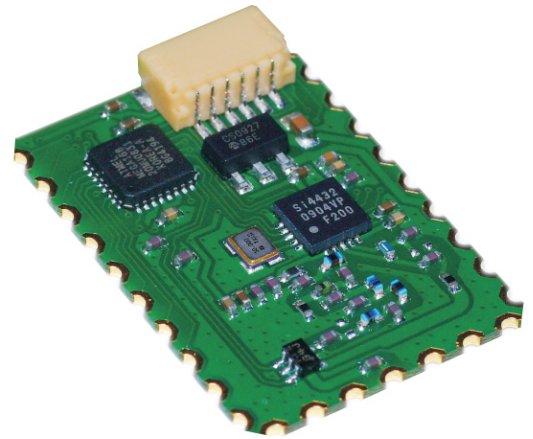


FM4432 Wireless Transceiver 868MHz / 433MHz

Applications

- Ultra low power UHF wireless transceiver
- 868 and 915MHz / 433Mhz ISM/SRD band
- AMR - Automatic Meter Reading
- Consumer Electronics
- RKE - Two-way Remote Keyless Entry
- Low power telemetry
- Home and building automation
- Wireless alarm and security systems
- Industrial monitoring and control
- Wireless sensor networks
- only 26.30mm * 18.20mm



General Description

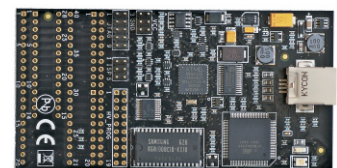
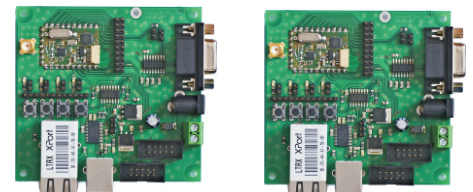
FM4432 is a low cost module with excellent performance. It has a powerful AVR ATmega168 microcontroller on board for data processing. With only a few external parts, you can build up a serial RS232 link or USB link. For intelligent sensors it has a 10Bit ADC with internal reference.

FM4432 is a multi-channel UHF transceiver designed to operate in 402, 426, 429, 433, 868 and 915 MHz, ISM-/SRD-(Industrial Scientific Medical / Short Range Device) bands. Frequencyrange from 240-930Mhz

The device features GSK, FSK, OOK/ASK modulation and demodulation. Transmit power can be adjusted optional to a maximum up to 20dBm which is available for all frequency bands and channels. Antenna interface is 50Ohm and suited for low cost PCB-antennas and Whip Antennas.

The RF controller is configurable through the ATmega168 microcontroller.. The microcontroller is user programmable via the DebugWire interface. A complete C library is available. The module can be powered with an internal low dropout regulator (3-6V operation).

Development Kit available



FM4432 Wireless Transceiver 868MHz / 433MHz

Features HF-Frontend

- True single chip UHF RF transceiver
- Frequency bands: 240-348MHz, 400- 464MHz and 800-930MHz
- High sensitivity (-118dBm at 2kbps, 1% packet error rate)
- Programmable data rate up to 128kbps
- Low current consumption (20.5mA in RX, 2.4kbps, 433MHz)
- Programmable output power up to +20dBm for all supported frequencies
- Excellent receiver selectivity and blocking performance
- Configurable packet handling hardware
- Suitable for frequency hopping systems
- Optional Forward Error Correction with interleaving
- Separate 64-byte RX and TX data FIFOs
- Digital RSSI output
- Wake-on-radio functionality for automatic low-power RX polling
- Integrated analog temperature sensor
- Programmable channel filter bandwidth
- AFC supported
- FSK, GFSK and OOK supported.
- Programmable Carrier Sense indicator
- Support for automatic Clear Channel Assessment (CCA) before transmitting

Features Microcontroller

- High Speed Atmel AVR Microcontroller
- Up to 10 MIPS throughput with 10MHz Clock
- 1024 Byte internal RAM
- 16K Byte FLASH (32K Byte optional). In-system programmable in 512-byte Sectors
- 10 Port USER I/O, with high sink current
- UART, SMBus (I2C)
- Internal Oscillators: 8MHz +/- 10% accuracy (10Mhz from RF chip)
- On-chip debug, in-system debug
- 10-Bit ADC, up to 200 kbps, single-ended or differential Inputs

Modul (RF + Microcontroller)

- 1uA Current Power Down
- 2,7V to 3,3V Supply Voltage (Battery)
- Low Drop Reg. 3V to 6V Supply Voltage

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Quick Reference Data

Absolute Maximum Ratings

Parameter	Min.	Max.	Units	Condition
Supply Voltage	-0.3	3.6	V	Max. 6V with int. Regulator
Voltage on any digital Pin	-0.3	VDD +0.3	V	Max 3.6V
Input RF level		10	dBm	
Storage temperature	-50	125	°C	
Current at any Portpin		100	mA	
Max. Current on VDD		500	mA	

Operating Conditions

Parameter	Min.	Max.	Units	Condition
Supply Voltage	2.7	3.3	V	Max. 6V with int. Regulator
Operating Temperature	-20	60	°C	automotive on request

Electrical Specification

Parameter	Min.	Max.	Units	Condition
Current consumption in powerdown		1	µA	Microcontroller in powerdown
Current consumption transmit +10dBm		30	mA	
Current consumption transmit +20dBm		82	mA	
Idle Mode		50	µA	Polling every second (RX)
Current consumption receive		20	mA	Max 3.6V
Frequency range	800	930	MHz	Optional 433MHz
Data Range	1	128	kbps	
Impedance	50		Ohm	
Receiver sensivity	-118		dBm	GFSK 2kbps
Receiver sensivity	-102		dBm	GFSK 128kbps
Saturation	-15		dBm	
Channel bandwith	3	620	kHz	
Sysclock microcontroller		10/8	MHz	