

Bluetooth® Module

BR-C30 Class1, Class2, and Class3 Bluetooth® ver1.2

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.**
- Wireless communications module conforming to *Bluetooth®* v1.2.
- Two types of models: With/without ceramic RF chip antenna provided.
- Conforms to FCC, CE, and the EMI standards of each country.
- Conforms to ISM 2.4GHz band *Bluetooth®*.
- UART data, and PCM audio interfaces available to various applications.
- Includes integrated software stack, profiles, and AT modem like commands.
- Embedded *Bluetooth* Stack Profiles Included (*requires no host MCU stack*): SPP, DUN, LAN, GAP SDP, RFCOMM, and L2CAP protocols.



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
- UART baud rate speeds: 1200bps up to 921.6Kbps, and customized
- +100 meter (330 feet) distance
- Software adjustable transmitter power from short to long range applications
- Low power consumption (*120mA TX, 40mA RX, 2mA idle mode, and 90uA deep sleep*)
- Small-form factor SMT radio modem
- Self-discovery and network equipped multi-points
- Operating temperature range: -40~+70°C.
- Secure and robust communication link
 - ✓ FHSS (Frequency Hopping Spread Spectrum)
 - ✓ Encryption and 16 alphanumeric Personal Identification Number (PIN)
 - ✓ Error correction schemes for guaranteed packet delivery

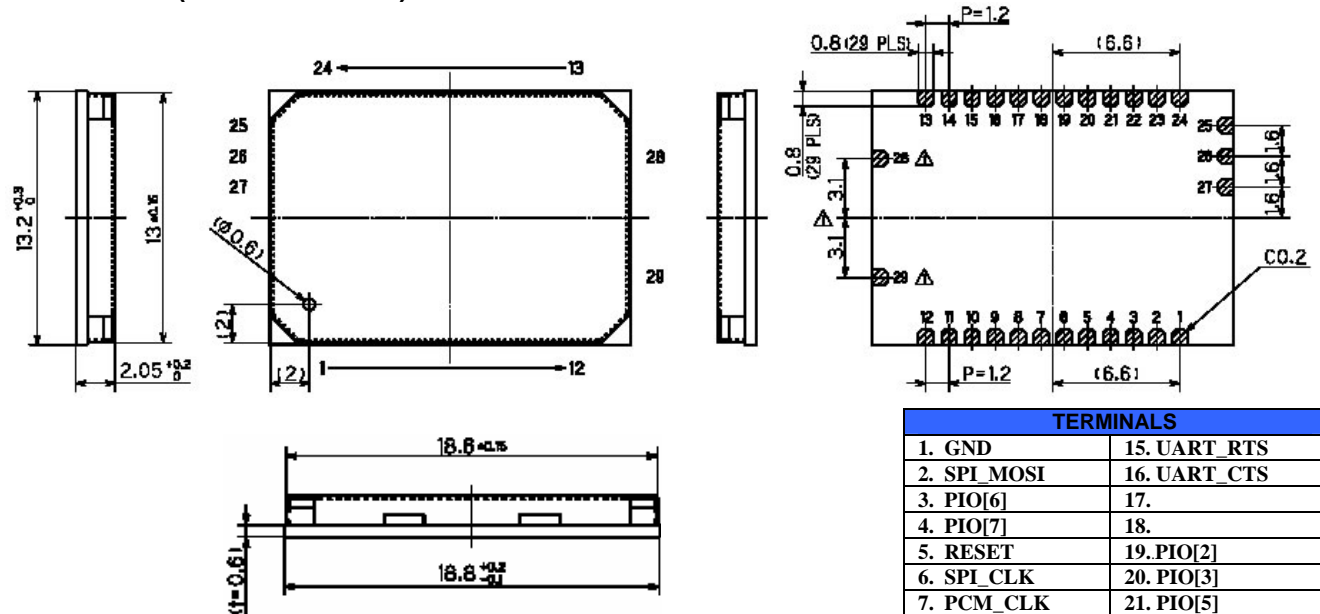


SPECIFICATIONS

| Item | | Specifications |
|----------------------------------|-----------------|-----------------------------------|
| Frequency | | 2402 ~ 2480MHz |
| Modulation | | FHSS/GFSK |
| Channel intervals | | 1MHz |
| Number of channels | | 79CH |
| Power supply voltage | | 3.3Vdc ± 0.1V and < 10mVp-p noise |
| Current consumption | | 120mA worst case peak |
| Transmission rate (over the air) | | 721kbps |
| Receive sensitivity | | -80dBm typ. |
| Output level (variable) | | 20dBm max. |
| Dimensions | Without antenna | 13.2(W)X18.8(L)X2.05(H)mm |
| | With antenna | 13.2(W)X24.8(L)X2.05(H)mm |

