Preliminary

DELTA

DFBM-CM221

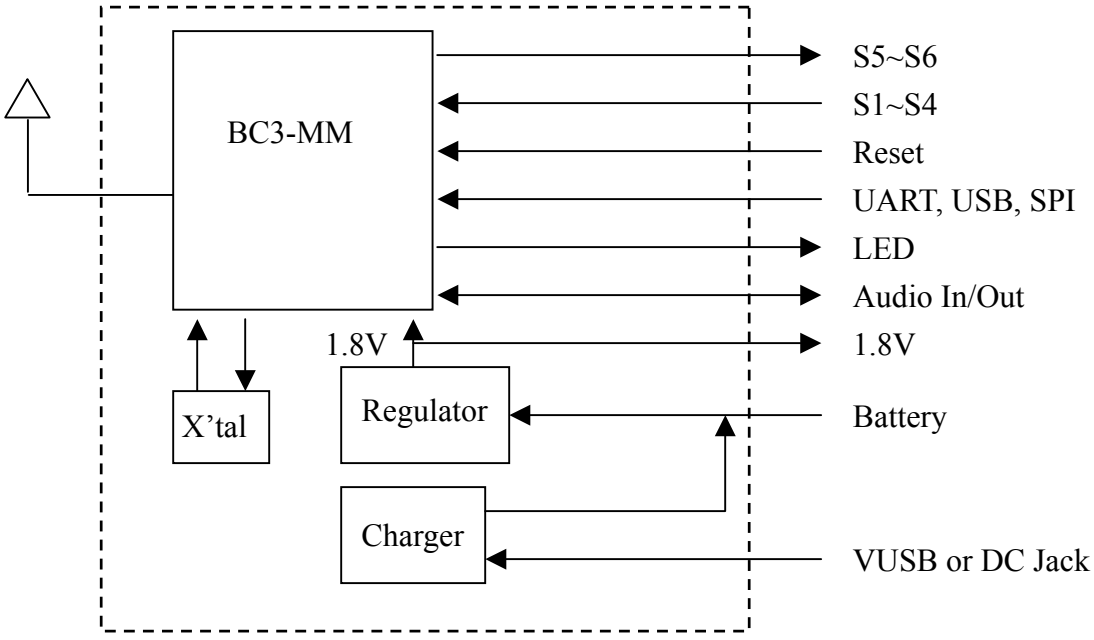
DFBM-CM221
Bluetooth™ Module Class 2

A Class 2 Bluetooth module suitable for MP3 applications.

1.FEATURES

- ***High Integrate, need minimum external components.***
- ***Compliant to various interfaces: SPI, UART, USB.***

2.Device Diagram



3.General Specification

Bluetooth™ Specification	Version 1.2
Frequency	2.4GHz ISM Band
Transmission Rate	723 kbps
Receive Sensitivity	-81 dBm
Maximum Output Power	+4 dBm (Class 2)
Operating Voltage	3.4~4.2 V
Operating Temperature	-20~+75 ℃
Storage Temperature	-40~+85 ℃
Antenna Impedance	50 ohm
Package Size	17.4*16.7*2.2 mm
Operating Range	10 meters
Quiescent Current	17 uA
Standby Current	1 mA
Operating Current	25 mA

4.RF Characteristics

RF Characteristics	Min.	Typ.	Max.	Unit
1. Frequency Range	2402 ~ 2483.5			MHz

2. Output Power (Hopping On)				
2-1. Average Power		2		dBm
2-2. Maximum Power			4	dBm
2-3. Minimum Power	-6			dBm
3. Power Control (Hopping Off)				
3-1. Maximum Step		5	8	dBm
3-2. Minimum Step	2	4		dBm
4. Initial Carrier (Hopping On)				
4-1. Average Offset	-20		20	KHz
4-2. Max +ve Offset	-20		20	KHz
4-3. Max –ve Offset	-20		20	KHz
5. Carrier Drift (Hopping On, Low & Mid & High Channel)				
5-1. Drift Rate	-20	10	20	KHz
5-2. DH1	-25	10	25	KHz
5-3. DH3	-40	10	40	KHz
5-4. DH5	-40	10	40	KHz
6. Modulation Characteristics (Hopping Off)				
6-1. F1 Average	140	165	175	KHz
6-2. F2 Maximum	115	145		KHz
6-3. F1 / F2 Ratio	0.8	0.95		
7. Single Sensitivity (Hopping Off & On)				
7-1. Overall BER (-70dBm)		0	0.1	%

8. Multi Slot Sensitivity (Hopping Off & On)				
8-1. Overall BER (-70dBm)		0	0.1	%
9. Maximum Input Level (Hopping Off)				
9-1. Overall BER		0	0.1	%

