Preliminary

DLBM-CS222

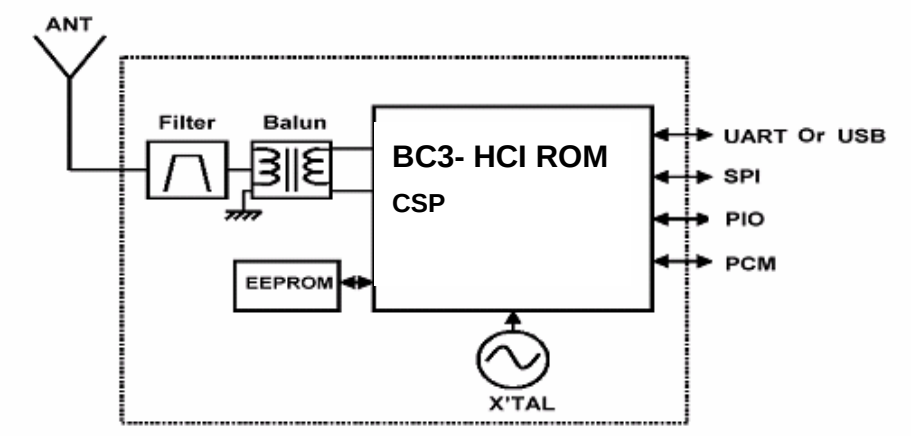
DLBM-CS222
Bluetooth™ Module Class 2

Wireless communication module compliant with Bluetooth™ Specification V1.2.

FEATURES:

- ***Suitable for Cellular Phones, PDAs, Digital Cameras, …….***
- ***Small size and Low Profile using high-density packaging technology for space critical applications.***
- ***High sensitivity for better reception.***
- ***Various interfaces: UAR or USB.***
- ***Wide operating temperature range: -30~+85℃.***

Device diagram



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General Specification

Bluetooth Specification	**Version 1.2**
Frequency	**2402~2480MHz**
Modulation	**FHSS/GFSK**
Transmission Rate	**721kbps**
Receive Sensitivity	**Typ. -80dBm**
Maximum Output Power	**+4dBm(Class 2)**
Operating Voltage	**See Power Supply Diagram**
Operating Temperature	**-30~+85℃**
Antenna Impedance	**50Ω**
Package Size	**6.5*5.2*1.6 (mm)**

Power Supply Diagram

Terminal	3.0V Power Supply	1.8V Power Supply
VDD_1.8V	Bypass Capacitor	1.7 to 1.9V
VDD_IO	1.7 to 3.6 V	1.7 to 1.9V
VREG_IN	2.7 to 4.2 V	NC

Interface

Interface	Description
Antenna	**External Antenna 50Ω**
UART Interface	**TX, RX, RTS, CTS(9600bps~1.5Mbps)**
SPI Interface	**Synchronous Serial Interface for firmware download**
PCM Interface	**Supports continuous transmission and reception of PCM encoded audio data over Bluetooth**
PIO Interface	**6 terminals**
AIO Interface	**1 terminals**

