

Bluetooth® Module

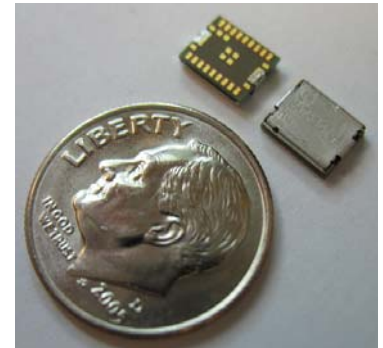


LBMA465HG1 Class2, Bluetooth® ver2.0+EDR

OUTLINE

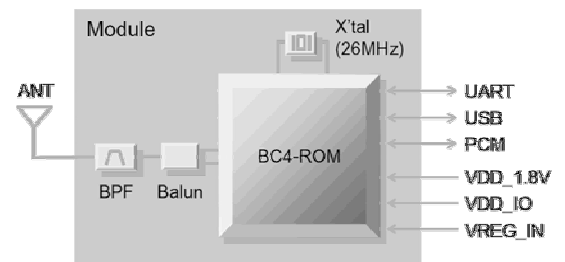
● **AT HOME. AT WORK. ON THE ROAD. USING BLUETOOTH WIRELESS TECHNOLOGY MEANS TOTAL FREEDOM FROM THE CONSTRAINTS AND CLUTTER OF WIRES IN YOUR LIFE.**

- Wireless module certified to *Bluetooth*® ver. 2.0 + EDR
- Ultra Small *Bluetooth* Class2 Host Controller Interface (HCI) module
- Ceramic Multi-layer Technology (LTCC)
- Interface: USB/UART(H4)/BCSP, and PCM
- IC/Firmware: CSR BC04-ROM Ver. 21e (support 3wire co-existence)
- 13-bit PCM, 8k samples/s, synchronous bidirectional audio interface
- External Host processor, *Bluetooth* stack, and antenna required.



FEATURES

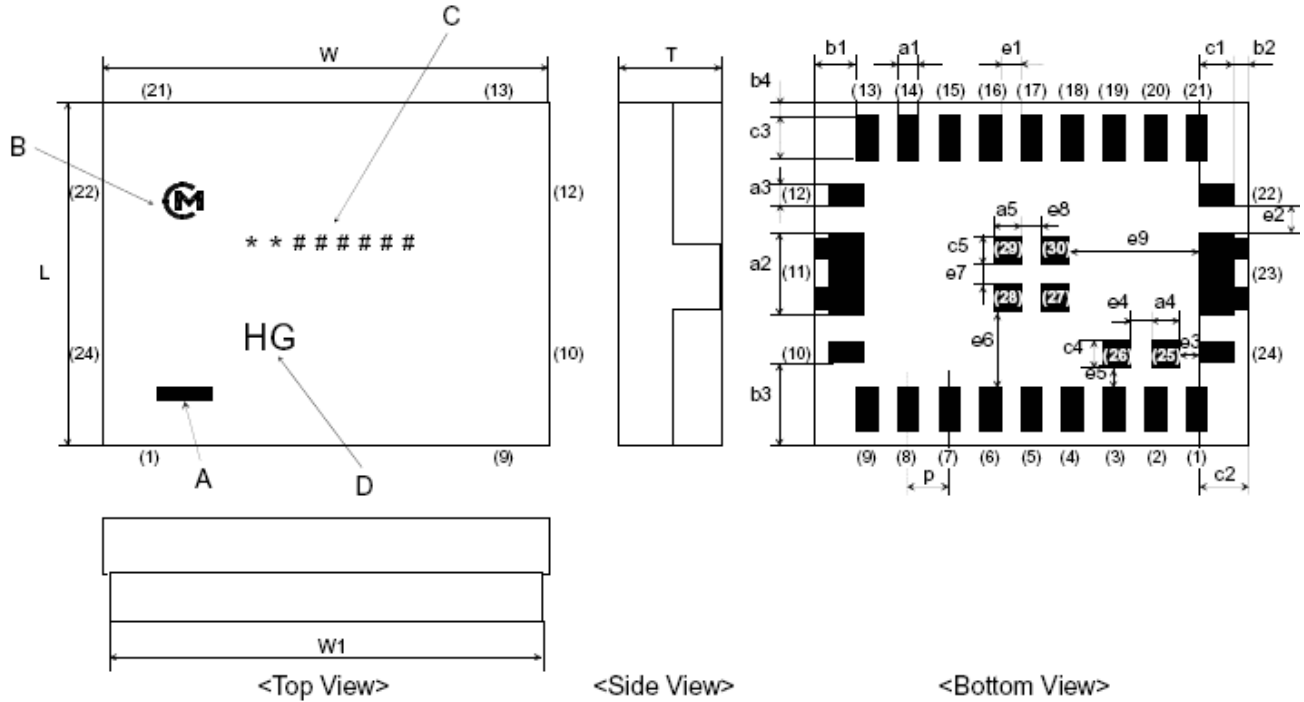
- Dedicated PCM voice channel for audio applications, and eSCO for exceptional audio clarity
- Low power consumption (50mA TX, 25mA RX, and 75uA deep sleep)
- +10 meter (33 feet) distance
- Embedded 26MHz X'tal
- Metal RF shield
- Lead free module
- Ultra small-form factor SMT radio modem
- Operating temperature range: -20~+75°C
- Sensitivity (BDR): -82dBm typ. (BER=0.1%)
- Secure and robust communication link
 - ✓ FHSS (Frequency Hopping Spread Spectrum)
 - ✓ Error correction schemes
- Host interface is selected by GPIO pins or command from Host.



