

### Features

- Operating voltage: 2.0V~3.6V
- Operating current:
  - ♦ 0.5μA (Typ.) @3.3V, Deep Sleep Mode
  - ♦ 0.7mA(Typ.) @3.3V, Light Sleep Mode
  - ♦ 13.0mA(Typ.) @3.3V, 433MHz RX 2Kbps
  - ♦ 13.5mA(Typ.) @3.3V, 433MHz RX 250Kbps
  - ♦ 31.0mA(Typ.) @3.3V, 433MHz TX 10dBm
  - ♦ 54.0mA(Typ.) @3.3V, 433MHz TX 17dBm
- Receiver sensitivity:
  - ♦ -120dBm(Typ.) @315/433/868/915MHz, 2K Symbol Rate & BER=0.1%
  - ♦ -111dBm(Typ.) @315MHz, 50K Symbol Rate & BER=0.1%
  - ♦ -111dBm(Typ.) @433MHz, 50K Symbol Rate & BER=0.1%
  - ♦ -110dBm(Typ.) @868MHz, 50K Symbol Rate & BER=0.1%
  - ♦ -110dBm(Typ.) @915MHz, 50K Symbol Rate & BER=0.1%
  - ♦ -104dBm(Typ.) @315/433/868/915MHz, 250K Symbol Rate & BER=0.1%

- Maximum operating input power: 10dBm@RF-in, BER=0.1%
- Modulation type: FSK
- Interface: 12- pin stamp hole
- Dimensions: 15.0mm(L)×18.5mm(W)×2.5mm(H)
- Operating temperature: -40°C~85°C

### General Description

The BM3601-0x-1 is based on the BC3601 device and which forms a Sub-1GHz FSK transceiver module. The module can be used for wireless applications in the 315MHz, 433MHz, 470MHz, 868MHz and 915MHz ISM (Industrial, Scientific and Medical) bands. The host MCU can communicate with the device via a 3-wire or 4-wire SPI interface for wireless data communications.

### Selection Table

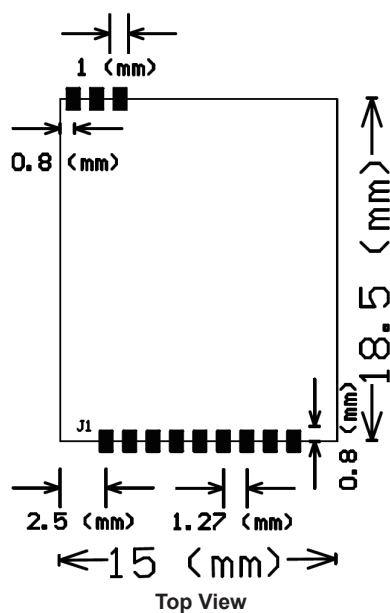
Part Number	Frequency Band
BM3601-03-1	315MHz
BM3601-04-1	433MHz
BM3601-08-1	868MHz
BM3601-09-1	915MHz

