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Generation Description

- The BM23C421x-1 is an ultra-low power consumption, high-performance and low-cost Sub-1GHz Low-If OOK receiving module whose design is based on the BC66F2342-1 device. The module supports wireless applications in the 315/433/868/915MHz frequency bands. The symbol rate is in a range of 0.5Kbps to 20Ksps and the receiving sensitivity can be up to -112dBm. The module also includes a Flash Memory A/D type 8-bit high performance RISC architecture microcontroller, which contains Flash Program Memory: 4K×15, 128×8 of RAM Data Memory, 32×15 of Emulated EEPROM Memory, a 10-bit A/D converter, multiple flexible Time Modules and Time-Base functions.

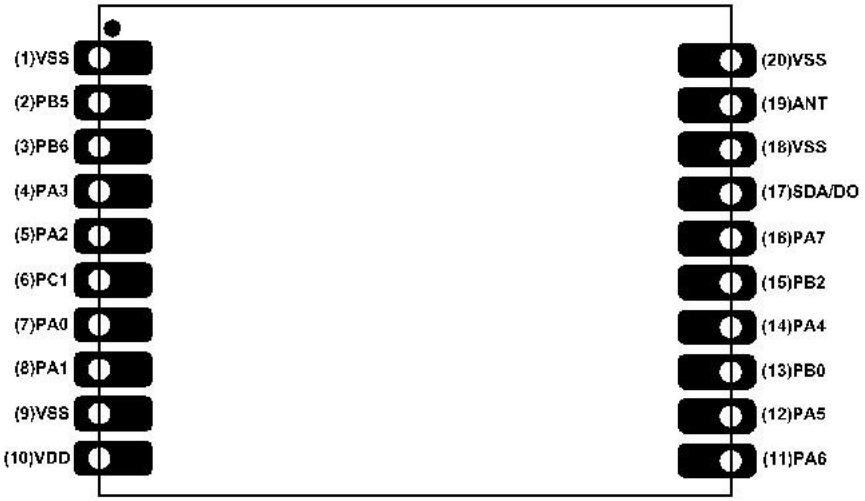
Selection Table

Part No.	Frequency Band
BM23C4213-1	315MHz
BM23C4214-1	433MHz
BM23C4218-1	868MHz
BM23C4219-1	915MHz

Electrical Specifications

Item	RF Specification
Operating Voltage	2.4V~5.5V
Operating Current	● 0.4μA(Typ.)@5V, Deep Sleep Mode ● 4mA(Typ.)@5V, RX Mode, 433.92MHz
Operating Temperature	-40°C~85°C
Receiving Sensitivity	@5V, 25°C (433.92MHz) ● 10Ksps: -112dBm(Typ.)
Modulation	OOK
Symbol Rate	0.5Ksps~20Ksps
Interface	20-pin straight hole and stamp hole
Size	18.0mm(L)×14.0mm(W)×3.0mm(H)

