

Product Overview

AX5042: Narrow-Band RF Transceiver, Low-Power

For complete documentation, see the data sheet.

The AX5042 is a narrow-band single chip, low power RF-transceiver for the 433/868/915 MHz bands. It is typically used for long distances up to 10 km. Fully scaling narrow-band channel filtering down to 4.8 kHz differentiate this chip from the AXSEM general purpose line of transceivers. The receiver sensitivities are -121 dBm for 1.2 kbps FSK operation at 868 MHz, -123 dBm for 1.2 kbps FSK operation at 433 MHz, and -106 dBm for 100 kbps FSK. These sensitivities can be improved by using the forward error correction feature. Together with an output power of up to 10 dBm for 868 MHz operation or 13 dBm at 433 MHz operation this allows to build a system with an attractive link budget.

Though a TCXO is recommended for operation at bandwidths below 40 kHz, the AX5042 can also be operated with a normal XTAL if the necessary precautions are taken into account.

The AX5042 supports FSK, MSK, GFSK, GMSK, PSK and ASK modulations. In transmit mode all modulations are shaped. The AX5042 features an easy to use protocol implemented in hardware. This guarantees shortest code size and lowest CPU usage of a microcontroller. CRCs are calculated automatically both in RX and TX. Digital spread spectrum is possible on all modulations. External components are only a crystal or a TCXO, an antenna and a few passive components. All parameters of the AX5042 including modulation, frequency, deviation and output power can be programmed via a SPI interface. Systems built with the AX5042 provide cost-efficient, longest range bi-directional communication links.

Features

- Supported modulations: FSK, MSK, GFSK, GMSK, PSK and ASK
- Programmable channel filtering down to 4.8 kHz bandwidth
- Communication with the device via SPI interface
- Optional data transfer can be handled via a UART interface
- Automatic frequency control (AFC)
- Supports HDLC and Raw frames in hardware
- Integrated RX/TX switching with differential antenna pins
- RF carrier and FSK deviation programmable in 1 Hz steps
- Freely programmable general purpose IOs

Applications

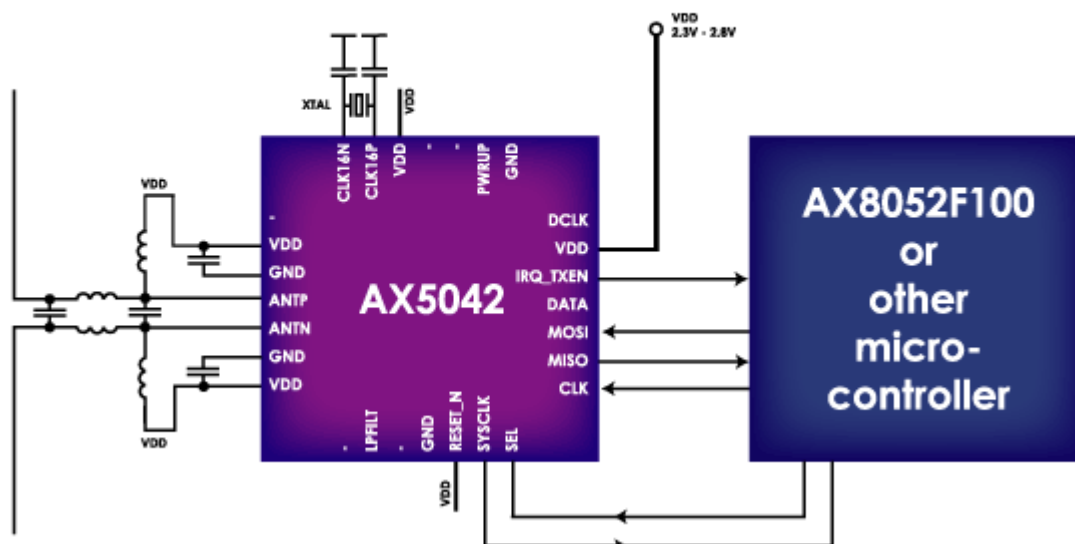
- Sensor applications
- Long range remote controls
- Automatic meter reading
- Wireless RS-232
- Access control

End Products

- Remote keyless entry
- Security systems

Application Diagram

APPLICATION CIRCUIT DIAGRAM



For more information please contact your local sales support at www.onsemi.com.

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