### Pin Definition

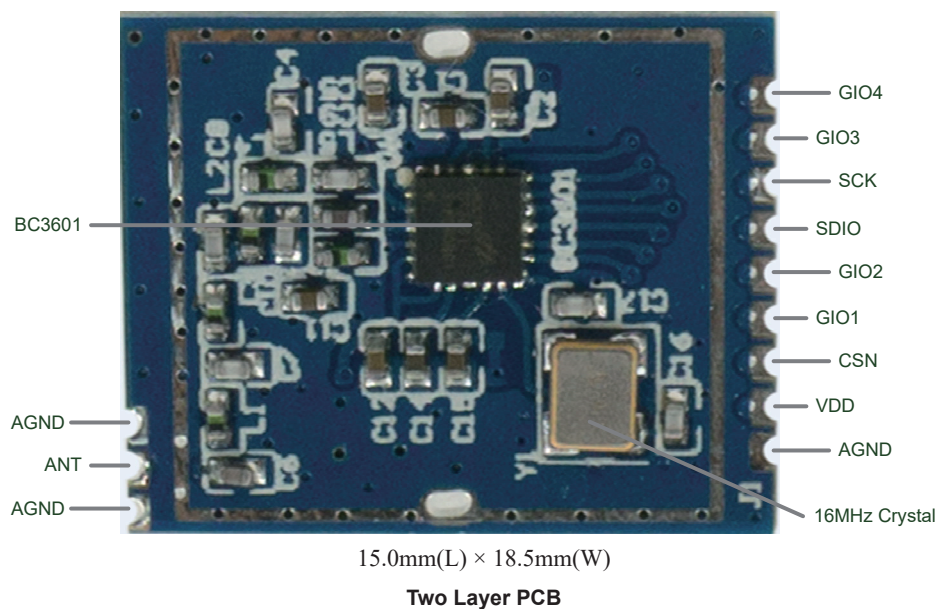
Pin No.	Pin Name	Type	Function Description
1	AGND	P	Ground
2	VDD	P	Power supply
3	CSN	I	SPI chip select, low active
4	GIO1	I/O	Multi-function I/O 1
5	GIO2	I/O	Multi-function I/O 2
6	SDIO	I/O	SPI data input/output
7	SCK	I	SPI clock input
8	GIO3	I/O	Multi-function I/O 3
9	GIO4	I/O	Multi-function I/O 4
10	AGND	P	Ground
11	ANT	AI	Antenna input
12	AGND	P	Ground

Legend: AI=Analog input; I=Digital input; I/O=Digital input/output; P=Power.