5.Audio Characteristics

RF Characteristics	Min.	Typ.	Max.	Unit
1. SNR	85			dBm
2. THD			6	%

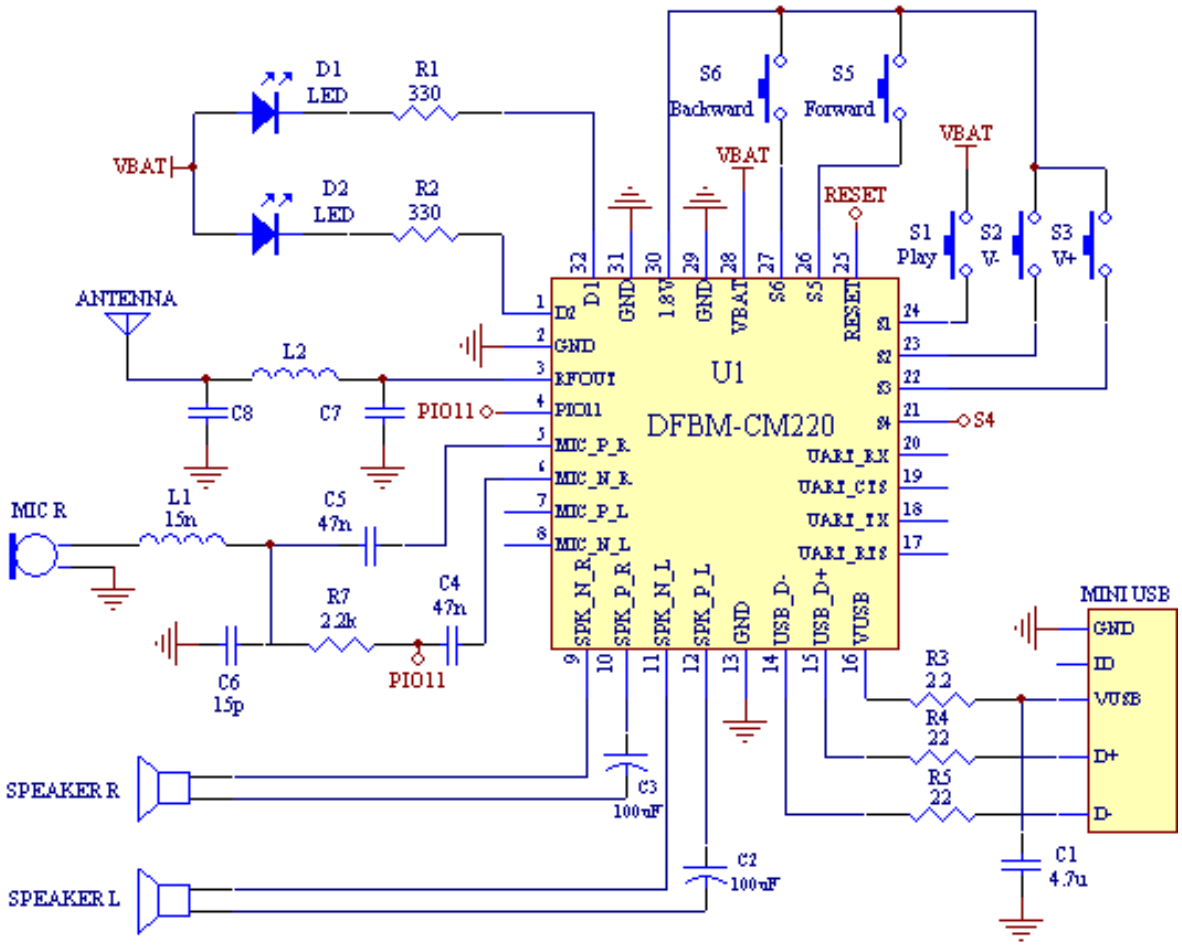
6.Pin Description

Pin No.	Name	Description
1	D2	Light if power on or pair
2	GND	Ground
3	ANT	RF input/output
4	PIO11	Programmable input/output
5	MIC_P_R	Microphone input positive (right side)
6	MIC_N_R	Microphone input negative (right side)
7	MIC_P_L	Microphone input positive (left side)
8	MIC_N_L	Microphone input negative (left side)

9	SPK_N_R	Speaker output negative (right side)
10	SPK_P_R	Speaker output positive (right side)
11	SPK_N_L	Speaker output negative (left side)
12	SPK_P_L	Speaker output positive (left side)
13	GND	Ground
14	USB D-	USB data minus
15	USB D+	Input USB data plus with selectable internal 1.5kohm pull-up resistor
16	VUSB	5V input
17	UART_RTS	UART request to send active low
18	UART_TX	UART data output
19	UART_CTS	UART clear to send active low
20	UART_RX	UART data input
21	S4	High when incoming call
22	S3	Volume up
23	S2	Volume down
24	S1	Turn on
25	RESET	Reset if high
26	S5	Forward
27	S6	Backward
28	VBAT	Battery voltage input
29	GND	Ground
30	1.8V	1.8V output

