

ZigBee / IEEE 802.15.4 Radio Transceiver

2.4 GHz ISM Band

Key Features

- ZigBee-compatible OEM radio transceiver in the 2.4 GHz ISM band
- Small dimensions: 16 x 27 x 3.3 mm
- RF transceiver of the second generation
- Excellent RX sensitivity up to -97 dBm
- Programmable output power up to 5 dBm
- Large supply voltage range from 1.8 V to 3.8 V
- Extensive hardware support for IEEE802.15.4 conformity
- Easy connection via SPI, configurable I/Os, energy saving modes
- Meets the requirements of R&TTE directive 1999/5/EC
- Delivery in tape & reel possible
- Integrated ceramic antenna, external antenna optional



Description

The AMBZ300 is a compact, powerful 2.4 GHz transceiver module. It combines the latest transceiver technology with a tested antenna configuration and wiring in a single module. With just a few external components, it is possible to set up a ZigBee-compatible network solution. Due to the small size, the outstanding performance with low power consumption, and the easy modular handling, the AMBZ300 is a trendsetter in the domain of ZigBee OEM modules.

In connection with an external microcontroller, both the Z-stack from Texas Instruments as well as a proprietary solution can be used. The Z-stack from Texas Instruments in connection with the AMBZ300 from AMBER wireless is the foundation for a ZigBee-compatible platform. A free version is already available for the MSP430F2618 low-power microcontroller.

The integrated 2.4 GHz RF-transceiver CC2520 from Texas Instruments provides full IEEE 802.15.4 compatibility as well as excellent reception sensitivity and robustness. The module provides a dual-antenna configuration that can be used by simply transposing a capacitor. An SMD chip antenna is used in the default setting. An external antenna can be connected via the ANT pin. The integrated circuit forms a reliable interface to the antenna and saves the user from carrying out time-consuming design of the critical high-frequency area of the circuit himself.

Microcontroller Support

The AMBZ300 can be used with any type of microcontroller at all. The transceiver is addressed via the SPI interface. The energy saving modes can be activated via additional external pins. 6 GPIO pins, a random number as well as an interrupt generator provide numerous additional possible uses. Moreover, the AMBZ300 has an AES-128 security module and automatic MAC-layer functions such as CRC calculation, acknowledgements, clear channel assessment and RSSI measurements.

Applications

Data acquisition, monitoring, remote control, sensor networks, and home automation. Due to the small size and the low power consumption, the radio module is also suitable for battery-operated applications.

A developer's kit with two evaluation boards and PC interface software provides a quick introduction to wireless communication with ZigBee. The evaluations boards use the ZigBee stack 2007 from Texas Instruments.

