

Preliminary

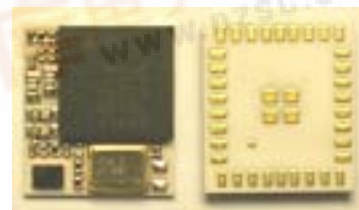


DLBM-CR320

DLBM-CR320

Bluetooth™ Module Class 2

A Class 2 V2.0+EDR Bluetooth HCI module suitable for various (mobile phones) applications.



1.FEATURES:

- **Suitable for Cellular, PDA, PC, Digital Cameras... applications.**
- **Reducing the size and thickness greatly using high-density packaging technology.**
- **High sensitivity to achieve better performance.**
- **Compliant to various interfaces: UART, USB, PIO, PCM.**
- **Wide operating temperature range: -30~+80 °C.**

2.Device diagram

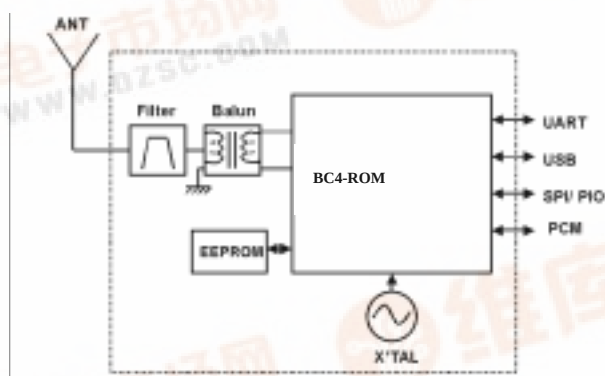


Figure 1. DLBM-CR320 Block Diagram



3.General Specification

Bluetooth™ Specification	Version 2.0 plus EDR
Frequency	2402~2480MHz
Modulation	FHSS/GFSK/DQPSK/8DPSK
Transmission rate	721kbps/2M/3M
Receive sensitivity	-80dBm
Maximum output power	+4dBm(Class 2)
Operating Voltage	1.8V or 2.2~3.6V
Operating temperature	-30~+80°C
Antenna Impedance	50 ohm
Package size	9.1*7.9*1.6mm
Operating range	Up to 10 meters

4.Rating

	Min	Max	Unit
Storage Temperature	-40	+150	°C
VDD_1.8V	-0.4	+1.9	V
VDD_IO	-0.4	+3.6	V
VREG_IN	-0.4	+4.2	V



5.Interface

Interface	Description
Antenna	External Antenna 50 ohm
UART Interface	TX,RX,RTS,CTS(9600bps~1382400bps)
SPI Interface	Synchronous Serial Interface for firmware download
PIO Interface	9 terminals

6.Power Supply Diagram

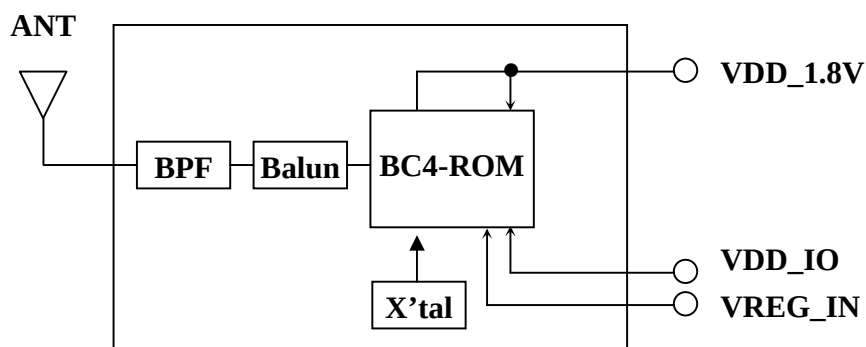


Figure 2. Power Supply Diagram

Terminal	3.0V	1.8V
VDD_1.8V	NC	1.7 to 1.9V
VDD_IO	1.7 to 3.6V	2.7 to 3.0V
VREG_IN	2.2 to 4.2V	NC



7. RF Characteristics

Operating Condition: +25°C, VDD=1.8V

RF Characteristics	Min.	Typ.	Max.	Unit
1. Frequency 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 F=F ₀ + 1MHz		-4	0	dB
2) C/I F=F ₀ - 1MHz		-4	0	dB
3) C/I F=F ₀ + 2MHz		-35	-30	dB
4) C/I F=F ₀ - 2MHz		-21	-20	dB
5) C/I F≥F ₀ + 3MHz		-45		dB
6) C/I F≤F ₀ - 5MHz		-45		dB
7) C/I F=F _{image}		-18	-9	dB
6. Adjacent channel transmit power				
1) F=F ₀ ± 2MHz		-35	-20	dBc
2) F=F ₀ ± 3MHz		-55	-40	dBc
7. Modulation Characteristics				
1) Modulation Δf _{1avg}	140	165	175	kHz
2) Modulation Δf _{2max}	115	155		kHz
8. Initial Carrier Frequency Tolerance				
1) 2402MHz	-75	16	75	kHz
2) 2441MHz	-75	13	75	kHz

