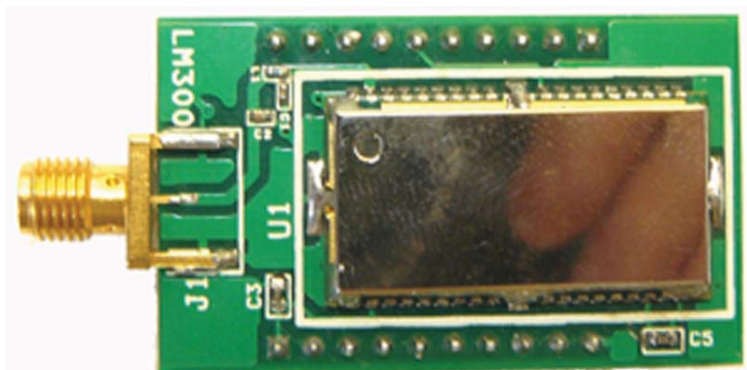




Bluetooth Module - Part Code LM-410



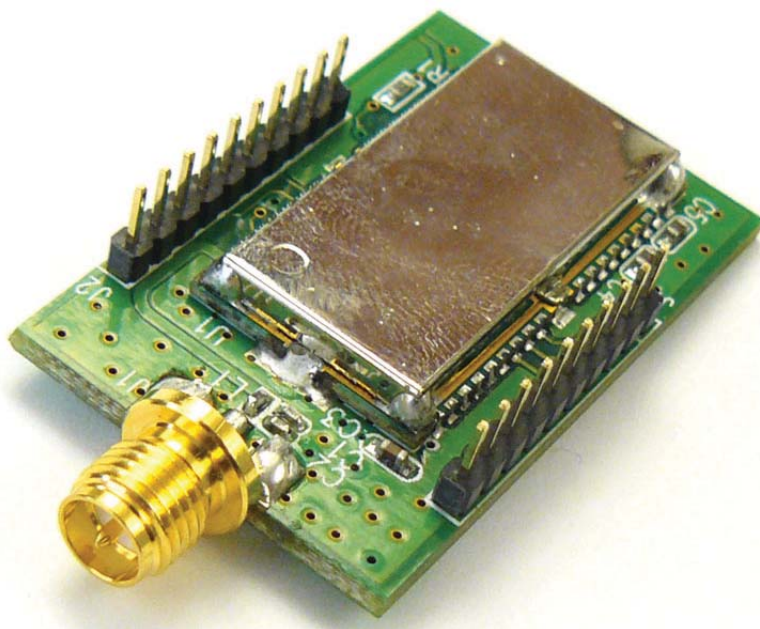
Bottom view



Top view

Contents:

1. Device Overall Description
2. Features
3. Applications
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5. Power Consumption
6. Pinout and Definition for Header J2
7. Pinout and Definition for Header J3
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Side view



Device Overall Description

The LM410 is Bluetooth2.0 + EDR module with external SMA connector. The Bluetooth function is based on CSR BlueCore 04 chipset which implements full speed Class 1 bluetooth operation with a support of upto 3 simultaneous connections while running full Bluetooth stack in the module. The interface to the host system is UART. This module is suitable for serial port application which require 100-600 m range (depending on the antenna) and comes with Bluetooth 2.0+EDR compliant SPP firmware.