DIMENSIONS

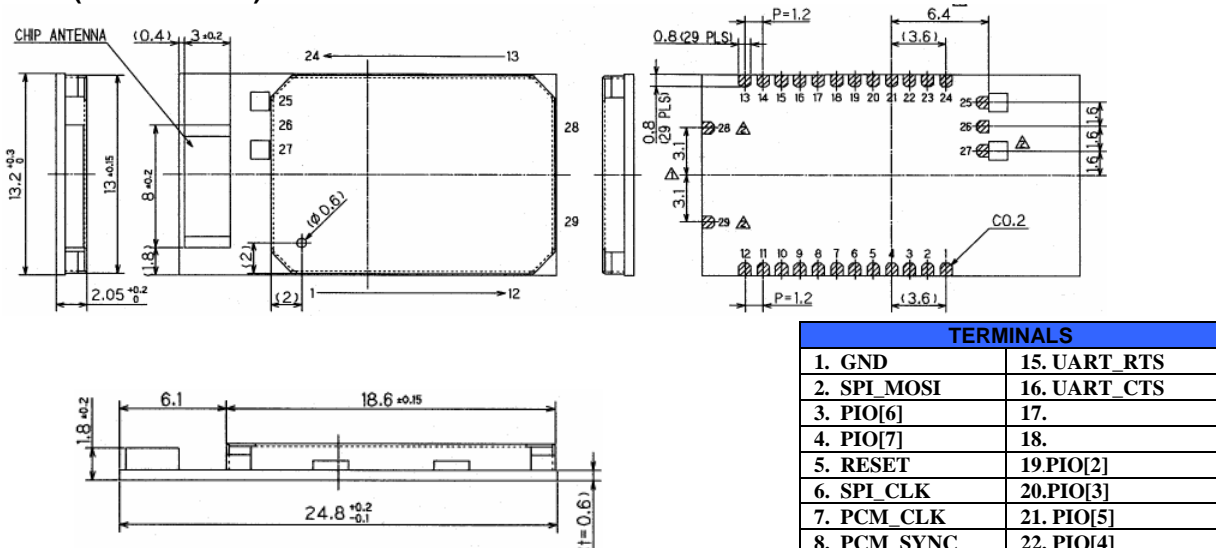
BR-C30N (Without Antenna)



| TERMINALS | |
|------------------|--------------------|
| 1. GND | 15. UART RTS |
| 2. SPI_MOSI | 16. UART_CTS |
| 3. PIO[6] | 17. |
| 4. PIO[7] | 18. |
| 5. RESET | 19. PIO[2] |
| 6. SPI_CLK | 20. PIO[3] |
| 7. PCM_CLK | 21. PIO[5] |
| 8. PCM_SYNC | 22. PIO[4] |
| 9. PCM_IN | 23. SPI_CSB |
| 10. PCM_OUT | 24. SPI_MISO |
| 11. VDD (3.3Vdc) | 25. GND |
| 12. GND | 26. ANT (External) |
| 13. UART_RX | 27. GND |
| 14. UART_TX | 28, 29 GND |

Note: SPI is for internal use only.
Part is not 5Vdc tolerant.
Reset is active high; pulse >5msec.
Unused pins can float except for PIO(4), tie to ground if not used.

BR-C30A (With Antenna)



| TERMINALS | |
|------------------|--------------|
| 1. GND | 15. UART RTS |
| 2. SPI_MOSI | 16. UART_CTS |
| 3. PIO[6] | 17. |
| 4. PIO[7] | 18. |
| 5. RESET | 19. PIO[2] |
| 6. SPI_CLK | 20. PIO[3] |
| 7. PCM_CLK | 21. PIO[5] |
| 8. PCM_SYNC | 22. PIO[4] |
| 9. PCM_IN | 23. SPI_CSB |
| 10. PCM_OUT | 24. SPI_MISO |
| 11. VDD (3.3Vdc) | 25. GND |
| 12. GND | 26. NC |
| 13. UART_RX | 27. GND |
| 14. UART_TX | 28, 29 GND |

Note: SPI is for internal use only.
Part is not 5Vdc tolerant.
Reset is active high; pulse >5msec.
PIO Sink Current is 4mA max.
Unused pins can float except for PIO(4), tie to ground if not used.

