



Bluetooth Module - Part Code LM-400



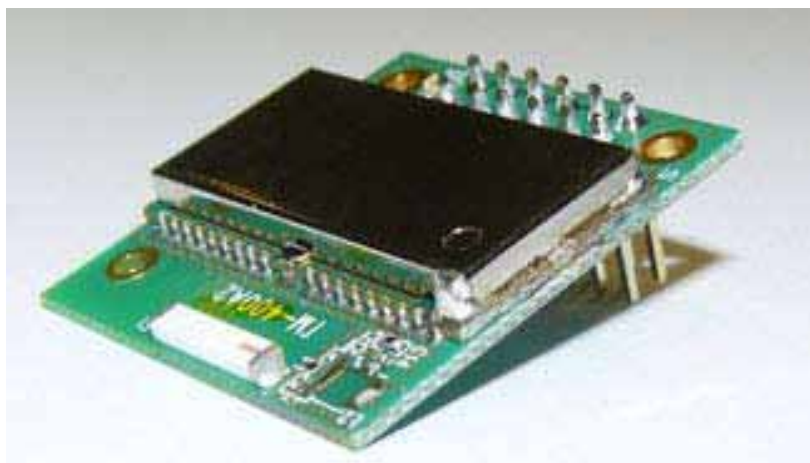
Top view



Bottom view

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Side view



Device Overall Description

The LM400 is designed to provide Bluetooth2.0 + EDR function on a small form factor. The Bluetooth function is based on CSR BlueCore4-Ext Bluetooth System, which implements the full speed class 1 Bluetooth operations with full 7 slave piconet support. The interface of LM400 to host system is UART.

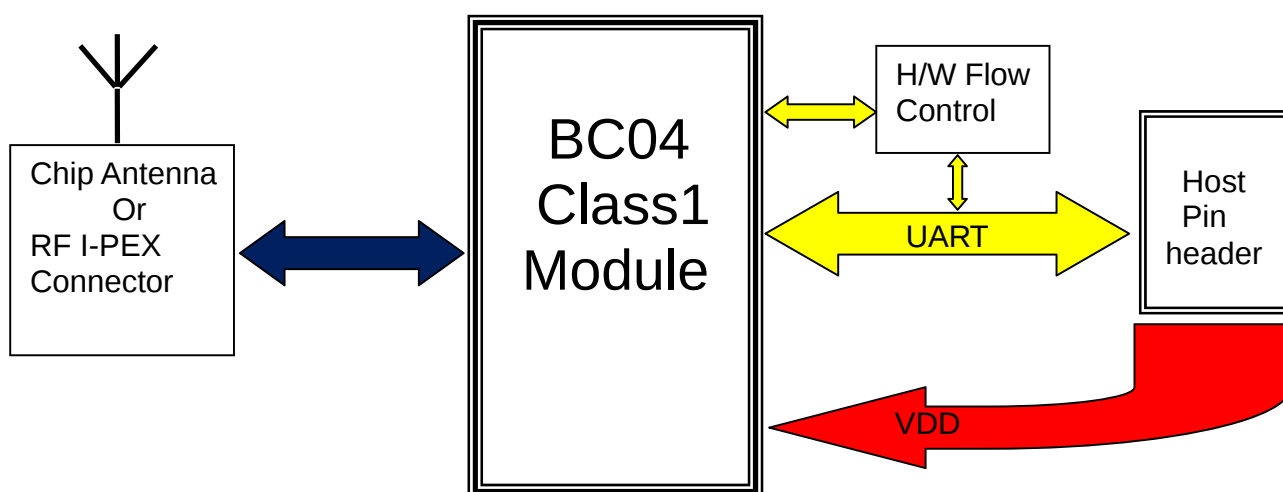
Features

- CSR BlueCore4
- Bluetooth 2.0 + EDR support
- Full Speed Class 1 Bluetooth operation with full 7 slave piconet support
- Single onboard Antenna connector Support (optional)
- Chip Antenna on board
- Transmit Power upto 18dBm (class 1)
- 3.0 to 3.6 V operation
- SPP firmware
- Support 802.11 Co-existence
- RoHS Compliant
- Low Power Consumption: Hold, Sniff, Park, Deep Sleep mode
- Small Outline: 30 mm x 27 mm x 14 mm
- Interoperability with laptops, PDAs, Phones etc

