from 1 to 32bytes
- Automatic packet processing
- 6 data pipes for 1:6 star networks
- 1.9V to 3.6V power supply
- 4-pin SPI interface with maximum 8MHz clock rate

Applications

- Wireless PC peripherals
- Wireless mice and keyboards
- Wireless gamepads
- Wireless audio
- Remote controls
- Toys
- Home automation
- Personal health and entertainment

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Pin Information

TH2G4M23 pin assignments (top view)

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PIN	Name	Pin Function	Description
1	VDD	Power	Power Supply (1.9V to 3.6V DC)
2	CE	Digital Input	Chip Enable Activates RX or Tx mode
3	CSN	Digital Input	SPI Chip Select, Active low
4	SCK	Digital Input	SPI Clock
5	MOSI	Digital Input	SPI Slave Data Input
6	MISO	Digital Output	SPI Slave Data Output with tri-state option
7	IQR	Digital Output	Maskable Interrupt pin, Active low
8	GND	Ground	Ground (0V)

Electrical Specifications

Name	Parameter(Condition)	Min	Typical	Max	Unit	Comment
	Operating Condition					
VDD	**Voltage**	**1.9**	**3.0**	**3.6**	**V**	
TEMP	**Temperature**	**-40**	**+27**	**+85**	**℃**	
	Digital input Pin					
VIH	**High level**	**0.7VDD**		**5.25**	**V**	
VIL	**Low level**	**VSS**		**0.3VDD**	**V**	
	Digital outputPin					
VOH	**Highlevel(IOH=-0.25mA)**	**VDD-0.3**		**VDD**	**V**	
VOL	**Low Level(IOL=0.25mA)**	**0**		**0.3**	**V**	
	Normal condition					
IVDD	**Power Down current**			**3**	**uA**	
IVDD	**Standby-I current**			**50**	**uA**	
IVDD	**Standby-II current**			**400**	**uA**	
	Normal RF condition					
FOP	**Operating frequency**	**2400**		**2527**	**MHz**	
FXTAL	**Crystal frequency**		**16**		**MHz**	
RFSK	**Air data rate**	**1**		**2**	**Mbps**	
	Transmitter					
PRF	**Output power**	**-40**	**0**	**5**	**dBm**	
PBW	**Modulation 20 dB bandwidth(2Mbps)**		**2.5**		**MHz**	
PBW	**Modulation 20 dB bandwidth(1Mbps)**		**1.3**		**MHz**	
PRF1	**Out of band emission 2 MHz**		**-20**		**dBm**	
PRF2	**Out of band emission 4 MHz**		**-40**		**dBm**	
IVDD	**Current at -40 dBm output power**		**11**		**mA**	
IVDD	**Current at -30 dBm output power**		**11**		**mA**	
IVDD	**Current at -25 dBm output power**		**12**		**mA**	
IVDD	**Current at -10 dBm output power**		**13**		**mA**	

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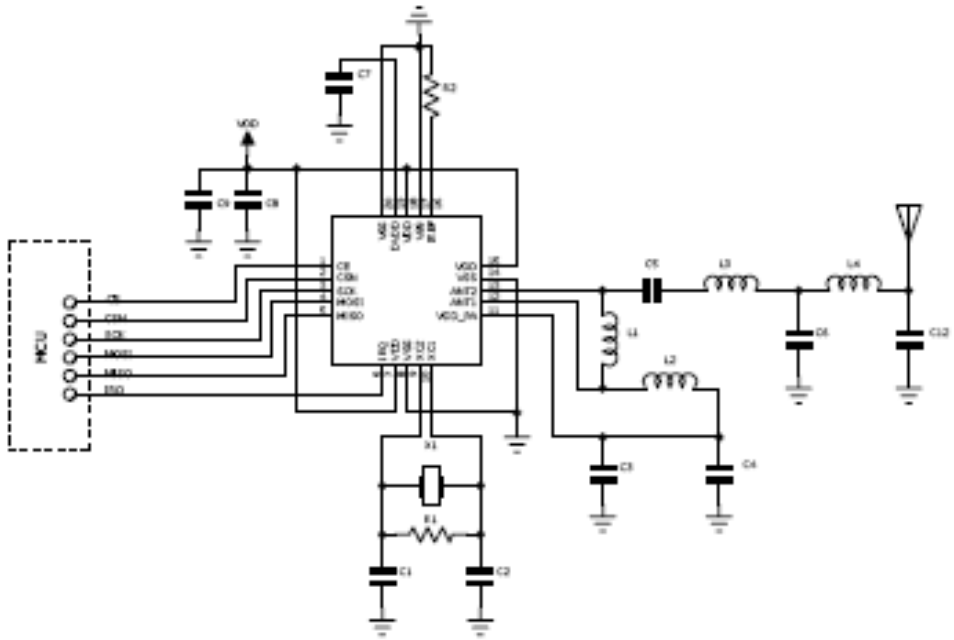
IVDD	**Current at -5 dBm output power**		**15**		**mA**	
IVDD	**Current at 0 dBm output power**		**17**		**mA**	
IVDD	**Current at 5 dBm output power**		**23**		**mA**	
	Receiver					
IVDD	**Current (2Mbps)**		**18**		**mA**	
IVDD	**Current (1Mbps)**		**17**		**mA**	
Max Input	**1 E-3 BER**		**10**		**dBm**	
RXSENS	**1 E-3 BER sensitivity(2Mbps)**		**-85**		**dBm**	
RXSENS	**1 E-3 BER sensitivity(1Mbps)**		**-88**		**dBm**	
C/ICO	**Co-channel C/T(2Mbps)**		**4**		**dB**	
C/I1ST	**ACS C/I 2MHz(2Mbps)**		**-5**		**dB**	
C/I2ND	**ACS C/I 4MHz(2Mbps)**		**-20**		**dB**	
C/I3RD	**ACS C/I 6MHz(2Mbps)**		**-25**		**dB**	
C/ICO	**Co-channel C/T(1Mbps)**		**4**		**dB**	
C/I1ST	**ACS C/I 1MHz(2Mbps)**		**4**		**dB**	
C/I2ND	**ACS C/I 2MHz(2Mbps)**		**-18**		**dB**	
C/I3RD	**ACS C/I 3MHz(2Mbps)**		**-19**		**dB**	

Application Schematic



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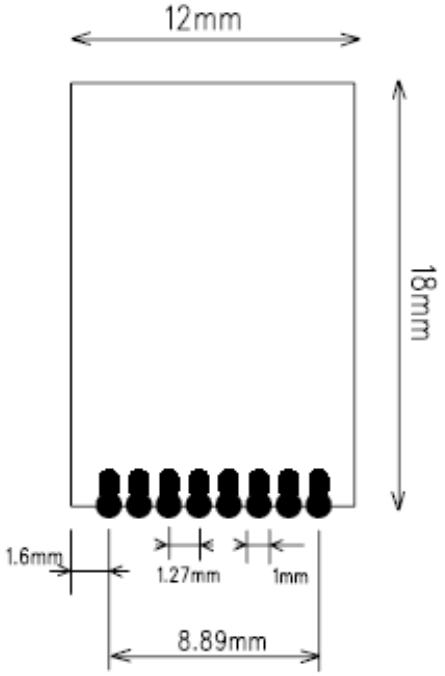
PCB Size



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