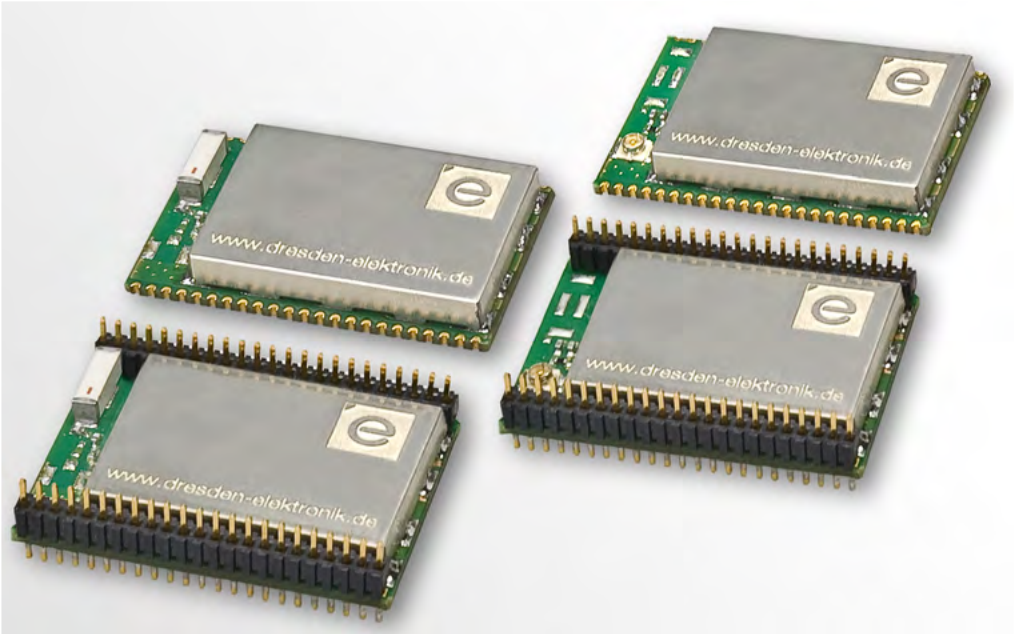
dresden elektronik



deRFmega128

radio modules for wireless solutions

IEEE 802.15.4 | 2.4 GHz

Applications

- as end device | router | coordinator
- in 6LoWPAN | ZigBee | RF4CE wireless sensor networks

- smart metering
- building automation
- industrial automation
- personal sensors | health care
- logistics | transportation

ZigBee®
Control your world

Compact radio modules deRFmega128

The low power radio modules deRFmega128 are based on an AVR microcontroller and are optimized for end device and router applications. For small sensor networks they are also useful as coordinator.
The pluggable and solderable radio modules include Atmel's Single-Chip ATmega128RFA1, which combines an 8-Bit AVR microcontroller with a 2.4 GHz transceiver.

The two 23 pin connectors provide full access to all functions of the ATmega128RFA1. A serial 1 MBit EEPROM offers enough none volatile memory for user data or firmware update over the air (OTA). With an operating voltage range of 1.8 to 3.6 VDC and a sleep current of less than 2 µA the deRFmega128 radio modules are exceptionally well suited as sleeping end devices, enabling battery life times of several years in metering devices or analog and digital sensors.

All modules are delivered with a preinstalled wireless UART application and can be integrated into own applications with a minimum of additional hardware. Based on the IEEE 802.15.4 MAC layer provided in source code, the user can develop own proprietary protocols or use powerful network layers like 6LoWPAN or ZigBee.

The deRFmega modules operate according to the IEEE 802.15.4 standard for the frequency range 2.4 GHz and are especially suited for Zigbee, 6LoWPAN and proprietary ISM applications but also for the RF4CE protocol.

Dresden elektronik offers a matching deRFdevelopment kit which contains three deRFmega128 modules together with the low power development board Sensor Terminal Board. The software CD of the kit provides a complete implementation of the IEEE 802.15.4 MAC in source code. This sophisticated and powerful framework gives the developer a good starting point for the creation of own wireless applications and protocols. The user gets a variety of sample applications covering typical 802.15.4 features from simple point-to-point-connections up to sensor network examples with tree routing and even beacon-enabled networks.

Key Features

- 30 x 22.7 mm (22A02) / 30 x 20.4 mm (22C02)
- low power single chip with integrated transceiver
- line of sight up to 200 m

deRFdevelopmentKit mega128 for evaluation, adaption and start up of the radio modules

- 8 Bit AVR MCU
- 16 MHz transceiver clock, 128 k Flash, 16 k RAM
- 2.4 GHz 802.15.4 Transceiver
- Transceiver with up to 103 dB LinkBudget @ 2.4 GHz
- VCC 1,8 ... 3,6 V, Sleep = 1 µA, Idle = 3 mA, TxRx = 18 mA
- common interfaces like I2C, SPI UART are available
- programming via JTAG and ISP
- certified acc. to FCC and ETSI
- deliverable with onboard chip antenna for easy integration or UF.L connector for external antennas

Benefits

- low power radio modules, optimized for battery operation
- onboard 1 MBit EEPROM for OTA and individual data storage
- pin compatible to all deRF radio modules
- all CPU features accessible
- ready to use with vendor supplied wireless UART application
- pluggable and solderable versions available
- no additional components necessary
- development kit with many source code examples available

Contact

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06-2012