Applications

- Serial Communications
- Bluetooth enabled Printers
- GPS, POS and Bar code readers
- Domestic and Industrial applications

Bluetooth Block Diagram



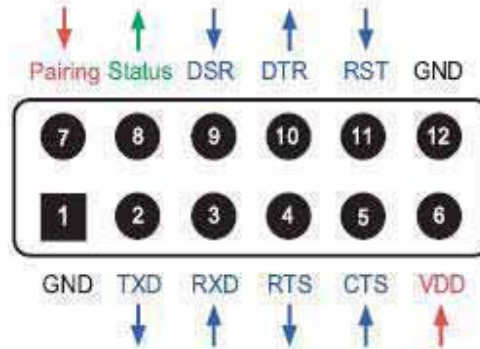


Power Consumption

Absolute Maximum Ratings					
Parameter	Min.	Max.	Unit		
Storage Temperature	-40	+85	C		
Supply Voltage (VDD)	2.7	3.6	DCV		
Supply Voltage (PVCC)	3.0	3.3	DCV		
Other Pin Voltage	Vss-0.4	VDD+0.4	DCV		
Recommended Operating Conditions					
Parameter	Min.	Max.	Unit		
Temperature	-10	+70	C		
Supply Voltage for UART	3.0	3.6	DCV		
Supply Voltage for USB	3.0	3.6	DCV		
General Electrical Specification					
Parameter	Description	Min.	Typ.	Max.	Unit
Carrier Frequency		2.402		2.480	GHz
RF Output Power	Measured in 50ohm	15	16.5	18	dBm
Rx Sensitivity		-	-88	-86	dBm
Load Impedance	No abnormal Oscillation			5:1	
Input Low Voltage	RESET,UART,GPIO,PCM	-0.30	-	0.80	DCV
Input High Voltage	RESET,UART,GPIO,PCM	0.7VDD	-	VDD+0.3	DCV
Output Low Voltage	UART,GPIO,PCM	-	-	0.40	DCV
Output High Voltage	UART,GPIO,PCM	VDD-0.4	-	-	DCV
Average Current Consumption	Receive DM1		114		mA



Pinout and Definition for Header

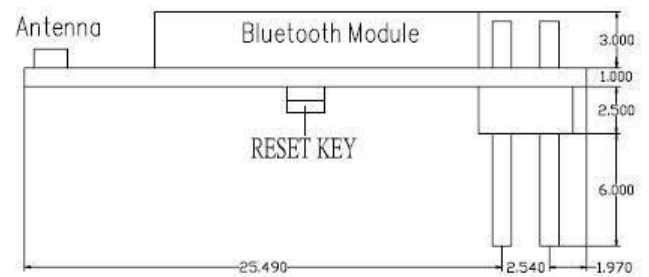
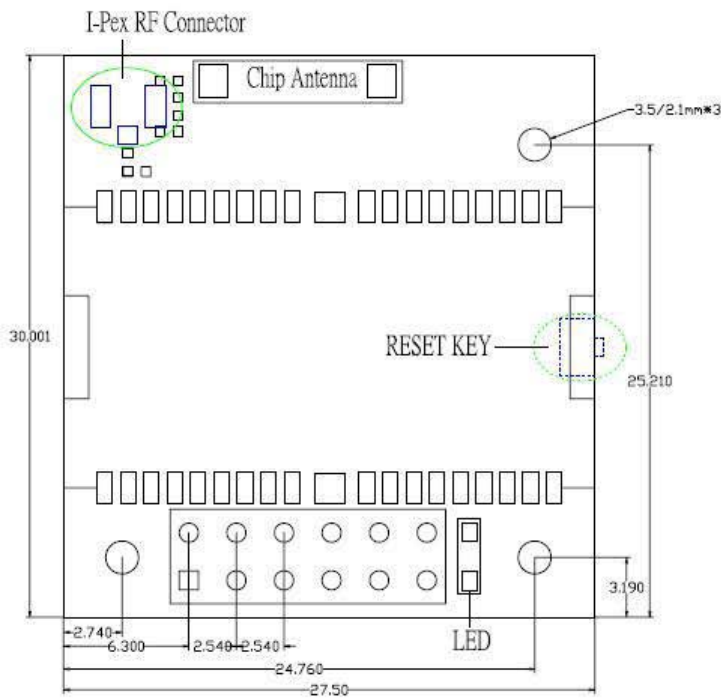