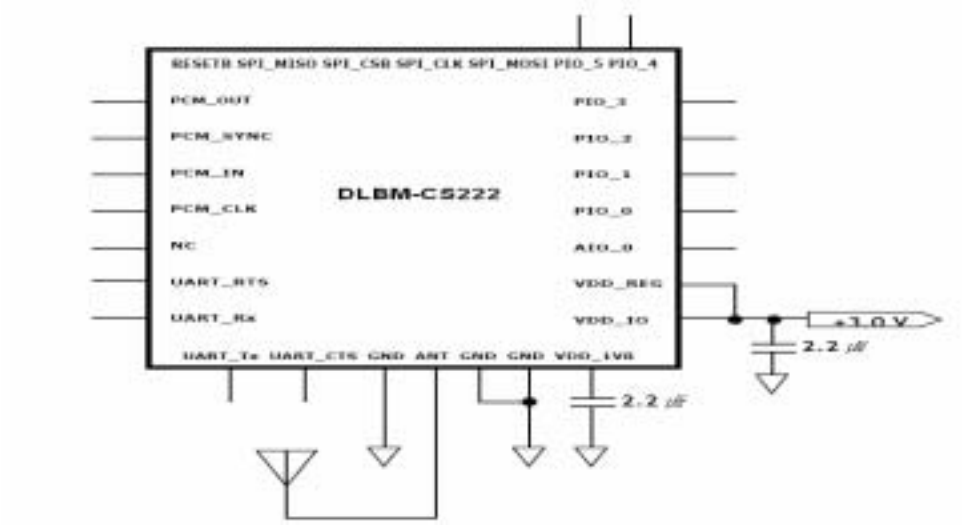
RF Characteristics

Operating Condition: +25℃, VDD=1.8V

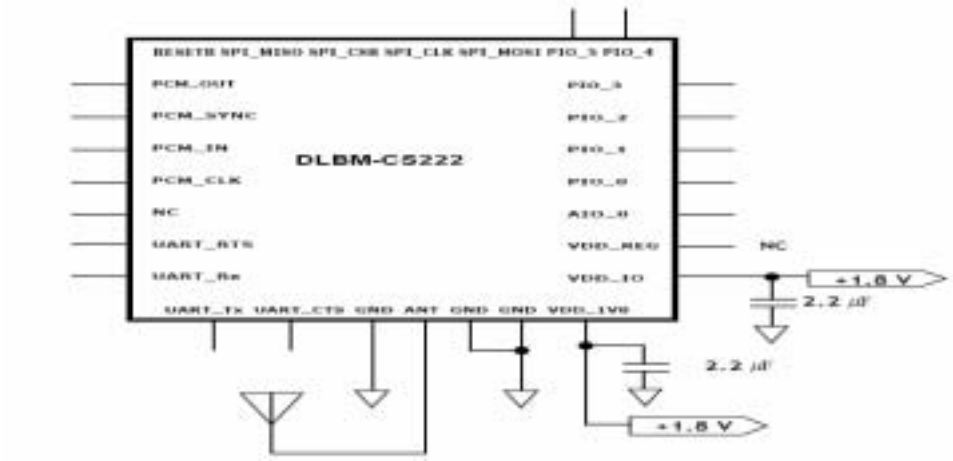
RF Characteristics	Min.	Typ.	Max.	Unit
1. Fequency Range	2400 ~ 2483.5			MHz
2. Output Power	-6	0	4	dBm
3. Sensitivity at 0.1% BER				
1) 2402MHz	-70	-80		dBm
2) 2441MHz	-70	-80		dBm
3) 2480MHz	-70	-80		dBm
4. Maximum Input Level (BER≦0.1%)	-20	0		dBm
5. Adjacent channel selectivity				
1) C/I co – channel Ratio			11	dB
2) C/I @ 1MHz			0	dB

3) C/I @ 2MHz			-30	dB
4) C/I @ 3MHz			-40	dB
5) Image Ratio (-67 dBm input)			-9	dB
6. Adjacent channel transmit power				
1) F=F0 ± 2MHz		-35	-20	dBc
2) F=F0 ± 3MHz		-55	-40	dBc
7. Modulation Characteristics				
1) Modulation Δf1avg	140	168	175	kHz
2) Modulation Δf2max	115	157		kHz
8. Initial Carrier Frequency Tolerance				
1) 2402MHz	-75	+/-5	75	kHz
2) 2441MHz	-75	+/-5	75	kHz
3) 2480MHz	-75	+/-5	75	kHz
9. Carrier Frequency Drift				
1) 1slot	-20		20	kHz
2) 5slot	-25		25	kHz
4) Drift rate	-20		20	KHz/50us
10. 20dB Bandwidth for modulated carrier				
1) 2402MHz			1000	KHz
2) 2441MHz			1000	KHz
3) 2480MHz			1000	KHz

