# BCM-7602-G01
# BLE Transparent Transmission Module

## Features

- Operating voltage: 2.2V~3.6V
- Operating current:
  - Power down mode: 500nA
  - Sleep mode: 20μA
  - Broadcast mode: 180μA @ 250ms
  - Transparent transmission: 1.1mA @ 20 bytes, 5 times/sec.
- Frequency range: 2402MHz~2480MHz
- TX output power: +3dBm @ Max. power setting
- RX sensitivity: -90dBm (Typ.) @ 1M BPS
- Modulation: GFSK
- Transmission distance: 60m in open area
- Interface: 8 pins × 2 – pitch = 1.27mm stamp hole
- Dimensions: 16mm(L) × 16mm(W)
- Temperature range: -20°C ~ +85°C

## General Description

The BCM-7602-G01 is a Bluetooth Low Energy, BLE, transparent transceiver module which is a design based on the BC7602 BLE transparent transmission device. More detailed information is described in the BC7602 datasheets. This module can wirelessly control external devices and supports bidirectional data transfer suitable for lighting products, health care products and home appliances.

## Ordering Information

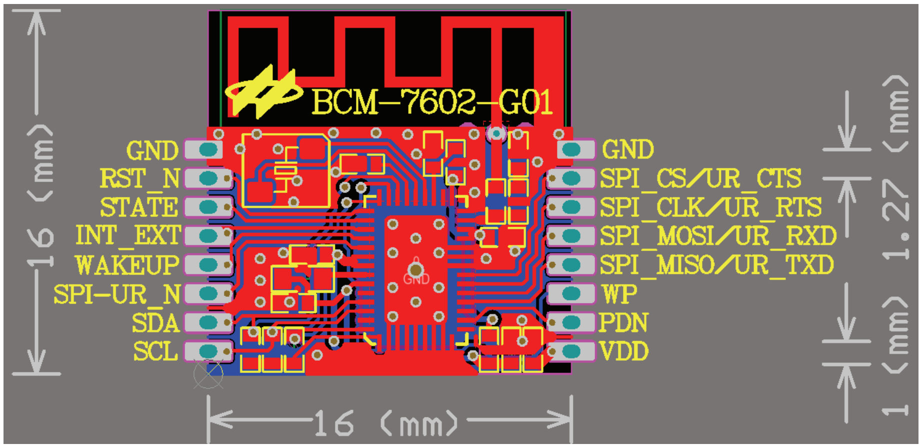
| Part Number | Patch Code Version |
|---|---|
| BCM-7602-G01-BC1 | V1.1 |

## Interface

| Pin No. | Pin Name | Type | Function Description |
|---|---|---|---|
| 1 | GND | P | RF negative power supply, ground |
| 2 | RST_N | DI | Hardware reset input, active low |
| 3 | STATE | DO | BC7602 state pin indicator<br>0: Operating mode<br>1: Sleep mode |
| 4 | INT_EXT | DO | External Interrupt, normally high and active low |
| 5 | WAKEUP | DI | Wake-up pin<br>Enters the Sleep Mode when low |
| 6 | SPI-UR_N | DI | SPI/UART mode select pin – selected during the power-on period<br>0: UART pins selected<br>1: SPI pins selected |
| 7 | SDA | DIO | EEPROM SDA |
| 8 | SCL | DI | EEPROM SCL |
| 9 | VDD | P | RF positive power supply, 2.2V~3.6V |
| 10 | PDN | DI | Power down control pin<br>Enters the power down mode when low |
| 11 | WP | DI | EEPROM WP |
| 12 | SPI_MISO/UR_TXD | DO | SPI MISO or UART TXD pin<br>Selected by SPI-UR_N during the power-on period |
| 13 | SPI_MOSI/UR_RXD | DI | SPI MOSI or UART RXD pin<br>Selected by SPI-UR_N during the power-on period |
| 14 | SPI_CLK/UR_RTS | DI | SPI CLK or UART RTS pin<br>Selected by SPI-UR_N during the power-on period |
| 15 | SPI_CS/UR_CTS | DI | SPI CS or UART CTS pin<br>Selected by SPI-UR_N during the power-on period |
| 16 | GND | P | RF negative power supply, ground. |

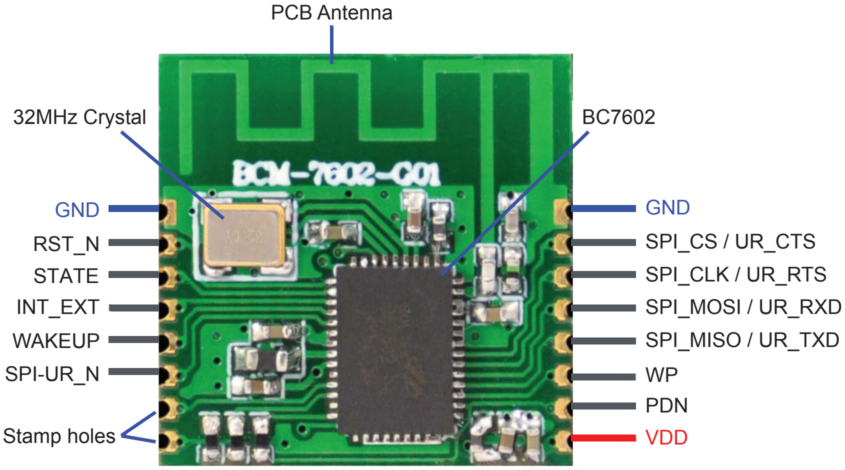
Legend: DI=Digital Input; DO=Digital Output; DIO=Digital In/Out; P=Power.

## Module Dimension Drawing



Top View

## Module Photograph



**Dimension: 16 mm × 16 mm**
**Double Layer PCB**

## Bill of Material

| Item | Comp. | Description | Size | Value | Tol. | Part Number |
|---|---|---|---|---|---|---|
| 1 | C1 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 2 | C2 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 3 | C3 | X5R ceramic capacitor | 0402 | 2.2μF | ±10% | — |
| 4 | C4 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 5 | C5 | C0G ceramic capacitor | 0402 | 3.3pF | ±5% | — |
| 6 | C6 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 7 | C7 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 8 | C8 | C0G ceramic capacitor | 0402 | 2.4pF | ±5% | — |
| 9 | C9 | X5R ceramic capacitor | 0402 | 1μF | ±10% | — |
| 14 | R1 | Chip resistor | 0402 | 47K | ±5% | — |
| 15 | R2 | Chip resistor | 0402 | 47K | ±5% | — |
| 16 | R3 | Chip resistor | 0402 | 47K | ±5% | — |
| 20 | L1 | Chip Beads | 0402 | — | — | MURATA: BLM15PD121SN1 |
| 21 | L2 | Chip Beads | 0402 | — | — | MURATA: BLM15PD121SN1 |
| 22 | L3 | Chip inductor | 0402 | 4.7nH | ±2% | MURATA: LQG15HN4N7S02 |
| 23 | L4 | Multi-layer Power Inductor | 0603 | 2.2μH | ±5% | MURATA: LQM18PN2R2NC0<br>TDK: MLZ1608N2R2LT000<br>Sunlord: MCL2012S2R2MT |
| 24 | U1 | IC | QFN46 | BC7602 | — | — |
| 25 | Y1 | Crystal | SMD3225 | 32MHZ/12pF | ±20ppm | KDS: 1N232000AA0N<br>YOKE: S3225A-032000-F12 |