Pin no.	Pin name	Direction	Description	Signal Level
1	GND		Power Ground	Ground
2	TXD	Output	UART data out	TTL
3	RXD	Input	UART data input	TTL
4	RTS	Output	UART Ready to Send	TTL
5	CTS	Input	UART Clear to Send	TTL
6	VDD	Input	DC Input (3.0 ~ 3.3V)	Power
7	Pairing	Input	Pairing input (Active Low)	TTL
8	Status	Output	Bluetooth Connect Detect (Active Low)	TTL
9	DSR	Input	Data Set Ready	TTL
10	DTR	Output	Data Terminal Ready	TTL
11	RST	Input	Reset (Active Low)	TTL



Mechanical Dimension

-30mm x 27.5mm (L x W) +- 0.15mm



-Component height (unit: mm)

Notes :

1. PIO9,10 DSR/DTR don't use, they are no function currently.
2. PIO5 Pairing, the function have been changed to Data led indication
3. PIO6 Status, the function have not been specified.
4. RESET KEY

By pressing the Reset button, you can:

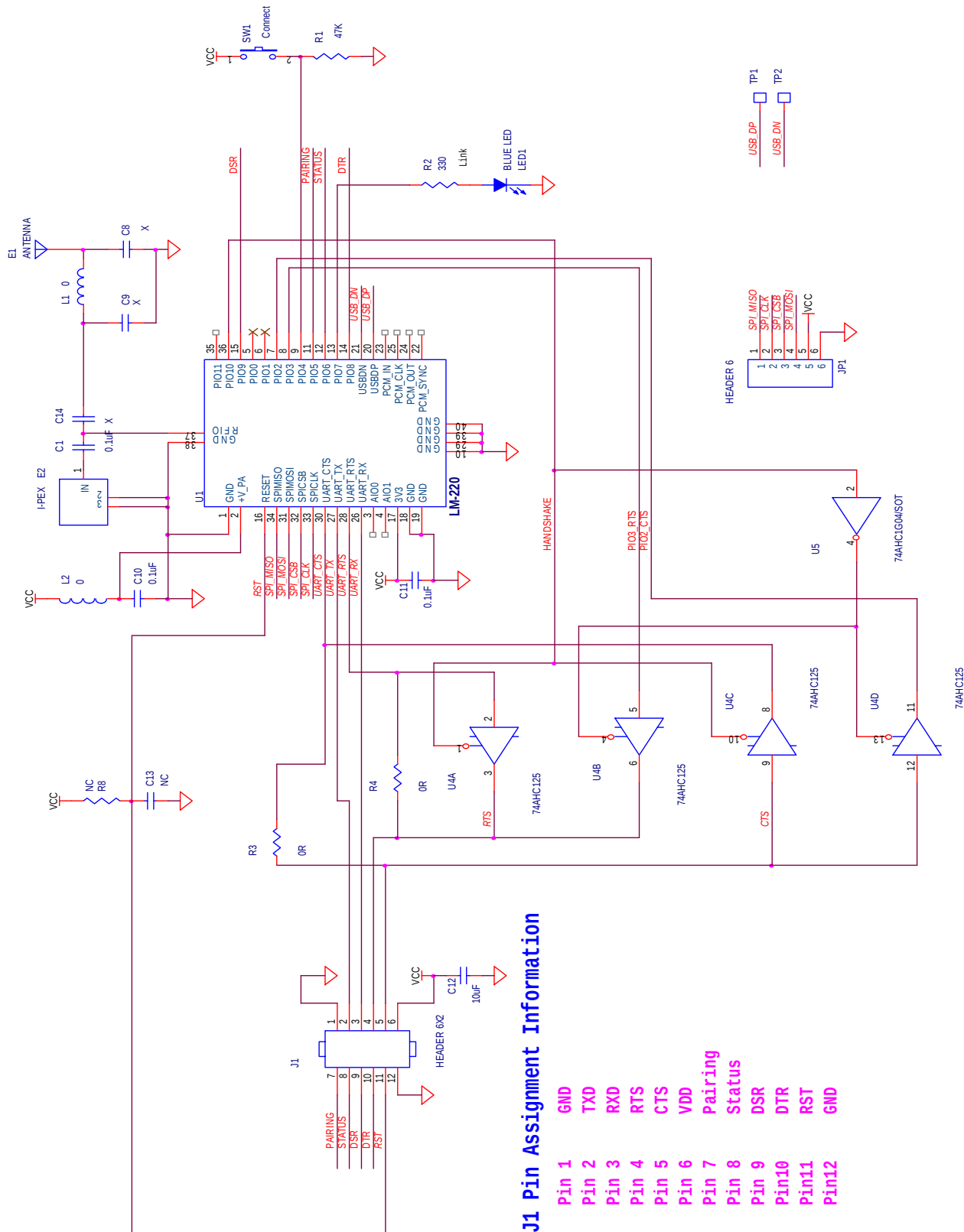
- Disconnect and reconnect a wireless connection (a short press).
- Restore the factory COM port 19200bps settings (over three seconds' press).

