

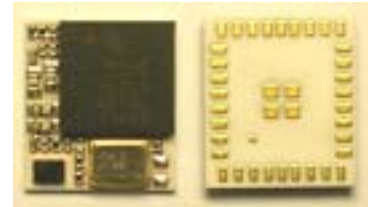


## DLBM-CR320

### 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 .**

### 2. Device diagram

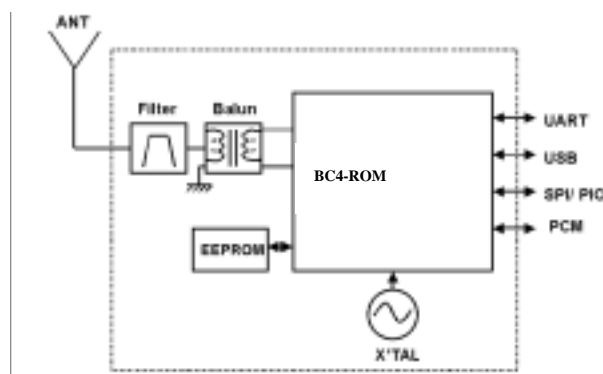


Figure 1. DLBM-CR320 Block Diagram



### 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
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	
VDD_1.8V	-0.4	+1.9	V
VDD_IO	-0.4	+3.6	V
VREG_IN	-0.4	+4.2	V



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## 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

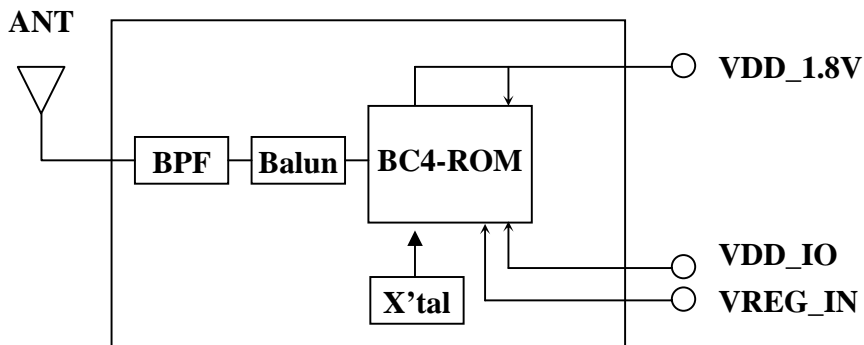


Figure 2. Power Supply Diagram

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 , 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 <sub>0</sub> + 1MHz		-4	0	dB
2) C/I F=F <sub>0</sub> - 1MHz		-4	0	dB
3) C/I F=F <sub>0</sub> + 2MHz		-35	-30	dB
4) C/I F=F <sub>0</sub> - 2MHz		-21	-20	dB
5) C/I F F <sub>0</sub> + 3MHz		-45		dB
6) C/I F F <sub>0</sub> - 5MHz		-45		dB
7) C/I F=F <sub>image</sub>		-18	-9	dB
6. Adjacent channel transmit power				
1) F=F <sub>0</sub> ± 2MHz		-35	-20	dBc
2) F=F <sub>0</sub> ± 3MHz		-55	-40	dBc
7. Modulation Characteristics				
1) Modulation f <sub>1avg</sub>	140	165	175	kHz
2) Modulation f <sub>2max</sub>	115	155		kHz
8. Initial Carrier Frequency Tolerance				
1) 2402MHz	-75	16	75	kHz
2) 2441MHz	-75	13	75	kHz