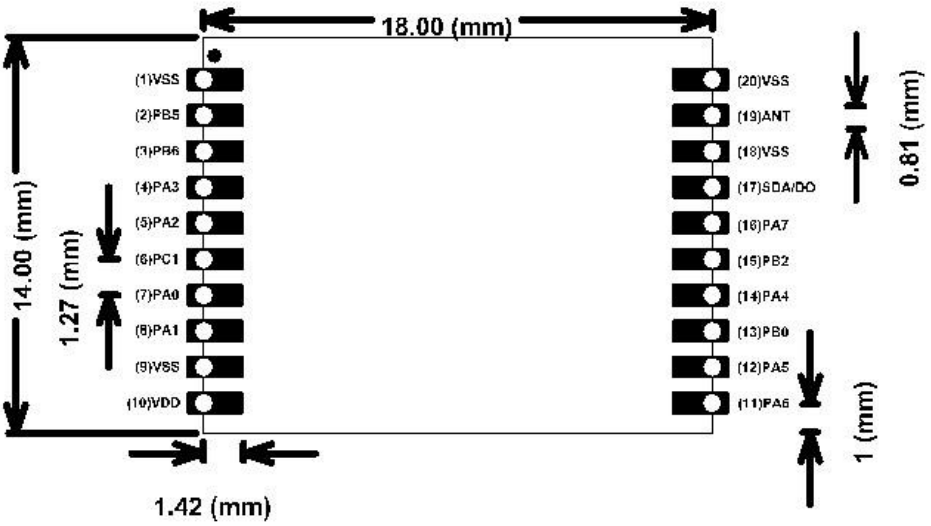
Pin Definition



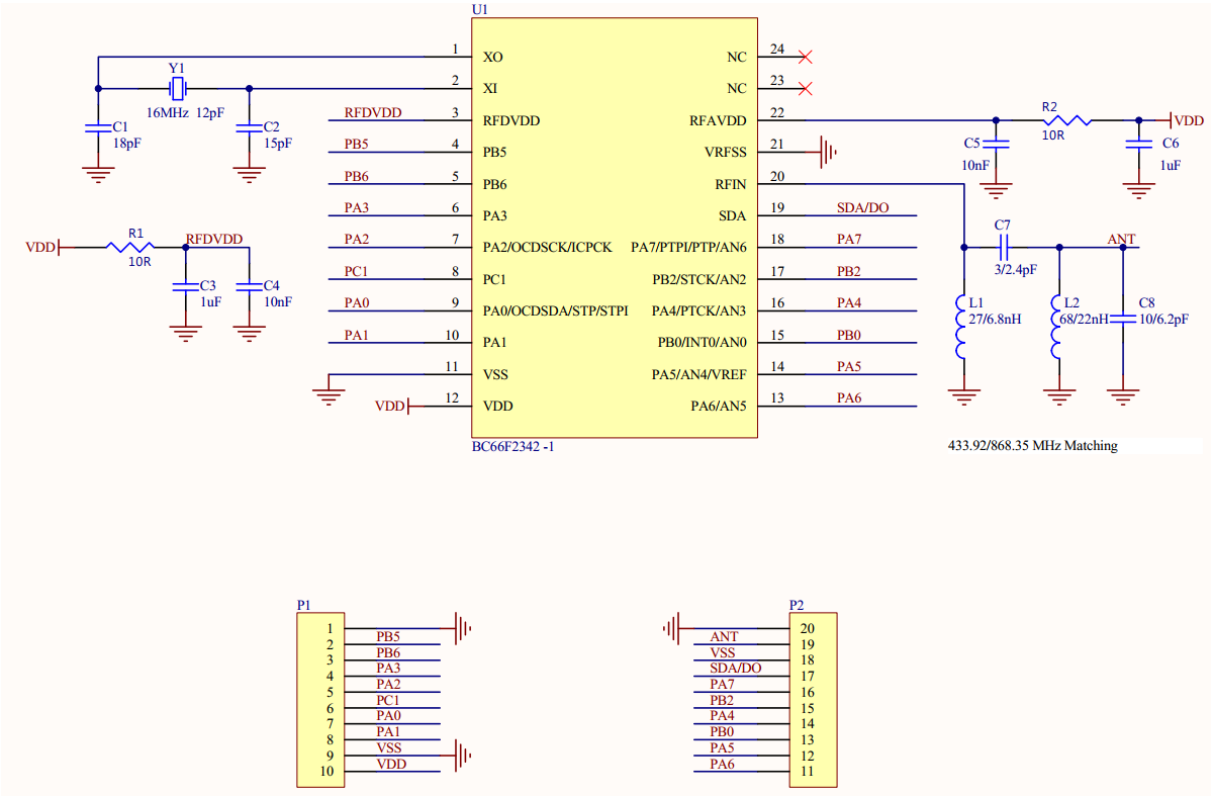
Pin No.	Pin Name	Type	Function Description
P1(1)	VSS	PWR	Negative power supply, ground
P1(2)	PB5	DI/DO	PB5: General purpose I/O
P1(3)	PB6	DI/DO	PB6: General purpose I/O
P1(4)	PA3	DI/DO	PA3: General purpose I/O
P1(5)	PA2/OCDSCK/ICPCK	DI/DO	PA2: General purpose I/O OCDSCK: OCDS clock pin, for EV chip only ICPCK: ICP clock pin
P1(6)	PC1	DI/DO	PC1: General purpose I/O
P1(7)	PA0/STPI/STP/ICPDA/ OCDSDA	DI/DO	PA0: General purpose I/O STPI: STM Capture Input STP: STM Output ICPDA: ICP data/address OCDSDA: OCDS address/data, for EV chip only
P1(8)	PA1	DI/DO	PA1: General purpose I/O
P1(9)	VSS	PWR	Negative power supply, ground
P1(10)	VDD	PWR	Positive power supply
P2(11)	PA6/AN5	DI/DO	PA6: General purpose I/O AN5: A/D converter external input channel 5
P2(12)	PA5/VREF/AN4	DI/DO	PA5: General purpose I/O VREF: A/D converter reference voltage input AN4: A/D converter external input channel 4
P2(13)	PB0/INT0/AN0	DI/DO	PB0: General purpose I/O INT0: External Interrupt 0 AN0: A/D converter external input channel 0