Preliminary



DLBM-CR320

3) 2480MHz	-75	14	75	KHz
9. Carrier Frequency Drift				
1) 1slot	-20	9	20	KHz
2) 5slot	-25	10	25	KHz
4) Drift rate	-20	6.5	20	KHz/50us
10. 20dB Bandwidth for modulated carrier				
1) 2402MHz		879	1000	KHz
2) 2441MHz		816	1000	KHz
3) 2480MHz		819	1000	KHz
11.C/I co - channel		9	11	dB



8. RECOMMENDED REFLOW PROFILE

Reflow Profile Used at The Evaluation (Sn-3.0Ag-0.5Cu) –PF606-P

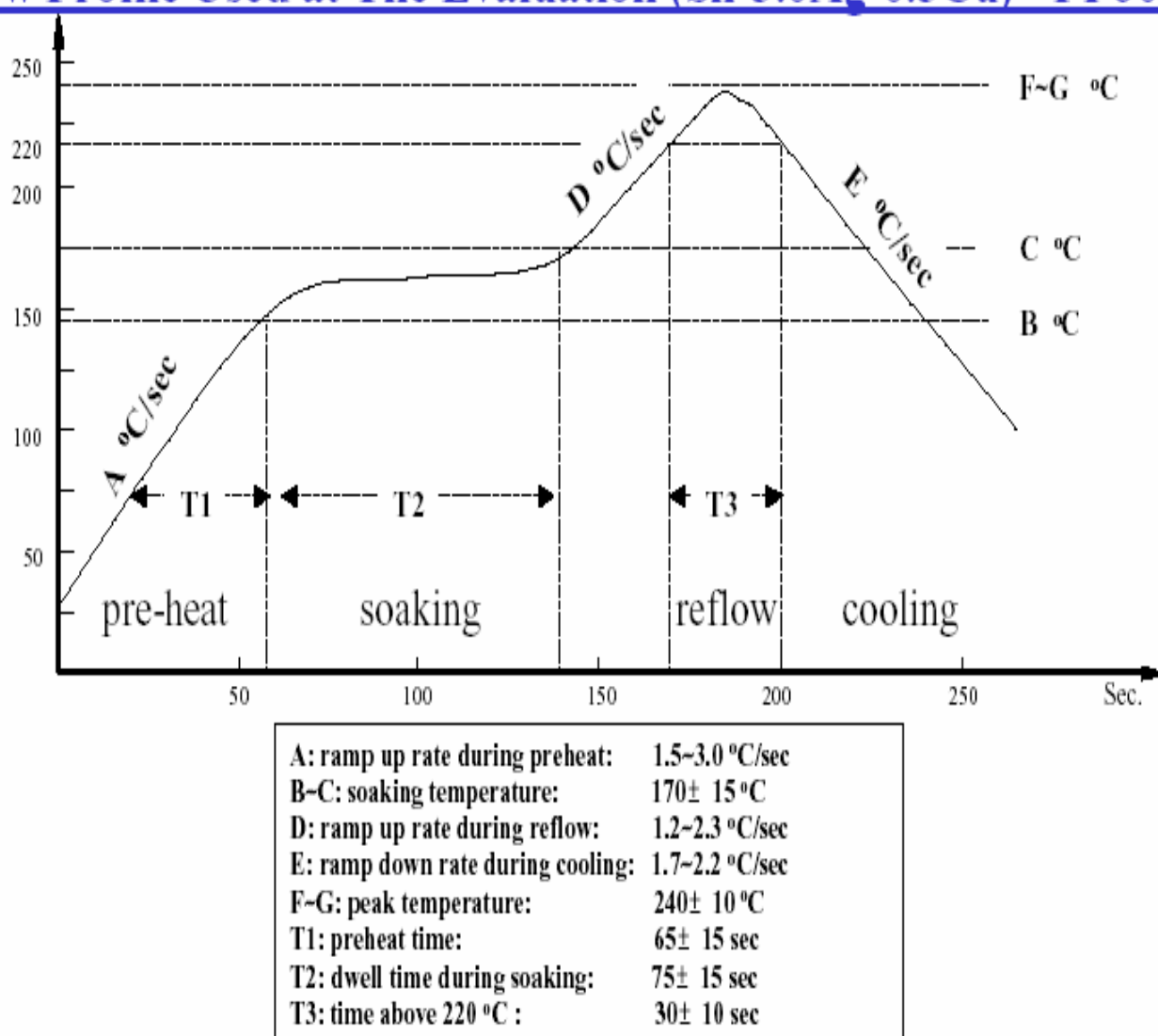


Figure 3. REFLOW PROFILE



9.Pin description

Pin No.	Name	Description
1	PIO_11	Programmable I/O terminal
2	PIO_9	Programmable I/O terminal
3	PCM_OUT	/Speaker output positive /Synchronous data output
4	PCM_SYNC	/Speaker output negative /Synchronous data sync
5	PCM_CLK	/Microphone input positive /Synchronous data clock
6	PCM_IN	/Microphone input negative /Synchronous data input
7	Gnd	
8	Gnd	
9	Gnd	
10	ANT	RF input/output
11	AIO_0	Programmable input/output
12	Gnd	
13	Gnd	
14	Gnd	
15	Vdd_1.8V	Refer to Power supply diagram
16	VREG_IN	Refer to Power supply diagram