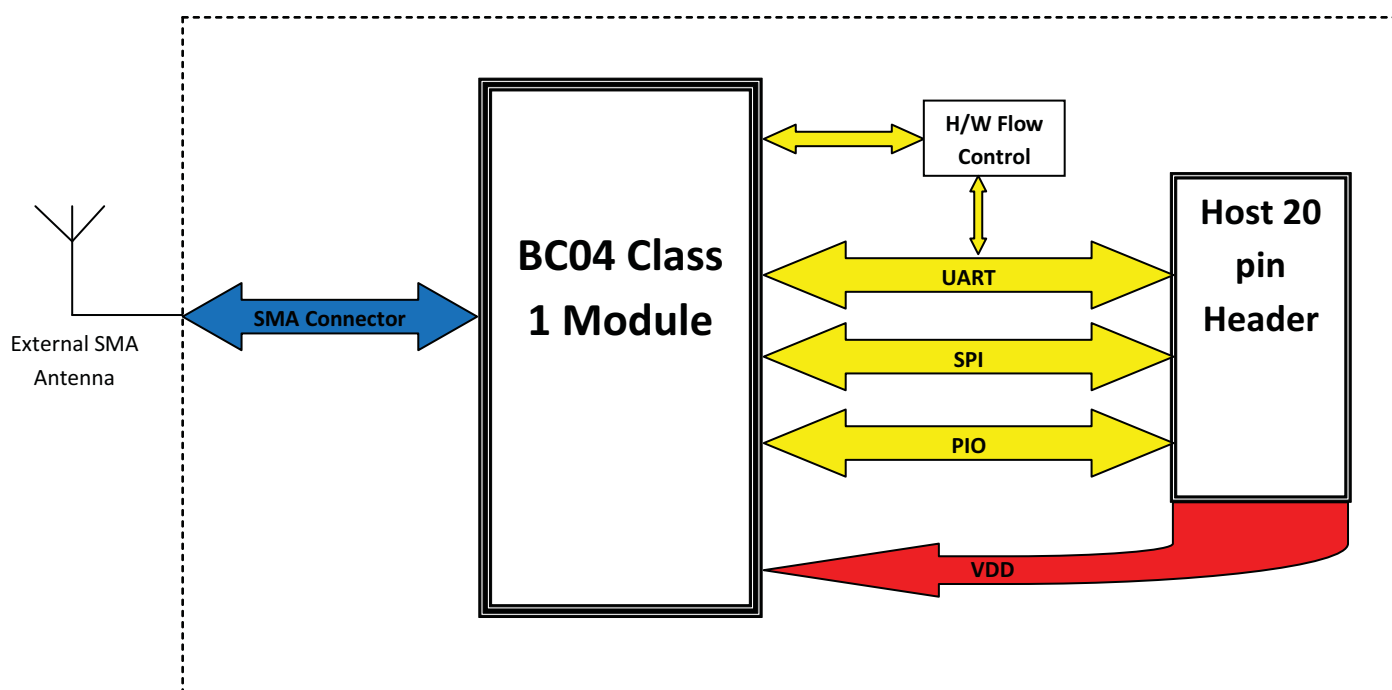
Features

- Used in LM Technologies Ltd Bluetooth Ethernet access point (LM300)
- CSR BlueCore4 chipset
- Bluetooth 2.0 + EDR support
- Full bluetooth data rate upto 3 Mbps
- Supports 3 simultaneous SPP connections while running complete bluetooth stack in the module
- External SMA antenna connector
- Hexadecimal Command set available for module configuration
- 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: 44 x 26 x 14 mm (without SMA Connector), 55 x 26 x 14 mm (with SMA connector)
- Interoperability with laptops, PDAs, Phones etc

Applications

- Serial Communications
- Serial Device Server

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

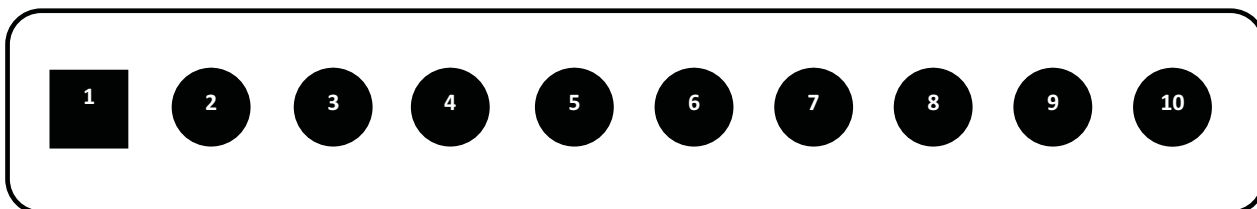
Parameter	Min.	Max.	Unit
Temperature	-10	+70	C
Supply Voltage for UART	3.0	3.6	DCV
Supply Voltage for USB	3.0	3.6	DCV

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

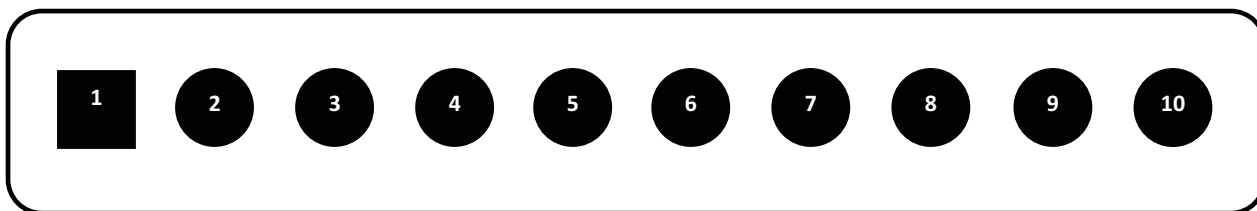


Pinout and Definition for Header J2



Pin No	Pin name	Direction	Description	Signal Level
1	VDD	Input	DC Input (3 ~ 3.3V)	Power
2	TXD	Output	UART Data output	TTL
3	RXD	Input	UART Data Input	TTL
4	SPICSB	Input	SPI Chip Select	TTL
5	RSTL	Input	Reset (Active Low)	TTL
6	PIO5	Input/output	Programmable IO	TTL
7	SPIMOSI	Input	SPI Master Output Slave Input	TTL
8	SPICLK	Input	SPI Clock	TTL
9	DTR	Output	UART Data Terminal Ready	TTL
10	GND		Ground	Ground

