Features

- Operating voltage: 1.9V~3.6V
- Operating current:
  - TX current consumption: 25mA @ 7dBm
  - RX current consumption: 17mA @ 250kbps
  - Deep sleep current consumption: 0.5μA (support data retention function)
- Frequency band: 2402MHz~2480MHz
- Programmable TX output power: -3/0/5/7dBm
- RX sensitivity: -98dBm (Typ.) @ 125Kbps
- Demodulation method: GFSK
- Interface: 11- pin header and stamp hole
- Dimension: 17mm(L)×16mm(W)×2mm(H)
- Operating temperature: -40°C~85°C
- Antenna type: integrated trace antenna
- Communication interface: 3-wire or 4-wire bidirectional SPI interface
- Control port: provides external PA or LNA control port

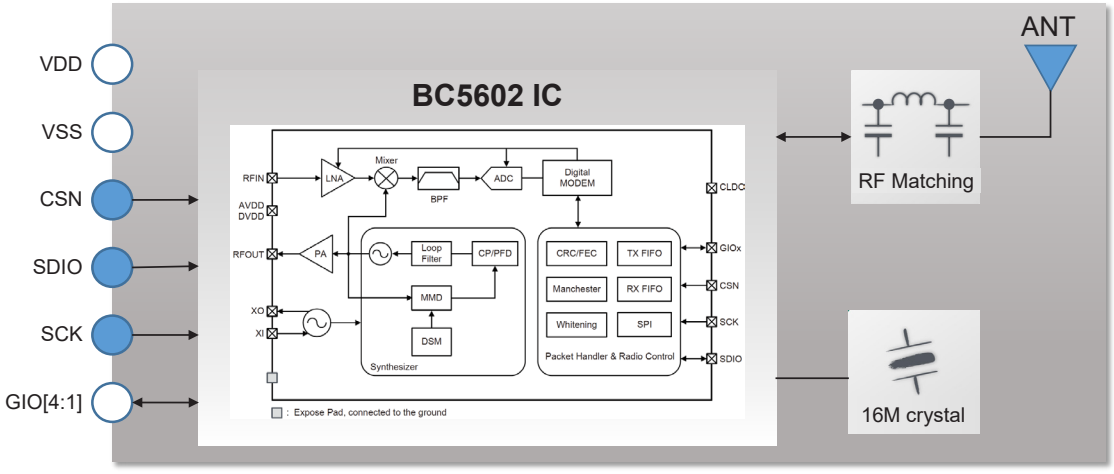
Applications

- Wireless key mice, keyboards, remote control, home and business control or data exchange

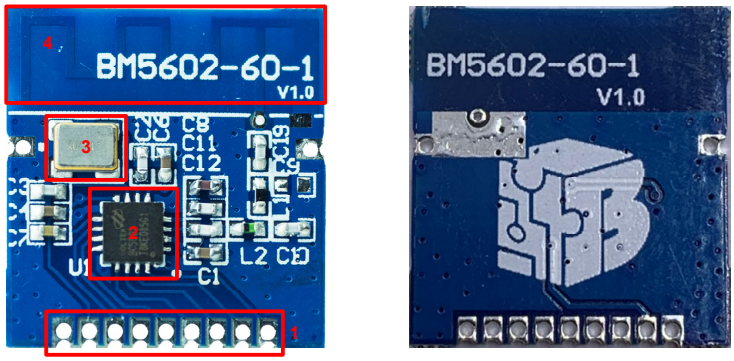
General Description

The BM5602-60-1 is a transceiver module whose design is based on the high performance and fully integrated 2.4GHz transceiver BC5602 device. Refer to the BC5602 datasheet for more information. The module can wirelessly control the external devices and can support bidirectional data transmission applications, which is suitable for home appliances and commercial wireless control or consumer electronic remote control applications, etc.

Module Block Diagram



Module View



1. Power and communication connection pins
2. IC: BC5602(Holtek product)
3. 16MHz Crystal
4. 2.4GHz trace antenna

Pin Definition

Pin Name	Type	Function Description
VSS	PWR	Negative power supply, ground
VDD	PWR	Positive power supply
GIO1	DO	Multi-function I/O 1 (It is recommended to set this pin as the SPI slave data output pin, MISO, by software)
CSN	DI	SPI chip select input
SCK	DI	SPI clock input
GIO2	DO	Multi-function I/O 2 (It is recommended to set this pin as the interrupt request pin, IRQ, by software)
SDIO	DI/DO	SPI slave data input/output (If any of the GIOx pin is set as the SPI slave data output pin, then this pin is only used as the MOSI input.)
GIO3	DI/DO	Multi-function I/O 3
GIO4	DI/DO	Multi-function I/O 4

Legend: PWR: Power; DI: Digital Input; DO: Digital Output; DI/DO: Digital Input/Output.