Preliminary



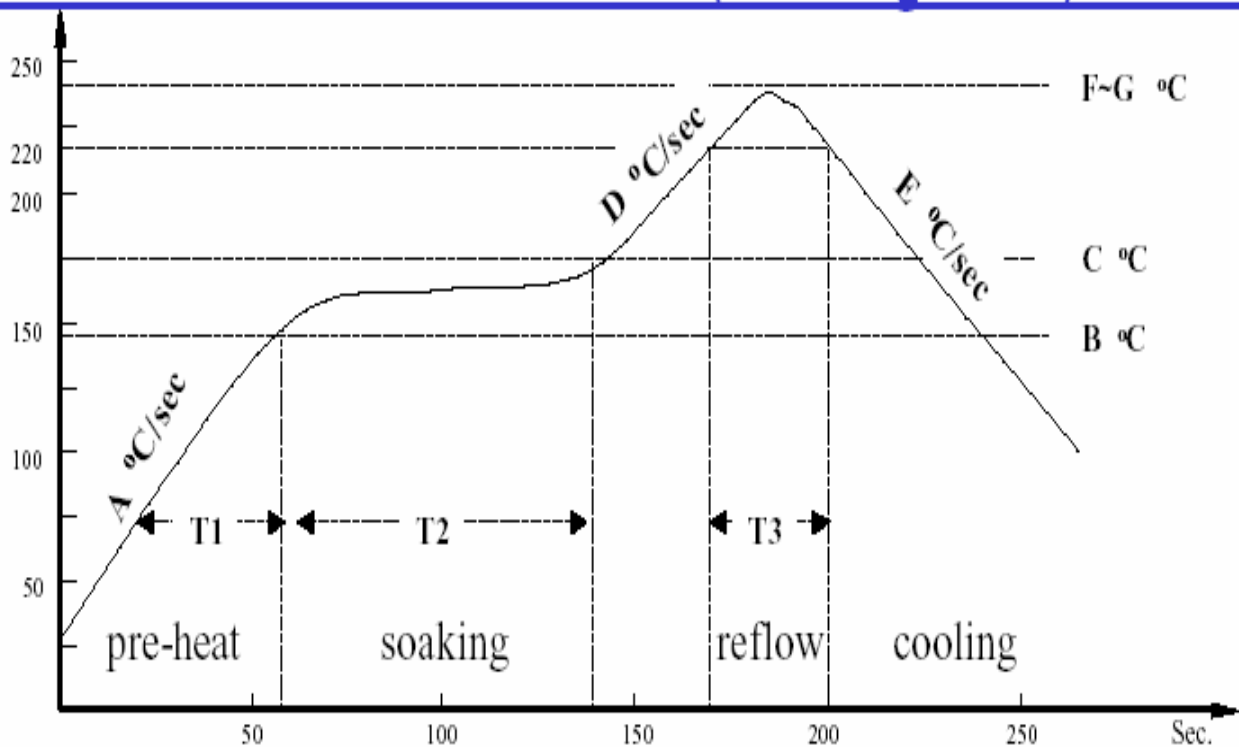
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3) 2480MHz	-75	14	75	kHz
<b>9. Carrier Frequency Drift</b>				
1) 1slot	-20	9	20	kHz
2) 5slot	-25	10	25	kHz
4) Drift rate	-20	6.5	20	KHz/50us
<b>10. 20dB Bandwidth for modulated carrier</b>				
1) 2402MHz		879	1000	KHz
2) 2441MHz		816	1000	KHz
3) 2480MHz		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**



A: ramp up rate during preheat:	1.5~3.0 °C/sec
B-C: soaking temperature:	170± 15 °C
D: ramp up rate during reflow:	1.2~2.3 °C/sec
E: ramp down rate during cooling:	1.7~2.2 °C/sec
F-G: peak temperature:	240± 10 °C
T1: preheat time:	65± 15 sec
T2: dwell time during soaking:	75± 15 sec
T3: time above 220 °C :	30± 10 sec

**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

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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**

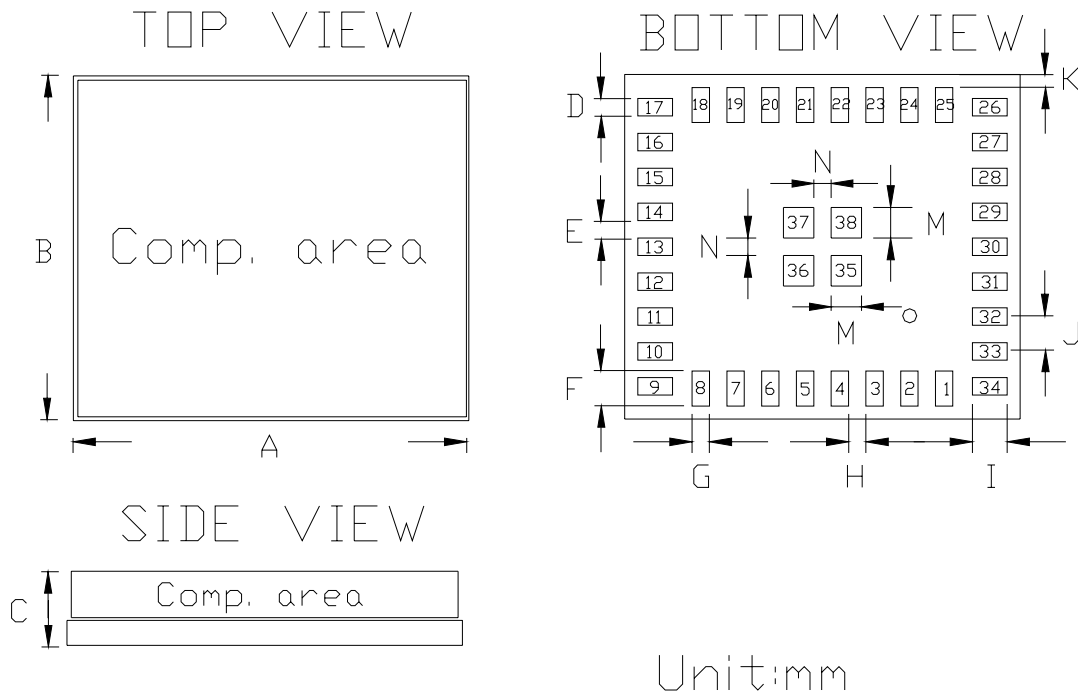
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<b>36</b>	SPI_MISO	Serial Peripheral Interface data output
<b>37</b>	SPI_CLK	Serial Peripheral Interface clock
<b>38</b>	SPI_CSB	Chip select for Serial Peripheral Interface, active low



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## 10. Dimensions (mm)



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

**Figure 4. Output pin dimensions**

*Preliminary*



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