

Project No: /
Date: 2019.09.17
Rev: 1.0

BU01 module Hardware Guidance

Model: BU01-V1.0

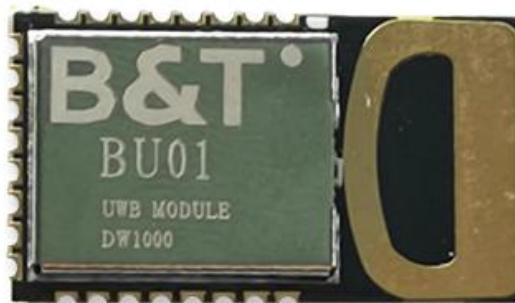
Spec.: UWB SoC Module

Sealed by corporation:

Compilation	Verify	Approval
Wanghs	Guann	Sky-xu

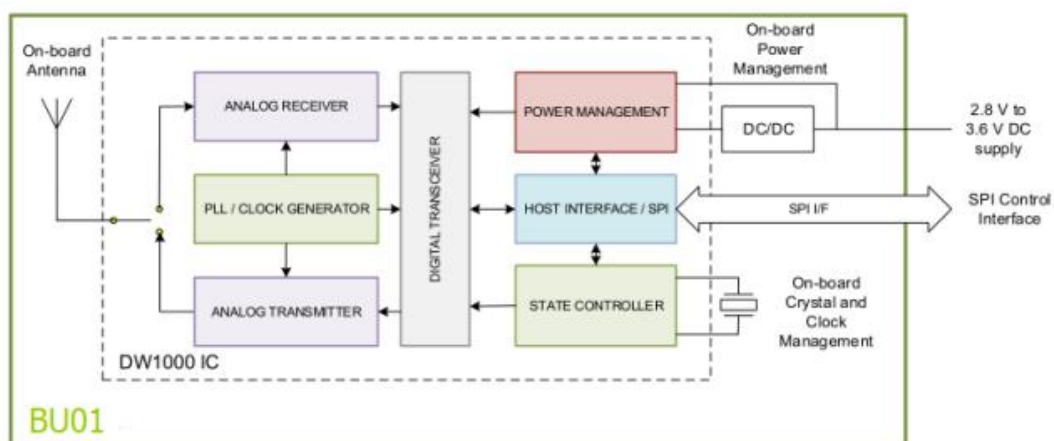


1. Overview



The BU01 module is based on Decawave's DW1000 Ultra Wideband (UWB) transceiver IC. It integrates antenna, all RF circuitry, power management and clock circuitry in one module. It can be used in 2-way ranging or TDOA location systems to locate assets to a precision of 10 cm and supports data rates of up to 6.8 Mbps

