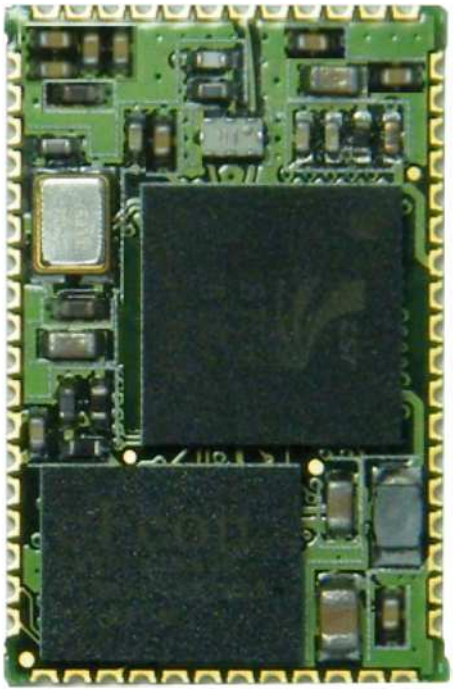
Bluetooth Audio Module

User's Manual



HL-BC05R-HS

Bluetooth V2.1+EDR

Ver 3.8.3.00 2012-07

Welcome

Thanks for your purchase of the Bluetooth Serial Adapter. Featuring Bluetooth wireless technology, The Class 2 Bluetooth Module HL-BC05R is a compact and qualified modules that provide a complete turnkey Bluetooth solution for wireless data communications. The modules can be integrated into various applications to enable any electronic devices equipped with Bluetooth wireless technology, including multi-media products, Handsfree car kit and emerging application specific devices. It is a low cost, high speed and fast implementation Bluetooth device.

■ Features

- Complete 2.4GHz radio transceiver and baseband
- Bluetooth version 2.1 + EDR compliant
- Bluetooth qualified compliance
- Small footprint (13.5mm x 21.0mm x 2.2mm no shielding)
- Bluetooth Class 2 operation (up to 10 meter range)
- Basic module as SMD type, surface mountable
- CSR BlueCore5-Multimedia Ext., single chip Bluetooth system
- 16 Digital I/O lines + 2 Analog I/O lines
- 16-bit stereo Audio CODEC
- Stereo on chip Codec & DSP engine
- Support 802.11 g/b co-existence
- Low Power 3.3V operation

■ Application

High quality stereo wireless Headsets
VOIP Handsets
Stereo Headphones
Automotive Hands-Free Kits
Analog and USB Multimedia Dongles
Wireless Speaker

■ Specification

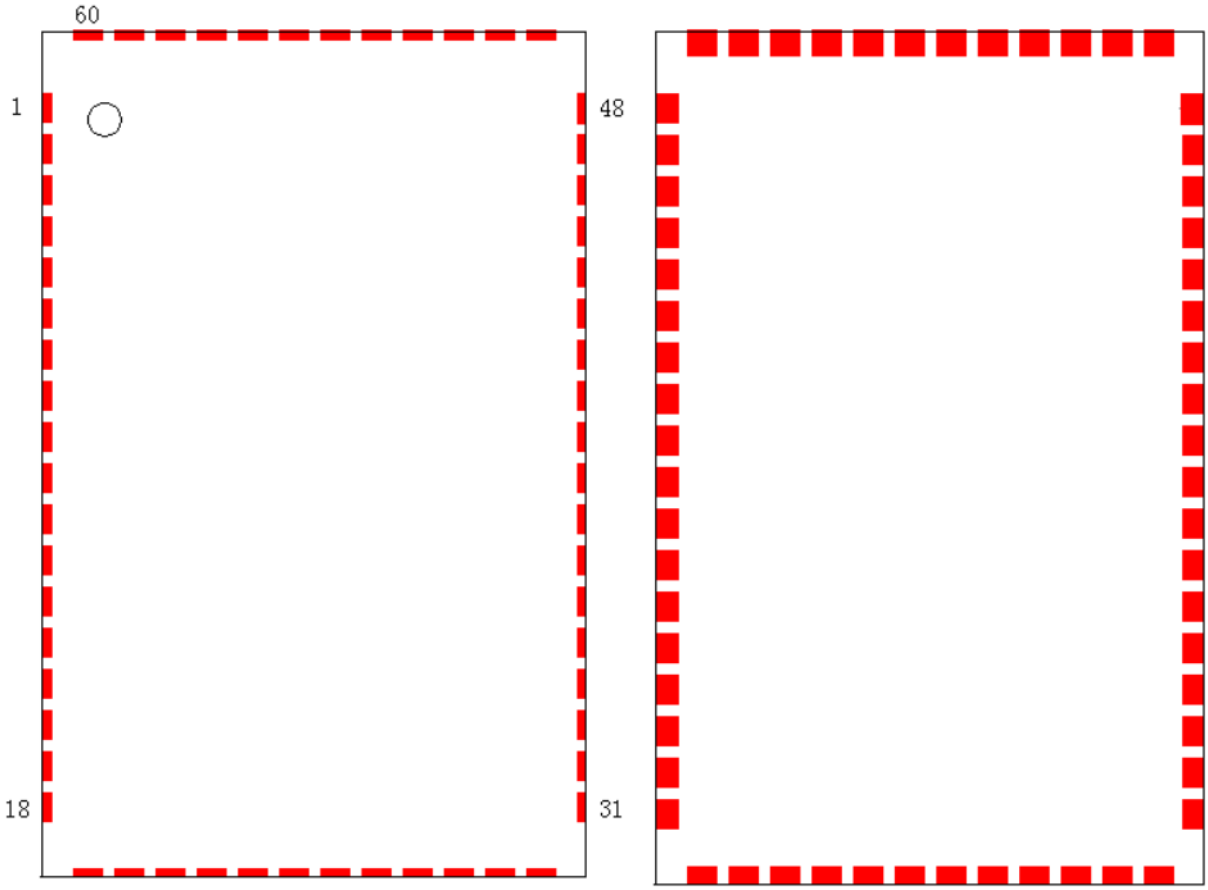
Model Name	**HL-BC05R-HS**
Bluetooth Profile	**A2DP, AVRCP, Headset, Handsfree**
Standard	**Bluetooth specification version 2.1+EDR**
Frequency	**2.40GHz ~ 2.4835GHz unlicensed ISM band**
RF Channels	**79 Channels**
Hopping	**1,600/sec, 1 MHz channel space**
Modulation Method	**GFSK for 1Mbps; Π/4-DQPSK for 2Mbps; 8-DPSK for 3Mbps**
Spread Spectrum	**Frequency Hopping Spread Spectrum (FHSS)**
RF Output Power	**Class 2**
Tx Power	**Max.4 +/-1 dBm**
Rx Sensitivity	**-84 dBm typical**
Antenna	**External (50 ohm input and output impedance)**
Power Supply	**Li-ion battery voltage**
Input Power	**3.3V DC**
Operating Temperature	**0 ~ +60℃**
Storage Temperature	**-10 ~ +70℃**
Dimensions	**21mm(L) * 13.5mm(W) * 2.2mm(H)**

