

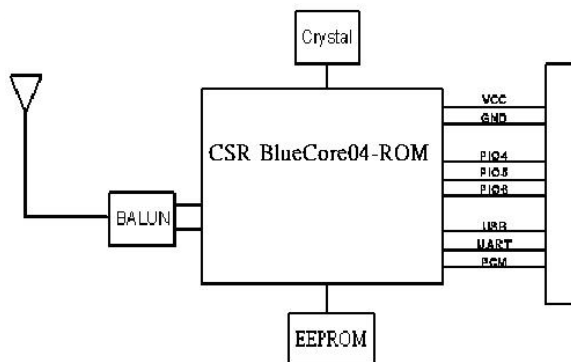
## Class 2 Bluetooth® 2.1 Module

### Features

- CSR BlueCore04-ROM Chip (A07)
- Bluetooth v2.1 Compliant.
- (also compatible with 2.0/ 1.2/1.1)
- Secure and robust link, FHSS, 128 bit encryption, error correction and guaranteed packet delivery.
- UART,USB, PCM interfaces
- UART baudrates from 1200 to 3Mbaud.
- Supports WLAN co-existence.
- Low power: 1ma discoverable,
- 40ma connected, 15ma SNIFF )
- Supports HCI communication level.
- 32 pin 1 mm pitch footprint
- Class2, up to 4dBm (10 meters)
- Dimension: 12 x 12 x2 mm



### Block Diagram



### Applications

- Cable replacement
- Barcode scanners
- Measurement and monitoring systems
- Industrial sensors and controls
- Medical devices
- Asset tacking

### Description

The RN-23 is an extremely small, low power Bluetooth radio for OEM's adding short range wireless capability to their products. The RN-23 supports the HCI Bluetooth profile. The module comes configured with either a USB or UART hardware interface. Configuration, including baud rate is a one-time operation done by Roving networks prior to shipping. The typical RN-23 configuration include the module alongside and embedded micro-controller running the Bluetooth profiles.

## Environmental Specifications

Parameter	Value
Temperature Range (Operating)	-40 °C ~ 85 °C
Temperature Range (Storage)	-40 °C ~ 85 °C
Relative Humidity (Operating)	≤90%
Relative Humidity (Storage)	≤90%

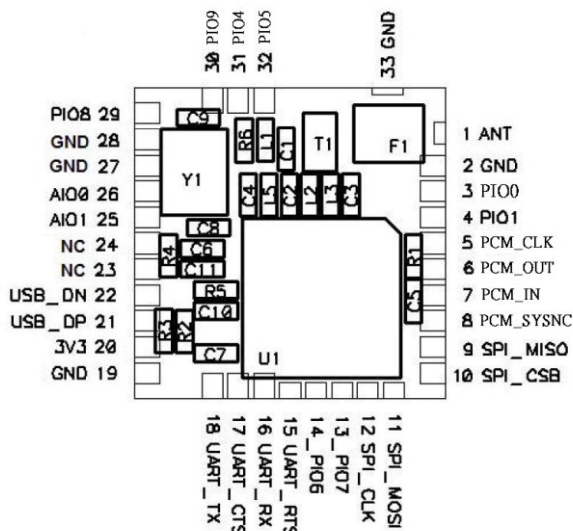
## Electrical Characteristics

	Min	Typ.	Max.	Unit
Supply Voltage (DC)	3.0	3.3	3.6	V
RX Supply Current	-	33	40	mA
TX Supply Current	-	40	45	mA
<b>Average power consumption</b>				
Standby/Idle (default settings)	-	15	15	mA
Standby/Idle (lowest power)	1.2	2.5	-	mA
Connected(normal mode)		23		mA
Connected( low power Sniff)		15		mA