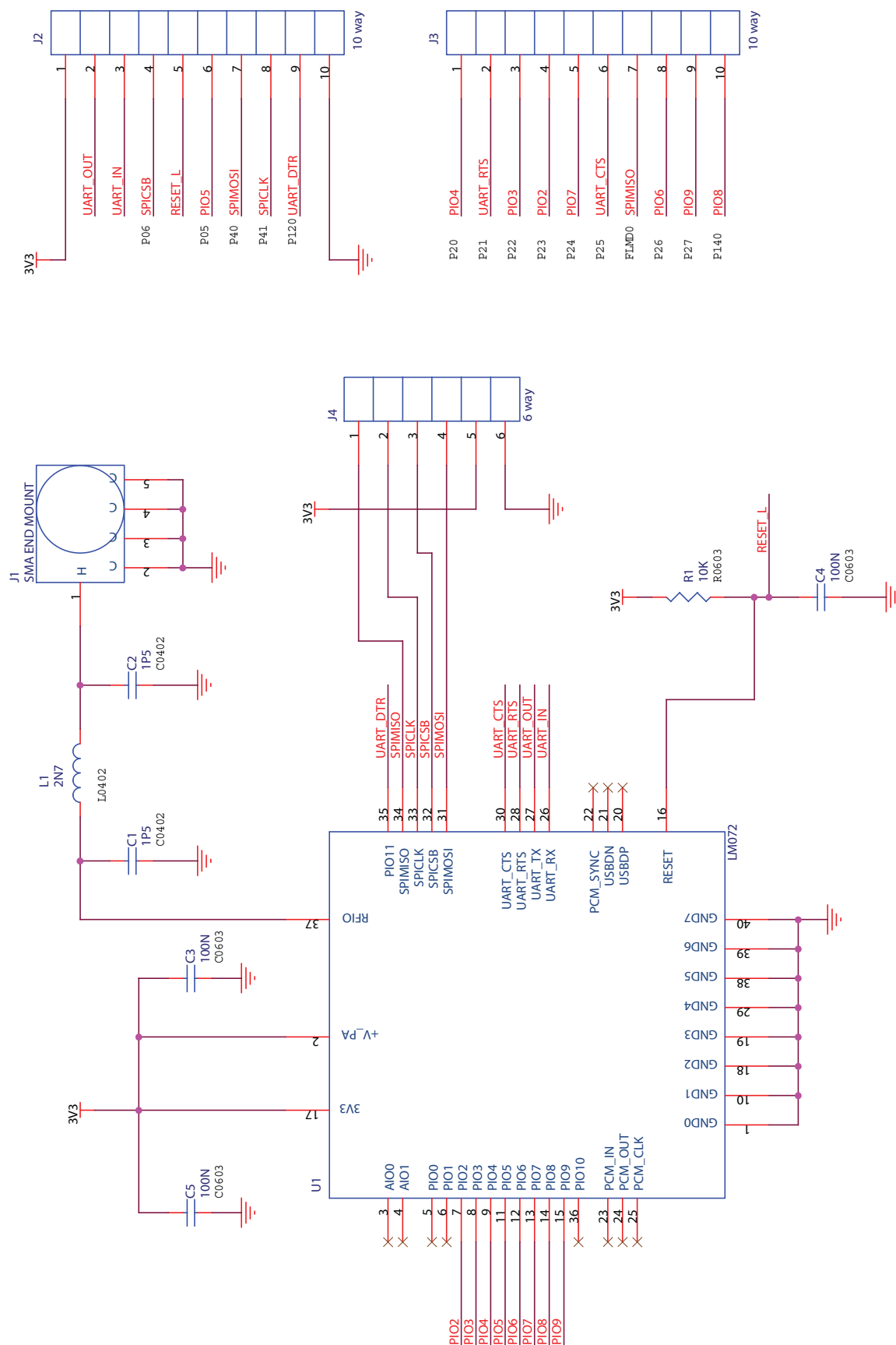
Pinout and Definition for Header J3



Pin No	Pin name	Direction	Description	Signal Level
1	PIO4	Input/output	Programmable IO	TTL
2	RTS	Output	UART Request to Send	TTL
3	PIO3	Input/output	Programmable IO	TTL
4	PIO2	Input/output	Programmable IO	TTL
5	PIO7	Input/output	Programmable IO	TTL
6	CTS	Input	UART Clear to Send	TTL
7	SPIMISO	Output	SPI Master Input Slave Output	TTL
8	PIO6	Input/output	Programmable IO	TTL
9	PIO9	Input/output	Programmable IO	TTL
10	PIO8	Input/output	Programmable IO	TTL



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_O UT
8	PIO (3)	Bi-directional	Programmable I/O terminal , USB_WAK E_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 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_O UT	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