31	GND	Ground
32	D1	Light if battery is charged or low battery

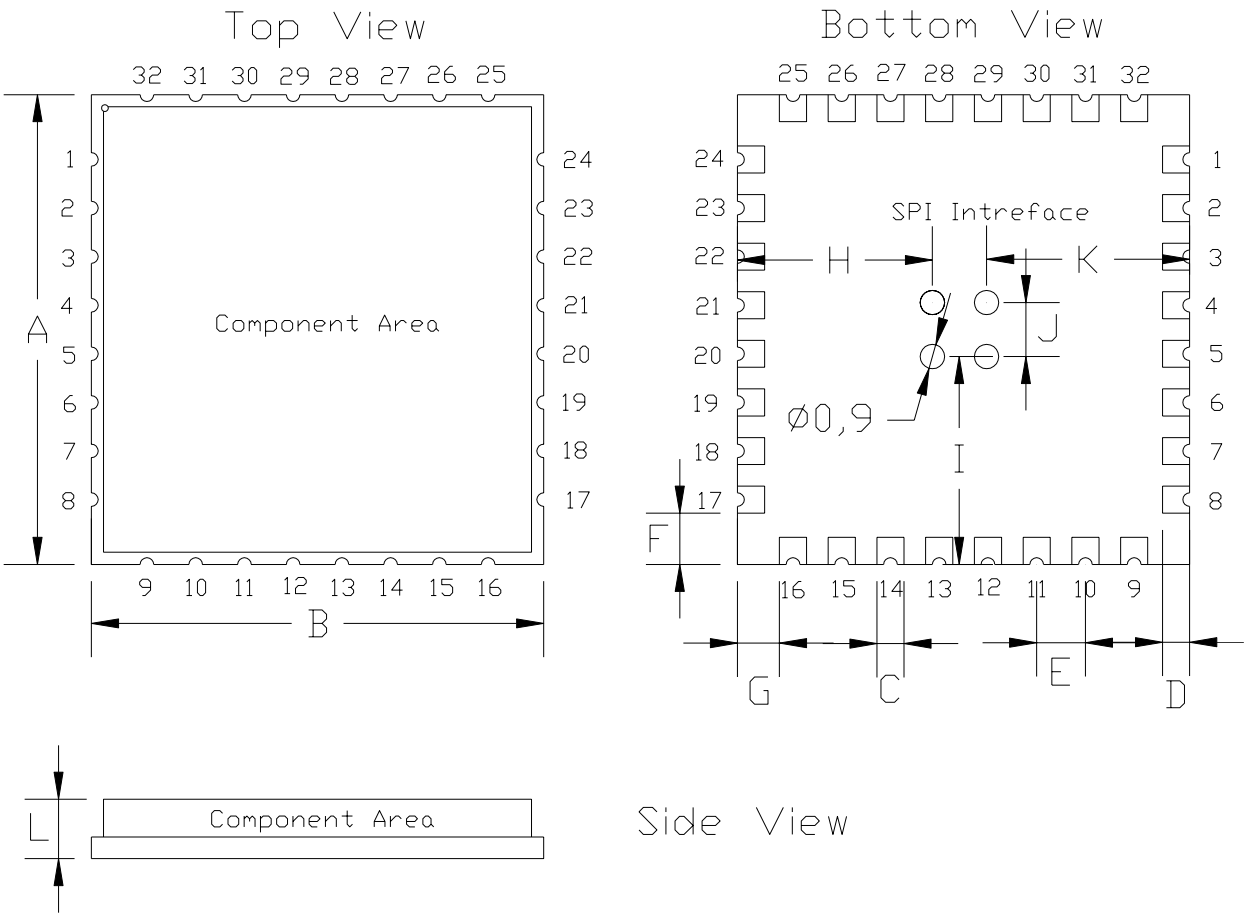
7.Reference design for Headset application



Note:

1. The Mini USB can replace to DC Jack. It used to charge the battery.
2. The RESET pin can connect to VUSB or place a SW.

8.Dimensions (mm)



A	17.4 ± 0.1	D	1.0 ± 0.1	G	1.55 ± 0.1	J	2.0 ± 0.1
B	16.7 ± 0.1	E	1.8 ± 0.1	H	7.2 ± 0.1	K	7.5 ± 0.1
C	1.0 ± 0.1	F	1.9 ± 0.1	I	7.7 ± 0.1	L	2.5 ± 0.1

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