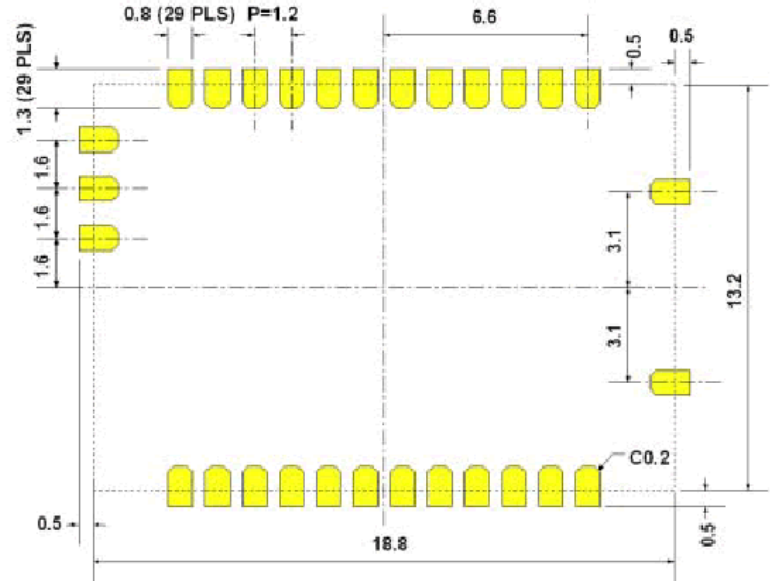
Unit: mm

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

STANDARD LAND DIMENSIONS

BR-C30N (Without Antenna)

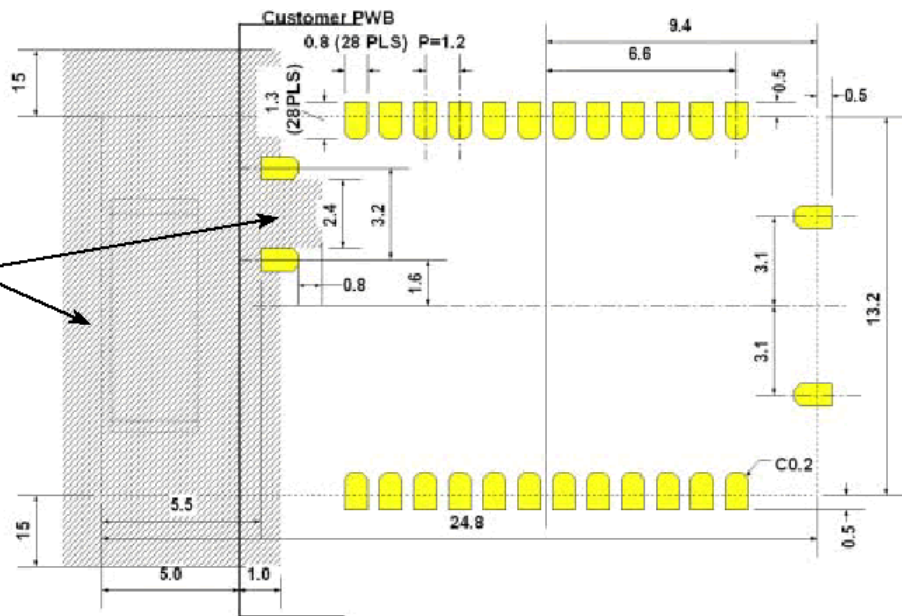
Please refer to "Antenna matching application note", "Antenna placement application note" and "Antenna strip design note" to locate the Strip Line and GND plane around the module.



BR-C30A (With Antenna)

As indicated, the module should be placed on the board with protruding its antenna part from the customer PWB.

In this area, you should not locate anything parts or GND plane / Patterns on surface or internal layer.



Note: Radio requires a RF ground plane on the rest of the Printed Circuit Board (PCB) area. This can be located on any layer of the PCB. Extend the RF ground plane parallel to module pins 1 and 24 the entire length of your board. Connect all ground pins and do not notch the ground plane around the module. Bottom of module is grounded so be careful of vias or conductive traces located under the modules that are not soldered masked to prevent shorting.

Power-up Sequence

The module must be reset with terminal 5 “RESET” after turning on the power supply VDD. Reset terminal should be high for >5 msec. to cause a reset incase of electrical “brown-out” or poor input supplied VDD. Unit will not initially boot-up reliably if the VDD ramp rate is in milliseconds. Allow 500msec for module to fully reboot.

Please refer to BlueRadios Specification BR-AT_COMMANDS-100 hardware and software interface definition.

Firmware Options

- AT Command
- HCI
- Repeater
- Multi-Slave
- Custom