Technical Description

The equipment under test (EUT) is a 2.4GHz transceiver with using Bluetooth technique for a game pad controller which is operating at 2402MHz – 2480MHz. There are 79 channels with the channel is separated by 1MHz channel spacing. The EUT is powered by 2X1.5V AAA batteries. The EUT has an ON/OFF switch and twelve control buttons. When EUT is switched on, the EUT will search the IOS device or Android device by Bluetooth communication. After the EUT has found the device, the EUT can communicate with the corresponding device via Bluetooth.

Operating Frequency Band: 2402MHz ~ 2480MHz
Modulation: GFSK
Channel Spacing: 1MHz

The functions of main ICs are mentioned as below.
1) U4 acts as 2.4GHz RF Module.
2) U1 acts as Voltage Regulator
3) U1A, U1B (i.e. In RF Module) acts as 2.4GHz RF Transceiver chip.
4) K1,K2~K13 acts as control switch.
5) Y1 acts as 24MHz Clock Oscillator.
6) U2 acts as EEPROM
7) C18, C20 acts as Antenna Matching Circuit
8) R7, C13, C16 acts as Filter

Antenna used:

PCB Antenna has been used.

Single-Chip Bluetooth® Transceiver for Wireless Input Devices

GENERAL DESCRIPTION

The Broadcom® BCM20730 is a Bluetooth® 3.0-compliant, stand-alone baseband processor with an integrated 2.4 GHz transceiver. It is ideal for wireless input device applications including game controllers, keyboards, 3D glasses, remote controls, gestural input devices, and sensor devices. Built-in firmware adheres to the Bluetooth Human Interface Device (HID) profile and Bluetooth Device ID profile specifications.

The BCM20730 radio has been designed to provide low power, low cost, and robust communications for applications operating in the globally available 2.4 GHz unlicensed ISM band. It is fully compliant with Bluetooth Radio Specification 3.0.

The single-chip Bluetooth transceiver is a monolithic component implemented in a standard digital CMOS process and requires minimal external components to make a fully compliant Bluetooth device. The BCM20730 is available in two package options, a 40-pin, 6 mm × 6 mm QFN and a 64-pin, 7 mm × 7 mm BGA.

APPLICATIONS

- Wireless pointing devices: mice, trackballs, gestural controls
- Wireless keyboards
- 3D glasses
- Remote controls
- Game controllers
- Point-of-sale (POS) input devices
- Remote sensors
- Home automation
- Personal health and fitness monitoring

FEATURES

- On-chip support for common keyboard and mouse interfaces eliminates external processor
- Programmable keyscan matrix interface, up to 8 × 20 key-scanning matrix
- 3-axis quadrature signal decoder
- Shutter control for 3D glasses
- Infrared modulator
- IR learning
- Triac control
- Triggered Broadcom Fast Connect
- Supports Adaptive Frequency Hopping
- Excellent receiver sensitivity
- Bluetooth specification 3.0 compatible, including enhanced power control (Unicast Connectionless Data)
- Bluetooth HID profile version 1.0 compliant
- Bluetooth Device ID profile version 1.3 compliant
- Bluetooth AVRCP-CT profile version 1.3 compliant
- 10-bit auxiliary ADC with 28 analog channels
- On-chip support for serial peripheral interface (master and slave modes)
- Broadcom Serial Communications interface (compatible with Philips® I^{2}C slaves)
- Programmable output power control meets Class 2 or Class 3 requirements
- Class 1 operation supported with external PA and T/R switch
- Integrated ARM Cortex™-M3 based microprocessor core
- On-chip power-on reset (POR)
- Support for EEPROM and serial flash interfaces
- Integrated low-dropout regulator (LDO)
- On-chip software controlled power management unit
- Two package types available:
  - 40-pin QFN package (6 mm × 6 mm)
  - 64-pin BGA package (7 mm × 7 mm)
- RoHS compliant

20730-DS101-R