## Radio Characteristics

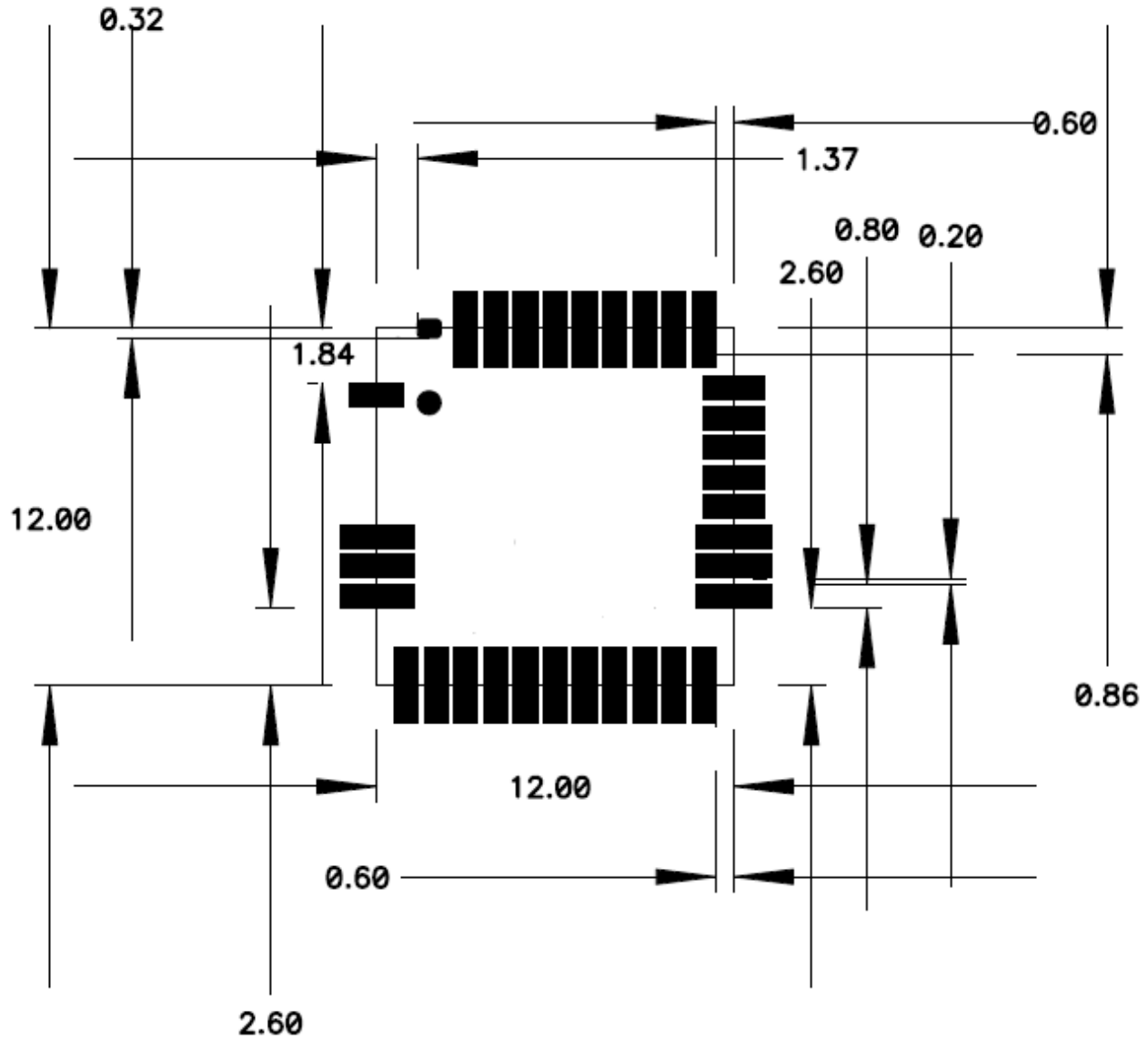
	Frequency (GHz)	Min	Typ	Max	BT Spec.	Unit
Sensitivity at 0.1%BER	2.402	-	-86	-80	≤ -70	dBm
	2.441	-	-86	-80		dBm
	2.480	-	-86	-80		dBm
RF Transmit Power	2.402	-6	0	+4	≤+4	dBm
	2.441	-6	0	+4		dBm
	2.480	-6	0	+4		dBm
Initial Carrier Frequency Tolerance	2.402	-35	5	+35	75	kHz
	2.441	-35	5	+35		kHz
	2.480	-35	5	+35		kHz
20dB bandwidth for modulated carrier		-	900	1000	≤ 1000	kHz
Drift (Five slots packet)		-	15	-	40	kHz
Drift Rate		-	13	-	20	kHz
$\Delta f_{1\text{avg}}$ "Maximum Modulation"	2.402GHz	140	165	175	140 < $\Delta f_{1\text{avg}}$	kHz
	2.441GHz	140	165	175		kHz
	2.480GHz	140	165	175		kHz
$\Delta f_{2\text{max}}$ "Minimum Modulation"	2.402GHz	115	190	-	115	kHz
	2.441GHz	115	190	-		kHz
	2.480GHz	115	190	-		kHz

## Pin Description



Pin Name	No	I/O	Description
ANT	1	I/O	Transmitter output and receiver input
GND	2		Ground
PIO0	3	I/O	Programmable Input/Output Line
PIO1	4	I/O	Programmable Input/Output Line
PCM_CLK	5	I/O	Synchronous data clock
PCM_OUT	6	O	Synchronous data output
PCM_IN	7	I	Synchronous data input
PCM_SYSNC	8	I/O	Synchronous data sync
SPI_MISO	9	I	Serial peripheral Interface active low
SPI_CSB	10	O	Serial peripheral Interface Data Output
SPI_MOSI	11	I	Serial peripheral Interface Data Input
SPI_CLK	12	I	Serial peripheral Interface Clock
PIO7/UART_RX(1)	13	I/O	Programmable input/output line
PIO6/CLK_REQ/UART_CTS(1)	14	I/O	PIO line or clock request output to enable clk.
UART_RTS	15	O	UART request to send active low
UART_RX	16	I	UART data input active high
UART_CTS	17	I	UART clear to send active low
UART_TX	18	O	UART Data Output active high
GND	19		Ground
3V3	20	I	3V3 for RF circuit
USB_DP	21	I/O	USB Data+
USB_DN	22	I/O	USB Data-
NC	23		Leave unconnected
NC	24		Leave unconnected
AIO1	25	I/O	Programmable Input/Output Line
AIO0	26	I/O	Programmable Input/Output Line
GND	27		Ground
GND	28		Ground
PIO8	29	I/O	Programmable Input/Output Line
PIO9	30	I/O	Programmable Input/Output Line
PIO4	31	O	BT Priority
PIO5	32	I	WLAN Active
GND	33		Ground

**Physical Dimensions**



**Ordering Information**

<b>Part Number</b>	<b>Description</b>
RN-23-U	USB interface with firmware for HCI profiles (Please specify H4 or BSB)
RN-23-H	UART interface with firmware for HCI (Please specify and baud rate)
For other configurations, contact Roving Networks directly.	

Visit <http://www.rovingnetworks.com/buynow.php> for current pricing and a list of distributors carrying our products.

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