■ Pin Definition

Pin	Pin Name	Type	Description
1	AIO -1	Bi_Dir	Programmable I/O line
2	AIO -0	Bi_Dir	Programmable I/O line
3	RESETB	CMOS input	Reset active low, Input debounced so must be low for >5ms to cause a reset
4	DGND	GND	Module supply ground
5	PIO -9	Bi_Dir	Programmable I/O line
6	PIO -10	Bi_Dir	Programmable I/O line
7	PIO -11	Bi_Dir	Programmable I/O line
8	PIO -12	Bi_Dir	Programmable I/O line
9	PIO -13	Bi_Dir	Programmable I/O line
10	PIO -14	Bi_Dir	Programmable I/O line
11	PIO -15	Bi_Dir	Programmable I/O line
12	DGND	GND	Module supply ground
13	VDD	VDD	+3.3V supply
14	VDD_USB	VDD	Positive supply for UART/USB ports
15	+1V8	VDD2	+1.8V supply
16	DGND	GND	Module supply ground
17	USB_DP	Bi_Dir	USB data plus with selectable Internal 1.5kΩ pull-up resistor
18	USB_DN	Bi_Dir	USB data minus
19	UART_RTS	CMOS output	UART request to send active low
20	UART_CTS	CMOS input	UART clear to send active low
21	UART_RX	CMOS input	UART data input
22	UART_TX	CMOS output	UART data output
23	PCM_IN	CMOS input	Synchronous data input
24	PCM_SYNC	Bi_Dir	Synchronous data strobe
25	PCM_CLK	Bi_Dir	Synchronous data clock
26	PCM_OUT	CMOS output	Synchronous data output
27	SPI_CSB	CMOS input	Chip select for Synchronous Serial Interface
28	SPI_MISO	CMOS output	Synchronous Serial Interface data output
29	SPI_CLK	CMOS input	Synchronous clock
30	SPI_MOSI	CMOS input	Synchronous Serial Interface data input
31	VER IN	VDD	Power Holder for supply voltage
32	VDD BAT	Battery terminal positive voltage	Lthium ion/polymer battery positive terminal.Battery charger output and Input to switch-mode regulator
33	DGND	GND	Module supply ground

34	VDD CHG	VDD	System supply voltage from USB connector for battery charger input
35	LED-1	Open Drain Output	LED driver
36	LED-0	Open Drain Output	LED driver
37	DGND	GND	Module supply ground
38	SPK _L_N	Analogue	SPKR Output Negative(left side)
39	SPK _L_P	Analogue	SPKR Output Positive(left side)
40	SPK _R_N	Analogue	SPKR Output Negative(right side)
41	SPK _R_P	Analogue	SPKR Output Positive(right side)
42	DGND	GND	Module supply ground
43	MIC_BIAS	Analogue	MIC Bias
44	MIC _B_P	Analogue	Microphone input positive (right side)
45	MIC _B_N	Analogue	Microphone input negative (right side)
46	MIC _A_P	Analogue	Microphone input positive (left side)
47	MIC _A_N	Analogue	Microphone input negative (left side)
48	DGND	GND	Module supply ground
49	PIO -0	Bi_Dir	Programmable I/O line RXEN (Control O/P for external T/R Switch)
50	PIO -1	Bi_Dir	Programmable I/O line TXEN (Class 1 PA control)
51	PIO -2	Bi_Dir	Programmable I/O line
52	PIO -3	Bi_Dir	Programmable I/O line
53	RFGND	GND	RF GND
54	RF	Bi_Dir	RF port
55	RFGND	GND	RF GND
56	PIO -4	Bi_Dir	Programmable I/O line
57	PIO -5	Bi_Dir	Programmable I/O line
58	PIO -6	Bi_Dir	Programmable I/O line
59	PIO -7	Bi_Dir	Programmable I/O line
60	PIO -8	Bi_Dir	Programmable I/O line

■ Pinout Diagram



Top View Bottom View

■ PCB Board Land Dimensions