

U-Power500 Module 2.4GHz Transceiver



General Description

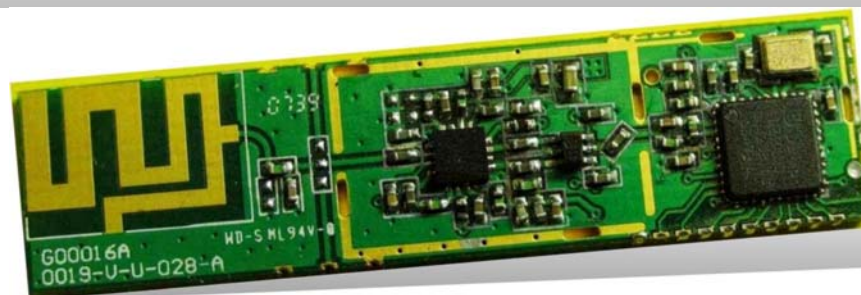
The U-Power500 module is an IEEE 802.15.4 ZigBee™ compliant solution that satisfies the requirements of low-power and long-range wireless sensor applications. It integrates UBEC's UZ2400 2.4GHz transceiver with UBEC's power amplifier UP2268 to extend the transmitting and the receiving distance at low current consumption. Both the low current consumption and long distance capability are especially suitable for battery-limited applications. The module's flexible and reliable interface allows the users to develop configurations appropriate for their applications.

The U-Power500 module, derived from UBEC's U-Force module, operates within the ISM 2.4 to 2.5 GHz frequency band and contains UBEC's UZ2400, UP2268 and other necessary components such as crystal oscillator, inductors and capacitors. The 802.15.4 compliant transceiver within the UZ2400 chip features a maximum of 5 MHz serial interface SPI bus for control and data transfer. It is a simple SPI interface slave device consisting of a 4-wire bus (SCLK, SI, SO, and SEN) that provide accesses to various subunits such as MAC/BB/RF control/status registers, TXFIFOs, RXFIFOs and security key table.

The UP2268 is an RF front-end IC integrating a high-efficiency, linear power amplifier (PA), a switch and a low noise amplifier (LNA). Its low current consumption and inherent power gain enable the designers to meet the challenges of the battery operation and long distance requirements demanded by many applications. In addition, the small module form factor (QFN3x3) saves the valuable board space.

PCB of U-Power500 Module

- ◆ UZ2400 Transceiver
- ◆ UP2268 RF Front End IC, with PA, LNA and RF Switch



Features

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| <ul style="list-style-type: none"> ◆ 2.4GHz IEEE 802.15.4 and ZigBee™ Compliant ◆ 3.0 to 3.6V Operation ◆ Sleep Current: 3µA (typical) ◆ > 500m Range (Environment dependent) ◆ PCB Antenna ◆ 2 GSG (Ground-Signal-Ground) interfaces provided | <ul style="list-style-type: none"> ◆ Data rate: 250kbps/625kbps ◆ Receiver Sensitivity: -101dBm ◆ Tx Power: 10dBm ◆ Tx Current: 54mA ◆ Rx Current: 26mA ◆ Size: 48.3mm x 14mm |
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U-Power1000 Module 2.4GHz Transceiver



General Description

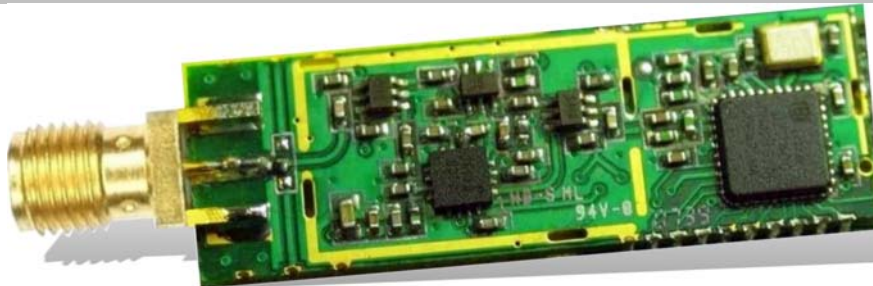
The U-Power1000 module is an IEEE 802.15.4 ZigBee™ compliant solution that satisfies the requirements of low-power and long-range wireless sensor applications. It integrates UBEC's UZ2400 2.4GHz transceiver with UBEC's amplifiers to extend the transmitting and the receiving distance at low current consumption. Both the low current consumption and long distance capability are especially suitable for battery-limited applications. The module's flexible and reliable interface allows the users to develop configurations appropriate for their applications.

The U-Power1000 module, derived from UBEC's U-Force module, operates within the ISM 2.4 to 2.5GHz frequency band and contains UBEC's UZ2400, UP2206, UA2725 and other necessary components such as crystal oscillator, switches, inductors and capacitors. The 802.15.4 compliant transceiver within the UZ2400 chip features a maximum of 5 MHz serial interface SPI bus for control and data transfer. It is a simple SPI interface slave device consisting of a 4-wire bus (SCLK, SI, SO, and SEN) that provide accesses to various subunits such as MAC/BB/RF control/status registers, TXFIFOs, RXFIFOs and security key table.

The UP2206 is a high-efficiency, high-output, linear power amplifier (PA). It provides the necessary power output to meet the long distance requirements demanded by certain applications. The UA2725 is a high performance, low noise amplifier (LNA) with a noise figure as low as 1.8dB at 2.4GHz. The use of an LNA in a link can also extend the communication distance.

PCB of U-Power1000 Module

- ◆ UZ2400 Transceiver
- ◆ UP2275 Low Noise Amplifier
- ◆ UP2206 Power Amplifier
- ◆ Antenna RF Switch



Features

- ◆ 2.4GHz IEEE 802.15.4 and ZigBee™ Compliant
- ◆ 3.0 to 3.6V Operation
- ◆ > 1000m Range (Environment dependent)
- ◆ SMA Connector
- ◆ 2 GSG (Ground-Signal-Ground) interfaces provided
- ◆ Data rate: 250kbps/625kbps
- ◆ Receiver Sensitivity: -101dBm
- ◆ Tx Power: 22dBm
- ◆ Tx Current: 154mA
- ◆ Rx Current: 32mA
- ◆ Size: 36mm x 14mm