SPECIFICATIONS

Item	Specifications
Frequency	2402 ~ 2480MHz
Modulation	FHSS/GFSK
Channel intervals	1MHz
Number of channels	79CH
Power supply voltage (options)	1.8, 3.0 or 3.3Vdc ± 0.1V and < 10mVp-p noise
Current consumption	50mA worst case peak
Transmission rate (over the air)	3Mbps
Receive sensitivity	-84dBm typ.
Output Power (Class2)	4dBm max.
Weight	0.125g
Dimensions	Without antenna
	With antenna
	6.4(W) X 5.0(L) X 1.5(H)mm
	N/A

DIMENSIONS



Marking	Meaning
A	Pin 1 Marking
B	Murata Logo
C	BD Address
D	Module Type

Dimensions

(Unit : mm)

Mark	Dimension	Mark	Dimension	Mark	Dimension
L	5.0 +/- 0.3	W	6.4 +/- 0.3	W1	6.3 +/- 0.3
T	1.5 max.	a1	0.3 +/- 0.1	a2	1.2 +/- 0.1
a3	0.3 +/- 0.1	a4	0.4 +/- 0.1	a5	0.4 +/- 0.1
b1	0.6 +/- 0.2	b2	0.2 +/- 0.2	b3	1.2 +/- 0.2
b4	0.2 +/- 0.2	c1	0.5 +/- 0.1	c2	0.7 +/- 0.1
c3	0.625 +/- 0.1	c4	0.4 +/- 0.1	c5	0.4 +/- 0.1
e1	0.3 +/- 0.1	e2	0.4 +/- 0.1	e3	0.3 +/- 0.1
e4	0.3 +/- 0.1	e5	0.3 +/- 0.1	e6	1.125 +/- 0.100
e7	0.3 +/- 0.1	e8	0.3 +/- 0.1	e9	1.9 +/- 0.1
p	0.6 +/- 0.1	-	-	-	-