D.C. Electrical Characteristics

Ta=25°C, V_{DD}=3.3V

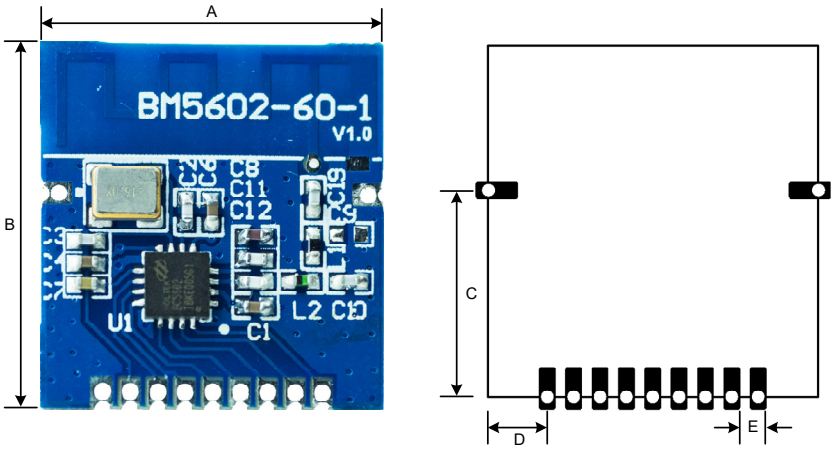
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{DD}	Module Operating Voltage	—	1.9	3.3	3.6	V
I_{RX} or I_{TX}	Module Operating Current	RX@250Kbps	—	17	—	mA
		RX@500Kbps	—	17	—	
		TX@0dBm	—	19	—	
		TX@7dBm	—	25	—	
I_{Sleep}	Module Deep Sleep Mode Current Consumption	—	—	0.5	—	μA
I_{IL}	Module Light Sleep Mode Current Consumption	X'tal on	—	400	—	μA
$I_{Standby}$	Module Standby Mode Current Consumption	X'tal on, synthesizer on	—	7	—	mA
V_{IH}	High Level Input Voltage	V_{DD}=3.3V	0.7×V_{DD}	—	V_{DD}	V
V_{IL}	Low Level Input Voltage	—	0	—	0.3×V_{DD}	V
V_{OH}	High Level Output Voltage	I_{OH}=-5mA	0.8×V_{DD}	—	V_{DD}	V
V_{OL}	Low Level Output Voltage	I_{OL}=5mA	0	—	0.2×V_{DD}	V

A.C. Electrical Characteristics

Ta=25°C, V_{DD}=3.3V

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
RF Characteristics						
f_{RF}	RF Frequency Band		2402	—	2480	MHz
DR	Data Rate	GFSK modulation	125	—	500	Kbps
Transmitter						
P_{OUT1}	-3dBm TX Output Power	2440MHz	—	-3	-1	dBm
P_{OUT2}	0dBm TX Output Power	2440MHz	—	0	2	dBm
P_{OUT3}	5dBm TX Output Power	2440MHz	—	5	6	dBm
P_{OUT4}	7dBm TX Output Power	2440MHz	—	7	8	dBm
Receiver						
P_{SENS}	RX Sensitivity @ BER=0.1%	125Kbps (f_{DEV}=160kHz)	—	-98	—	dBm
		250Kbps (f_{DEV}=160kHz)	—	-97	—	
		500Kbps (f_{DEV}=125kHz)	—	-92	—	
$P_{IN, MAX}$	Maximum Input Power	@BER<0.1%	—	—	10	dBm
Crystal Oscillator						
t_{SU}	X'tal Startup Time	—	—	2	—	ms

Module Dimension Drawing

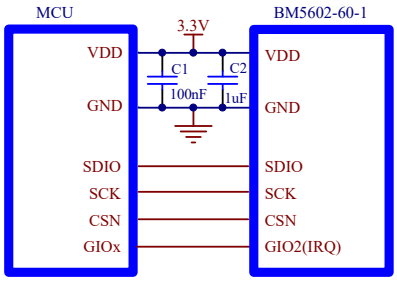


Symbol	Unit	
	mm	inch
A	16.00	0.630
B	17.00	0.669
C	10.00	0.394
D	2.85	0.112
E	1.27	0.050

Dimension Description

Application Circuit

3-Wire SPI Interface



4-Wire SPI Interface