P2(14)	PA4/PTCK/AN3	DI/DO	PA4: General purpose I/O PTCK: PTM clock input AN3: A/D converter external input channel 3
Pin No.	**Pin Name**	**Type**	**Function Description**
P2(15)	PB2/STCK/AN2	DI/DO	PB2: General purpose I/O STCK: STM clock input AN2: A/D converter external input channel 2
P2(16)	PA7/PTPI/PTP/AN6	DI/DO	PA7: General purpose I/O PTPI: PTM capture input PTP: PTM output AN6: A/D converter external input channel 6
P2(17)	SDA	DI/DO	SDA: RF I^{2}C data line
P2(18)	VSS	PWR	Negative power supply, ground
P2(19)	ANT	AI	RF LNA input
P2(20)	VSS	PWR	Negative power supply, ground

Module Dimension Diagram



Application Circuit



Bill of Material (433.92MHz)

Item	Comp.	Description	Size	Value	Tol.	Part Number
1	C1	NPO 50V ceramic capacitor	0402	18pF	±5pF	—
2	C2	NPO 50V ceramic capacitor	0402	15pF	±5%	—
3	C3	X5R 10V ceramic capacitor	0402	1μF	±10%	—
4	C4	X7R 50V ceramic capacitor	0402	10nF	±10%	—
5	C5	X7R 50V ceramic capacitor	0402	10nF	±10%	—
6	C6	X5R 10V ceramic capacitor	0402	1μF	±10%	—
7	C7	NPO 50V ceramic capacitor	0402	3pF	±0.5pF	—
8	C8	NPO 50V ceramic capacitor	0402	10pF	±0.5pF	—
10	R1	Resistor	0402	10R	±1%	—

11	R2	Resistor	0402	10R	±1%	—
12	L1	Inductor	0402	27nH	±5%	MuRata LQG15HS27NJ02
13	L2	Inductor	0402	68nH	±5%	MuRata LQG15HS68NJ02
14	U1	IC	24SSOPEP	BC66F2342-1	—	Holtek
15	Y1	Crystal	S3225 patch crystal	16MHz	±20%ppm	YOKETAN S3225A-016000-T12-BDD-1ABA CL12PF

Bill of Material (868.35MHz)

Item	Comp.	Description	Size	Value	Tol.	Part Number
1	C1	NPO 50V ceramic capacitor	0402	18pF	±0.25pF	—
2	C2	NPO 50V ceramic capacitor	0402	15μF	±10%	—
3	C3	X5R 10V ceramic capacitor	0402	1μF	±10%	—
4	C4	X7R 50V ceramic capacitor	0402	10nF	±5%	—
5	C5	X7R 50V ceramic capacitor	0402	10nF	±5%	—
6	C6	X5R 10V ceramic capacitor	0402	1μF	±10%	—
7	C7	NPO 50V ceramic capacitor	0402	2.4pF	±10%	—
8	C8	NPO 50V ceramic capacitor	0402	6.2pF	±5%	—
10	R1	Resistor	0402	10R	±1%	—
11	R2	Resistor	0402	10R	±1%	—
12	L1	Inductor	0402	6.8nH	±5%	MuRata LQG15HS6N8J02
13	L2	Inductor	0402	22nH	±5%	MuRata LQG15HS22NJ02
14	U1	IC	24SSOPEP	BC66F2342-1	—	Holtek
15	Y1	Crystal	S3225 patch crystal	16MHz	±20%ppm	YOKETAN S3225A-016000-T12-BDD-1ABA CL12PF