Application Circuit



UART I/F 3.0V Power Supply



UART I/F 1.8V Power Supply

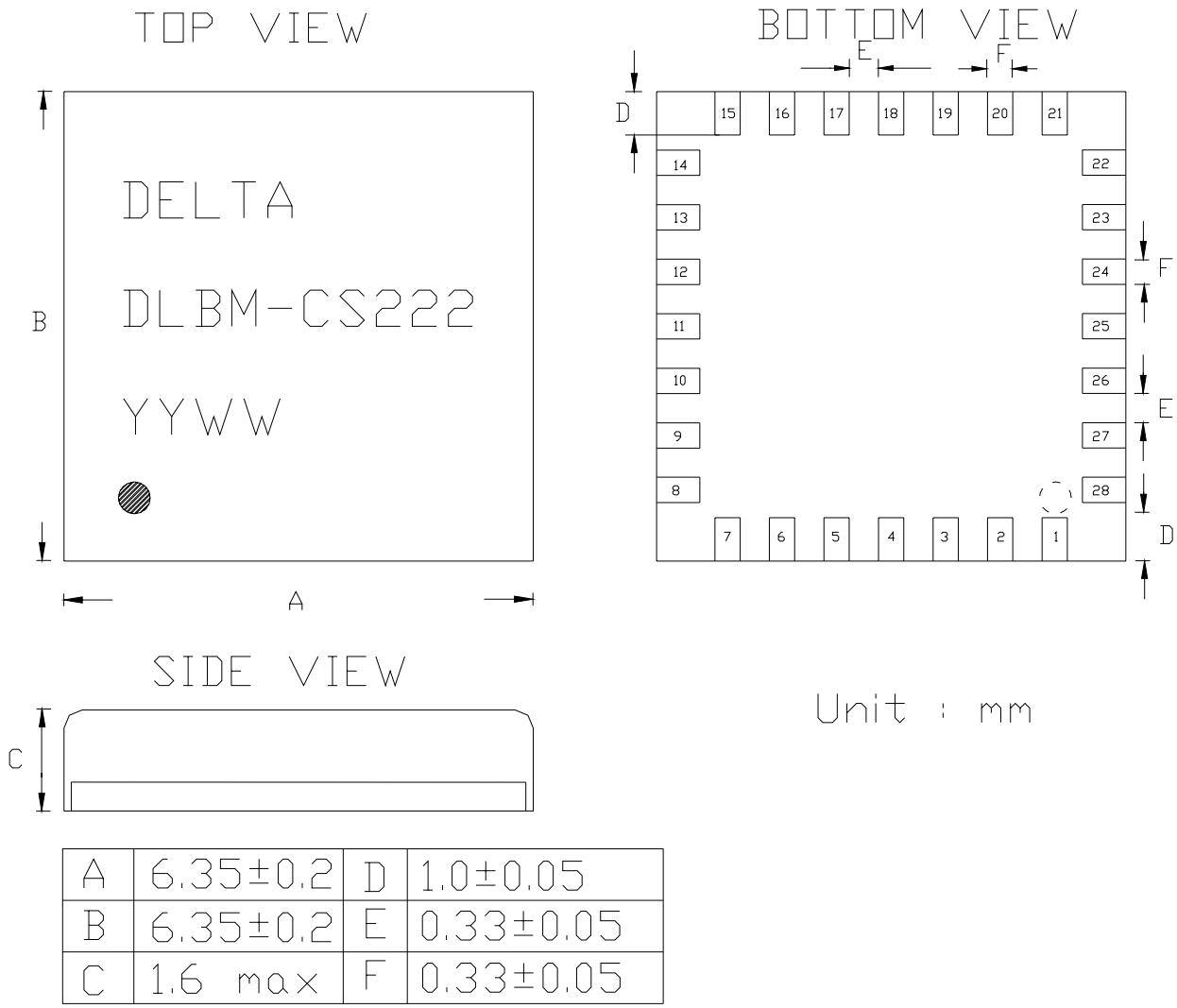
Pin description

Pin No.	Name	Description
1	PCM_OUT	Synchronous data out
2	PCM_SYNC	Synchronous data sync
3	PCM_IN	Synchronous data input
4	PCM_CLK	Synchronous data clock
5	NC	No Connection
6	UART_RTS	UART request to send active low
7	UART_Rx	UART data input active high
8	UART_Tx	UART data output active high
9	UART_CTS	UART clear to send active low
10	GND	Ground
11	ANT	Antenna port
12	GND	Ground
13	GND	Ground
14	VDD_1.8V	VDD 1.8V
15	VDD_IO	VDD Input / Output
16	VDD_REG	Regulator Input

17	**AIO_0**	**Programmable I/O Line**
18	**PIO_0**	**Programmable I/O Line**
19	**PIO_1**	**Programmable I/O Line**
20	**PIO_2**	**Programmable I/O Line**
21	**PIO_3**	**Programmable I/O Line**
22	**PIO_4**	**Programmable I/O Line**
23	**PIO_5**	**Programmable I/O Line**
24	**SPI_MOSI**	**Serial Peripheral Interface data input**
25	**SPI_CLK**	**Serial Peripheral Interface clock**
26	**SPI_CSB**	**Chip select for Synchronous Serial Interface active low**
27	**SPI_MISO**	**Serial Peripheral Interface data output**
28	**RESETB**	**Reset if low. Input debounced so must be low for >5ms to cause a reset**

Dimensions (mm)

Note:
1.SHIELD MATERIAL IS COPPER NICKLE SHEETS AND PLATES AND IS SOLDERABLE.
2.YYWW IS THE DATE CODE. YY=YEAR, WW=WEEK



Unit : mm

A	6.35±0.2	D	1.0±0.05
B	6.35±0.2	E	0.33±0.05
C	1.6 max	F	0.33±0.05

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Record of changes

Date	Content of change	Maker
May 11,2005	1)Spec setup	Ming.Wu

Contact information:

Website: http://www.deltaww.com
Email: Richard.Meng@delta.com.tw (Worldwide)
TEL: 886-3-359-1968 ext.2930