

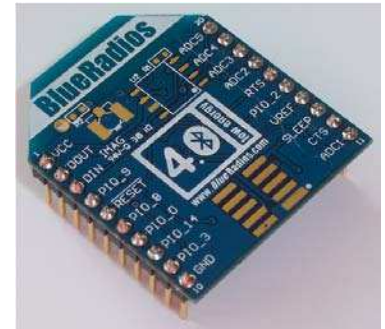
**Bluetooth® Class2 DIP Module**



**BR-XB-C46# XBee® Foot Print**

**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.**
- Three types of models: RF chip antenna, whip antenna, or U.FL connector.
- FCC, CE, RoHS, and Bluetooth® 2.0 certified ISM 2.4GHz band module.
- UART data interface (2-wire or 4-wire with CTS/RTS).
- Includes integrated software stack, profiles, and AT modem like commands.
- Embedded Bluetooth Stack Profiles Included (*requires no host MCU stack*): SPP, DUN, LAN, PAN, Headset, HFP, eSCO, SCO, Audio Gateway, FTP Client/Server, OBEX, OPP – Push/Pull, GAP, SDP, RFCOMM, and L2CAP protocols.



BR-C46 Radio on Bottom

**FEATURES**

- The BlueRadios serial radio modems can be configured, commanded, and controlled through simple ASCII strings over the Bluetooth RF link or directly through the hardware serial UART.
- Dedicated PCM voice channel for audio applications, and eSCO for exceptional audio clarity
- UART baud rate speeds: 1200bps up to 921.6Kbps, and customized
- +10 meter (33 feet) distance
- Low power consumption (50mA TX, 40mA RX, 1.4mA idle mode, and 30uA deep sleep)
- Optional 1Mb serial data Flash for future data storage
- Operating temperature range: -40~+85°C.
- Secure and robust communication link
  - ✓ FHSS (Frequency Hopping Spread Spectrum)
  - ✓ Encryption and 16 alphanumeric Personal Identification Number (PIN)
  - ✓ Error correction schemes



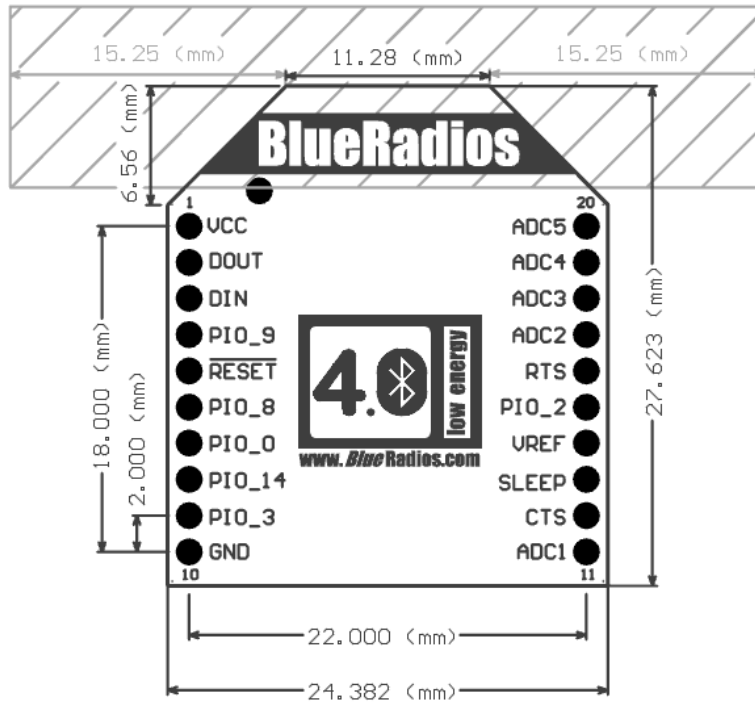
**SPECIFICATIONS**

Item	Specifications
Frequency	2402 ~ 2480MHz
Modulation	FHSS/GFSK
Channel intervals	1MHz
Number of channels	79CH
Power supply voltage (w/o data Flash)	2.8Vdc ~ 3.4Vdc ± 0.1V and < 10mVp-p noise
Current consumption	60mA worst case peak
Transmission rate (over the air)	721kbps
Receive sensitivity	-82dBm typ.
Output Power (Class2)	4dBm max.
Dimensions	Without ext. antenna 24.38(W) X 27.62.(L) X 3.89(H)mm

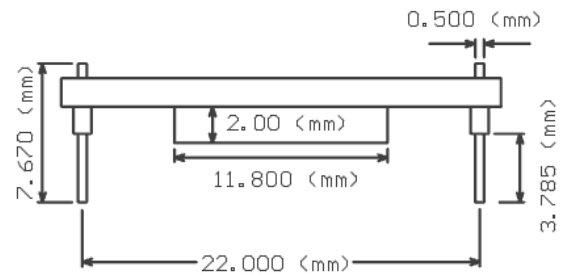
## DIMENSIONS

- BR-XB-C46A (with Ceramic Antenna) 2 dBi TDK ANT8030-2R4-01
- BR-XB-C46U (U.FL)
- BR-XB-C46W (Whip Antenna)

Keep Out Area. DO NOT locate any parts or copper in Keep Out Area on any layer. (Chip Antenna Configuration Only)



0.062" Board Thickness



Mating Through Hole Connector:  
Digikey P/N: S5751-10-ND  
Manufacturer: Sullins Connector Solutions  
Man. P/N: NPPN101BFCN-RC

Mating Surface Mount Connector:  
Digikey P/N: S5901-10-ND  
Manufacturer: Sullins Connector Solutions  
Man. P/N: NPPN101BFLC-RC