**DLBM-CR320**

17	VDD_IO	Refer to Power supply diagram
18	USB_DN	USB data minus
19	USB_DP	USB data plus with selectable internal 1.5kohm pull-up resistor
20	UART_TX	UART data output active high
21	UART_RX	UART data input active high
22	UART_CTS	UART clear to send active low
23	UART_RTS	UART request to send active low
24	Reset_B	Reset if low
25	PIO_4	Programmable input/output line
26	PIO_5	Programmable input/output line
27	PIO_10	Programmable input/output line
28	PIO_3	Programmable input/output line
29	Gnd	Ground
30	Gnd	Ground
31	Gnd	Ground
32	PIO_2	Programmable input/output line
33	PIO_1	Programmable input/output line
34	PIO_0	Programmable input/output line
35	SPI_MOSI	Serial Peripheral Interface data input

Preliminary



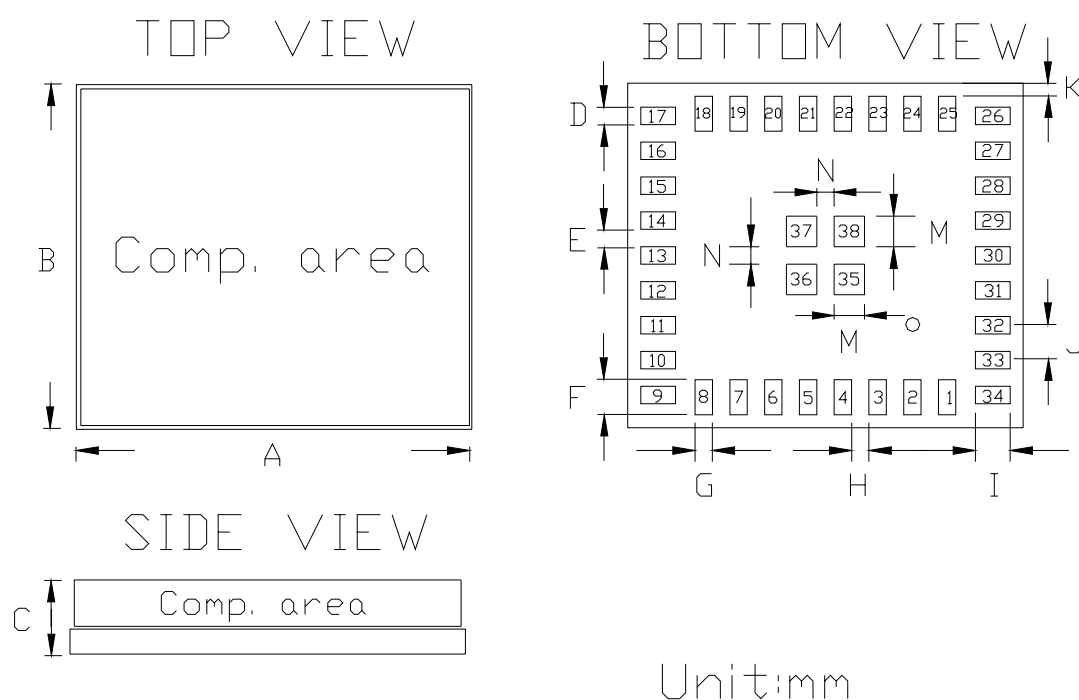
DLBM-CR320

36	SPI_MISO	Serial Peripheral Interface data output
37	SPI_CLK	Serial Peripheral Interface clock
38	SPI_CSB	Chip select for Serial Peripheral Interface, active low



DLBM-CR320

10. Dimensions (mm)



A	9.1 ± 0.2	E	0.4 ± 0.1	I	0.8 ± 0.1	N	0.4 ± 0.1
B	7.9 ± 0.2	F	0.8 ± 0.1	J	0.8 ± 0.1		
C	1.5 ± 0.2	G	0.4 ± 0.1	K	0.3 ± 0.1		
D	0.4 ± 0.1	H	0.4 ± 0.1	M	0.7 ± 0.1		

Figure 4. Output pin dimensions

Preliminary



DLBM-CR320

Contact information:

Website: <http://www.deltaww.com>

Email: Jonathan.Chen@delta.com.tw

Tel No.: 886-3-3591968#2925