5. LED

Bluetooth link status



Schematic





Pinout for module

Pin No.	Pin Name	Pin Type	Description
1	GND	GND	Common ground
2	PVCC	Power	Power Amp. Power Supply(3.3V)
3	AIO (0)	Bi-directional	Programmable I/O terminal , 32KHz sleep clock input
4	AIO (1)	Bi-directional	Programmable I/O terminal
5	PIO (0)	Bi-directional	Programmable I/O terminal , RX Enable
6	PIO (1)	Bi-directional	Programmable I/O terminal , TX Enable
7	PIO (2)	Bi-directional	Programmable I/O terminal , USB_PULL_UP , CLK_REQ_OUT
8	PIO (3)	Bi-directional	Programmable I/O terminal , USB_WAKE_UP , CLK_REQ_IN
9	PIO (4)	Bi-directional	Programmable I/O terminal , USB_ON , BT_Priority/Ch_Clk output for co-existence signalling
10	GND	GND	Common ground
11	PIO (5)	Bi-directional	Programmable I/O terminal , USB_DETACH , BT_Active output for co-existence signalling
12	PIO (6)	Bi-directional	Programmable I/O terminal , CLK_REQ , WLAN_Active/Ch_Data input for co-existence signalling
13	PIO (7)	Bi-directional	Programmable I/O terminal
14	PIO (8)	Bi-directional	Programmable I/O terminal
15	PIO (9)	Bi-directional	Programmable I/O terminal
16	RESET	CMOS input	Reset input of module, Active low reset
17	VCC	Power	Module power supply input
18	GND	GND	Common ground
19	GND	GND	Common ground
20	USB_DP	Bi-directional	USB data plus
21	USB_DN	Bi-directional	USB data minus
22	PCM_SYNC	Bi-directional	Synchronous data sync
23	PCM_IN	CMOS input	Synchronous data input
24	PCM_OUT	CMOS output	Synchronous data output
25	PCM_CLK	Bi-directional	Synchronous data clock
26	UART_RX	CMOS input	UART data input
27	UART_TX	CMOS output	UART data output
28	UART_RTS	CMOS output	UART request to send(active low)
29	GND	GND	Common ground
30	UART_CTS	CMOS input	UART clear to send(active low)
31	SPI_MOSI	CMOS input	Serial Peripheral Interface data input
32	SPI_CSB	CMOS input	Chip select for Synchronous Serial Interface(active low)
33	SPI_CLK	CMOS input	Serial Peripheral Interface clock
34	SPI_MISO	CMOS output	Serial Peripheral Interface data output
35	PIO (11)	Bi-directional	Programmable I/O terminal
36	PIO (10)	Bi-directional	Programmable I/O terminal
37	RF_IO	Analogue	Antenna interface
38	GND	GND	Common ground