TERMINALS	
1. VCC (2.8-3.6Vdc)	20. ADC5
2. DOUT	19. ADC4
3. DIN	18. ADC3
4. PIO_9	17. ADC2
5. RESET	16. RTS
6. PIO_8	15. PIO_2
7. PIO_0	14. VREF
8. PIO_14	13. SLEEP
9. PIO_3	12. CTS
10. GND	11. ADC1

VCC = 2.8 ~ 3.4Vdc, 10mVp-p max noise  
Part is not 5Vdc tolerant. Reset is active **low**; pulse >5msec.  
PIO Sink Current is 4mA max  
Unused pins can float

### BR-XB-C46 Power-up Sequence

The unit must be reset with terminal 5 “RESET” after turning on the power supply VCC. Reset terminal should be **low** for >5 msec. to cause a reset incase of electrical “brown-out” or poor input supplied VCC. Unit will not initially boot-up reliably if the VCC ramp rate is in milliseconds. Allow 1sec for module to fully reboot.

Please refer to BlueRadios Specification BR-AT\_COMMANDS-100 hardware and software interface definition.

### SMD Module Cross Reference Table

XBee Pinout	Pin Name	BR-C40 BT2.0	BR-XX-S1 BLE	BR-C46 BT2.0	BR-XX-S2 BLE
1.	VCC (3.3V)	3.3V	3.3V	3.3V	3.3V
2.	DOUT	UART_TX	UART_TX	UART_TX	UART_TX
3.	DIN	UART_RX	UART_RX	UART_RX	UART_RX
4.	PIO_9	NC	PIO_9	PIO_9	PIO_9
5.	RESET	RESET	RESET	RESET	RESET
6.	PIO_8	NC	PIO_8	PIO_8	PIO_8
7.	PIO_0	PIO_0	PIO_0/ADC0	PIO_0/ADC0	PIO_0/ADC0
8.	PIO_14	NC	NC	NC	PIO_14
9.	PIO_3	PIO_3	PIO_3	PIO_3	PIO_3
10.	GND	GND	GND	GND	GND
11.	ADC1	NC	PIO_1/ADC1	PIO_1/ADC1	PIO_1/ADC1
12.	CTS	UART_CTS	UART_CTS	UART_CTS	UART_CTS
13.	SLEEP	PIO_5	PIO_5	PIO_5	PIO_5
14.	VREF	PIO_6	PIO_6	PIO_6	PIO_6
15.	PIO_2	PIO_2	PIO_2	PIO_2	PIO_2
16.	RTS	UART_RTS	UART_RTS	UART_RTS	UART_RTS
17.	ADC2	SPI_MISO	SPI_MISO / ADC2	SPI_MISO	SPI_MISO / ADC2
18.	ADC3	SPI_MOSI	SPI_MOSI / ADC3	SPI_MOSI	SPI_MOSI / ADC3
19.	ADC4	SPI_CSB	SPI_CSB / ADC4	SPI_CSB	SPI_CSB / ADC4
20.	ADC5	SPI_CLK	SPI_CLK / ADC5	SPI_CLK	SPI_CLK / ADC5

### BR-C40 and BR-C46 Firmware Options

- AT Command
  - Multi-point
  - Point-to-point
  - Repeater
- HCI or BCSP
- Custom

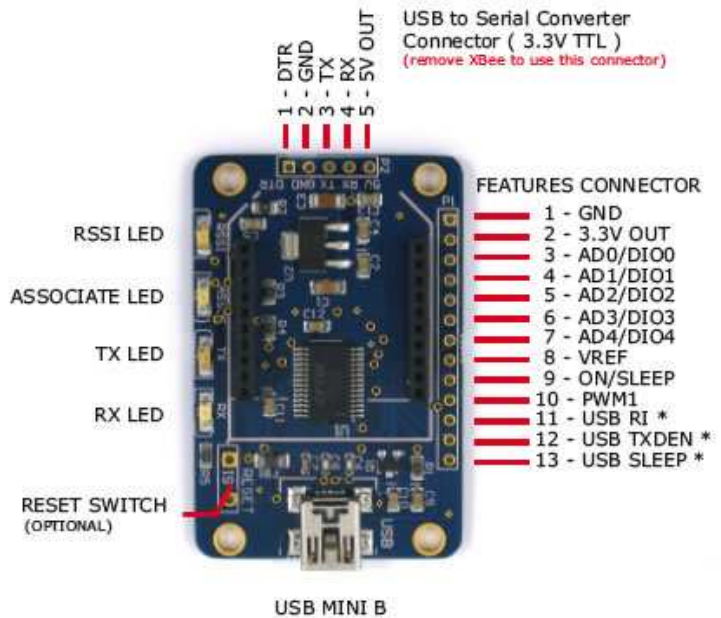
**PART NUMBER ORDERING: BR-XB-C46#**

BR = BlueRadios  
 XB = XBee® foot print  
 C46 = *Bluetooth 2.0 Class2*  
 # = A (Antenna)  
 # = U (U.FL RF Connector)  
 # = W (Whip Antenna)

<u>Part Number</u>	<u>Description</u>
1) BR-XB-C46A	<i>Bluetooth 2.0 AT Commands with Ceramic Antenna</i>
2) BR-XB-C46U	<i>Bluetooth 2.0 AT Commands with U.FL RF Connector</i>
3) BR-XB-C46W	<i>Bluetooth 2.0 AT Commands with Whip Antenna</i>

**Optional Evaluation Test Board**

Part number: **BR-XB-TSB**



**Price and Order information**

[http://www.blueradios.com/orderinfo\\_new.htm](http://www.blueradios.com/orderinfo_new.htm)