## Module Dimension Drawing

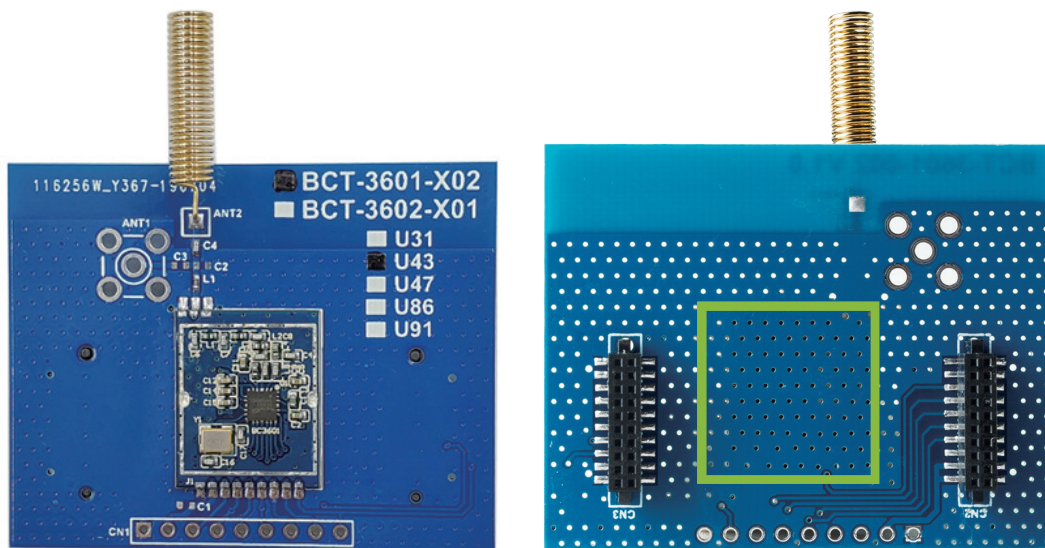


## Module Figure



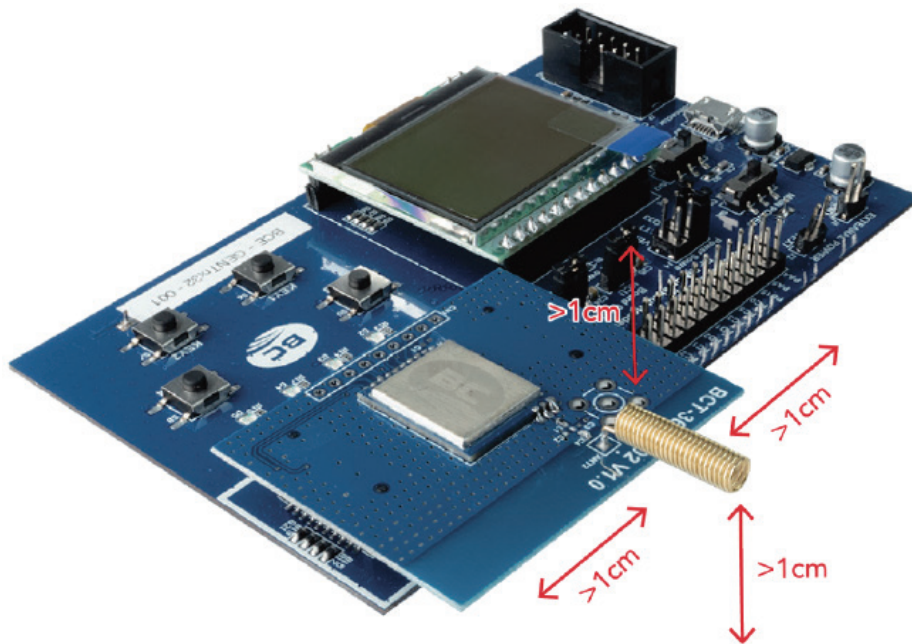
## Module Points to Note

1. The recommended module crystal CL setup value is 0x18. The recommended 433MHz band TX Power setup value is 0x3c(10dBm), 0x49(13dBm) and 0x8A(17dBm).
2. When attaching the module, it is not recommended to have traces underneath the module on the reverse side of the PCB. The diagram shows a practical application.



Note: It is not recommended to have traces within the green frame area.

3. In practical applications ensure that metallic objects are kept as far away from the antenna.



**Bill of Material (433.92MHz)**

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	1μF	±10%	
4	C4	NPO ceramic capacitor	0402	1pF	±0.25PF	
5	C5	NPO ceramic capacitor	0402	100pF	±5%	
6	C6	NPO ceramic capacitor	0402	9.1pF	±5%	
7	C7	NPO ceramic capacitor	0402	18pF	±5%	
8	C8	NPO ceramic capacitor	0402	10pF	±5%	
9	C9	NPO ceramic capacitor	0402	68pF	±5%	
10	C10	NPO ceramic capacitor	0402	1.8pF	±5%	
11	C11	X5R ceramic capacitor	0402	1μF	±10%	
12	C12	X7R ceramic capacitor	0402	10nF	±10%	
13	C14	X5R ceramic capacitor	0402	1μF	±10%	
14	C15	X5R ceramic capacitor	0402	1μF	±10%	
15	C16	NPO ceramic capacitor	0402	15pF	±5%	
16	C17	NPO ceramic capacitor	0402	15pF	±5%	
17	R1	Resistor	0402	0R		
18	R2	Resistor	0402	0R		
19	R3	Resistor	0402	0R		
20	R4	Resistor	0402	0R		
21	L1	Inductor	0402	15nH		MURATA: LQG15HS47NJ02D
22	L2	Inductor	0402	15nH		MURATA: LQG15HS47NJ02D
23	L3	Inductor	0402	12nH		MURATA: LQG15HS47NJ02D
24	L4	Inductor	0402	56nH		MURATA: LQG15HS47NJ02D
25	L5	Inductor	0402	82nH		MURATA: LQG15HS47NJ02D
26	U1	IC	24QFN	BC3601		BESTCOMM
27	M2	Shield				15.2MM×13.7MM×1.5MM
28	Y	Crystal	S3225A	16MHz		±20PPM, CL12PF

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