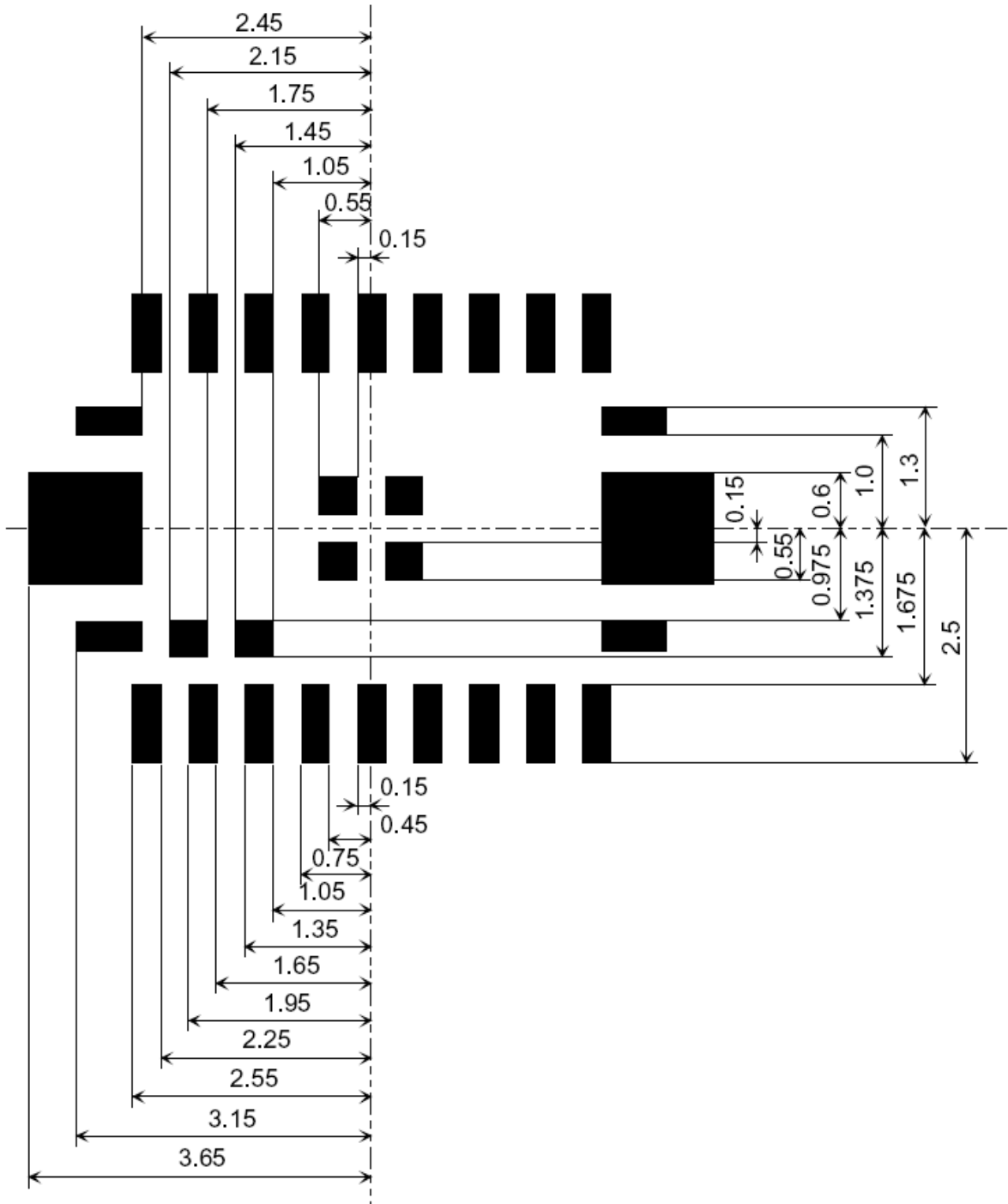
Unit: mm

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

TERMINAL CONFIGURATIONS

Terminal No.	Terminal Name	Pad Type	Description
(1)	PIO_3	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(2)	RESETB	CMOS input with weak internal pull-up	Reset if low. Input dedounced so must be low for >5ms to cause a reset
(3)	PCM_OUT	CMOS output, tri-state with weak internal pull-down	Synchronous data output
(4)	PCM_SYNC	Bi-directional with weak internal pull-down	Synchronous data sync
(5)	PCM_IN	CMOS input, with weak internal pull-down	Synchronous data input
(6)	PCM_CLK	Bi-directional with weak internal pull-down	Synchronous data clock
(7)	UART_RTS	CMOS output, tri-state with weak internal pull-up	UART request to send active low
(8)	UART_RX	CMOS input, with weak internal pull-down	UART data input active high
(9)	UART_TX	CMOS output, tri-state with weak internal pull-up	UART data output active high
(10)	UART_CTS	CMOS input, with weak internal pull-down	UART clear to send active low
(11)	GND	GND	GND
(12)	ANT	Input / output	RF signal input / output
(13)	GND	GND	GND
(14)	PIO_0	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(15)	PIO_1	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(16)	VREG_IN	Regulator input (VDD_REG)	Regulator input
(17)	VDD_IO	VDD	Positive supply for UART, USB, AIO, PIO, other digital input/output port.
(18)	VDD_1.8V	VDD	Positive supply for internal digital circuitry, RF, VCO, synthesizer, analogue circuitry.
(19)	PIO_4	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(20)	PIO_5	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line Assigned as BT_STATE
(21)	PIO_6	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(22)	PIO_7	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line Assigned as BT_PRIORITY
(23)	GND	GND	GND
(24)	PIO_2	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(25)	USB_D-	Bi-directional	USB data minus
(26)	USB_D+	Bi-directional	USB data plus
(27)	PIO_10	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(28)	PIO_8	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
(29)	GND	GND	GND
(30)	PIO_9	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line Murata confirmed as W-LAN ACTIVE

STANDARD LAND DIMENSIONS



Note: Radio requires a RF ground plane on the rest of the Printed Circuit Board (PCB) area. This can be located on any layer of the PCB. Keep metallic components, connectors, copper traces, internal layers, and ground planes away from the antenna area in 3D space!

Unit: mm

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

REFERENCE CIRCUIT – 3.3Vdc Power Supply and USB