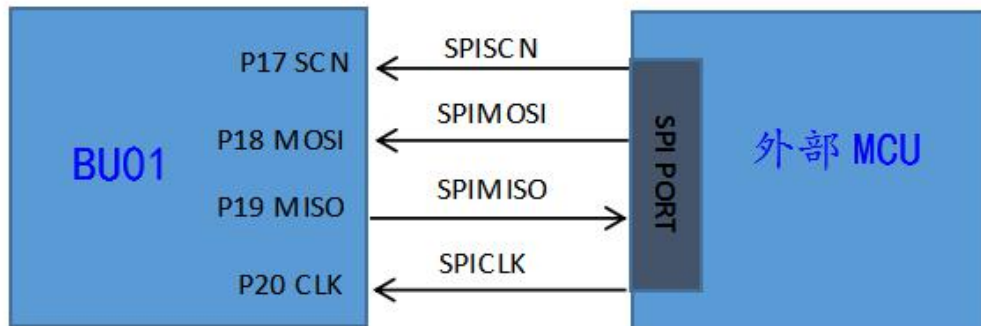
2. Typical application circuit



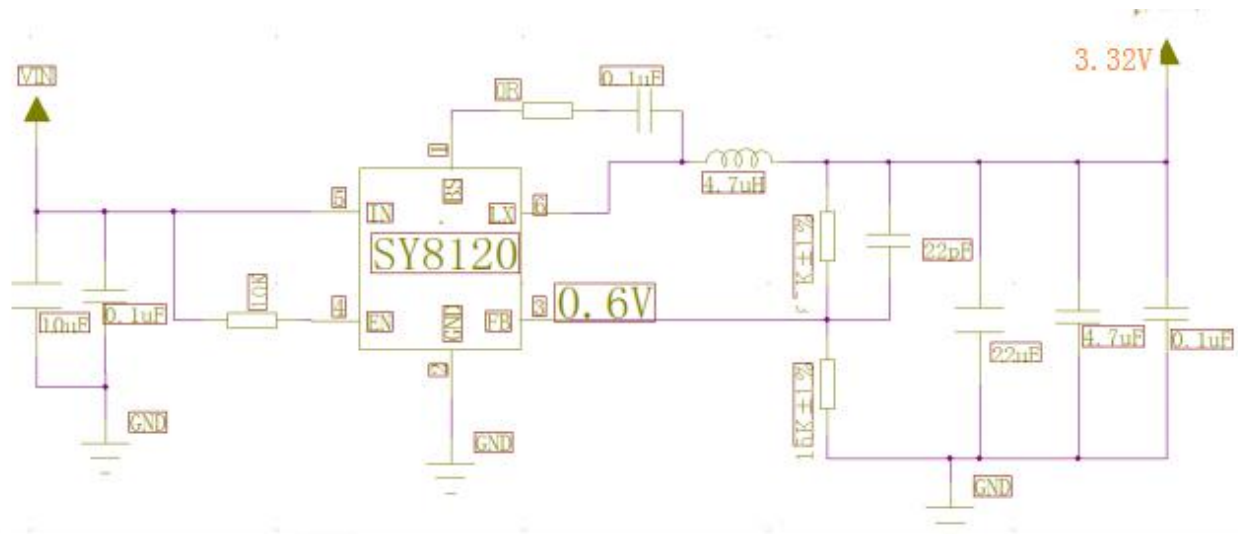
Block Diagram

1.1 All of GPIOs are work at 3.3V

1.2 SPI Bus Connections



3. Power Supply Reference Design 350mA@3.3V and Ripple is less than 40mV



4. Module consumption such as the table

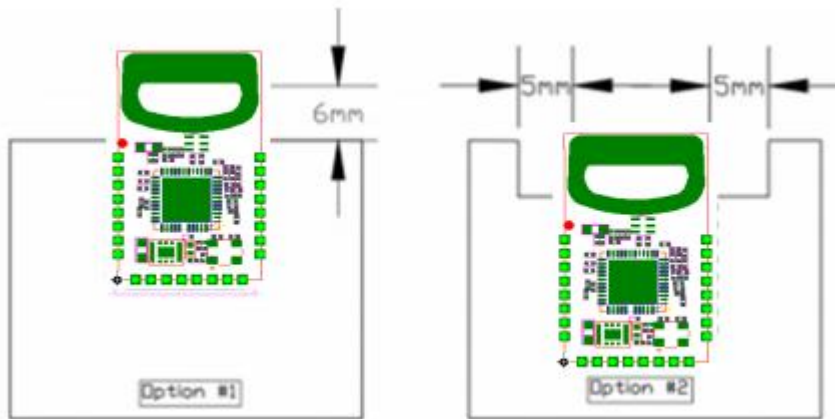
mode	deep sleep	sleep	idle	init	TX	RX
consumption	200nA	500nA	13.4 mA	3.5 mA	140mA@Channel5: TX,Power:9.3dBm/500MHz	160mA@ Channel 5

5. Recommended print antenna layout position

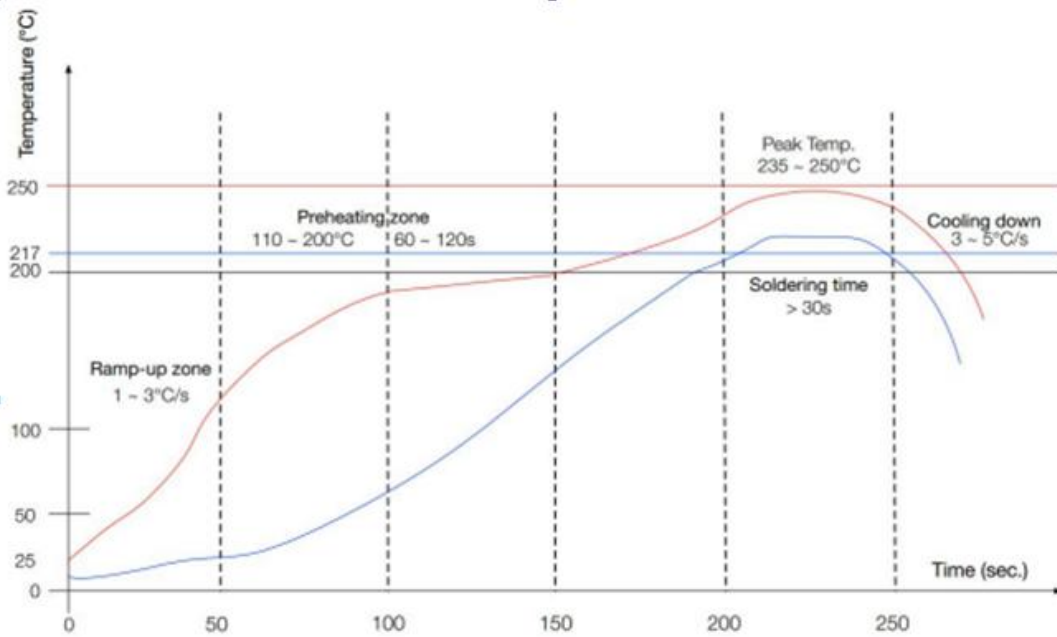
This module have a print Antenna . In order to get the best RF performance of the end product, please pay attention to the rational design of the module and the placement of the antenna on the bottom plate according to this guide.

Option 1 (recommended): Place the module along the edge of the main board, and keep the antenna out of main board pcb;

Option 2: Place the module along the main board side, and keep enough space for anteaana;



6. Recommend Reflow oven temperature curve



Ramp-up zone (升温区): Temp. <150°C, Time 60 – 90s, Ramp-up rate 1 – 3°C/s.
 Preheating zone (预热恒温区): Temp. 150 – 200°C, Time 60 – 120s, Ramp-up rate 0.3 – 0.8°C/s.
 Reflow soldering zone (回流焊接区): Peak Temp. 235 – 250°C (<245°C recommended), Time 30 – 70s.
 Cooling down zone (冷却区): Temp. 217 – 170°C, Ramp-down rate 3 – 5°C/s.
 Sn&Ag&Cu Lead-free solder (SAC305)/焊料为锡银铜合金无铅焊料