

Product Information

TH71221

27 to 930MHz Transceiver

The TH71221 is a single chip FSK/FM/ASK transceiver IC. It is designed to operate in low-power multi-channel programmable or single-channel stand-alone, half-duplex data transmission systems. It can be used for applications in automotive, industrial-scientific-medical (ISM), short range devices (SRD) or similar applications operating in the frequency range of 300 MHz to 930 MHz. In programmable user mode, the transceiver can operate down to 27 MHz by employing an external VCO varactor diode.

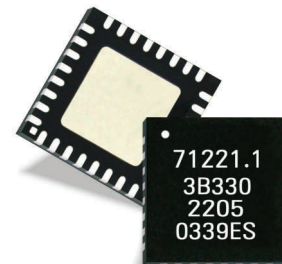


Features

- Single chip solution with only a few external components
- Stand-alone fixed-frequency user mode
- Programmable multi-channel user mode
- PLL-stabilized RF VCO (LO) with internal varactor diode
- Lock detect output in programmable user mode
- On-chip AFC for extended input frequency acceptance range
- 3 wire bus serial control interface
- FSK for digital data or FM for analog signal reception
- RSSI output for signal strength indication and ASK reception
- Peak detector for ASK detection
- Switchable LNA gain for improved dynamic range
- Automatic PA turn-on after PLL lock
- ASK modulation achieved by PA on/off keying
- 32 pin Quad Flat No-Lead (QFN 5x5 Quad)

Technical Data Overview

- 315 MHz, 433 MHz, 868 MHz or 915 MHz fixed settings in stand-alone mode
- Extended frequency range with external VCO varactor diode: 27 MHz to 930 MHz
- Frequency range: 300 MHz to 930 MHz in programmable user mode
- Power supply range: 2.2 V to 5.5 V
- Temperature range: -40 °C to +85 °C
- Standby current: 50 nA
- Operating current in receive: 6.5 mA (low gain)
- Operating current in transmit: 12 mA (at -2 dBm)
- Adjustable RF power range: -20 dBm to +10 dBm
- Sensitivity: -105 dBm at FSK with 180 kHz IF filter BW
- Sensitivity: -107 dBm at ASK with 180 kHz IF filter BW
- Max. input level: -10 dBm at FSK and -20 dBm at ASK
- FM/FSK deviation range: ± 2.5 to ± 80 kHz
- Max. data rate with crystal pulling: 20 kbps NRZ
- Max. data rate with direct VCO modulation: 115 kbps NRZ
- Input frequency acceptance: ± 10 to ± 150 kHz (depending on FSK deviation)



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Automotive ICs

Hall ICs

Intelligent Drivers and Actuators

RF&RFID

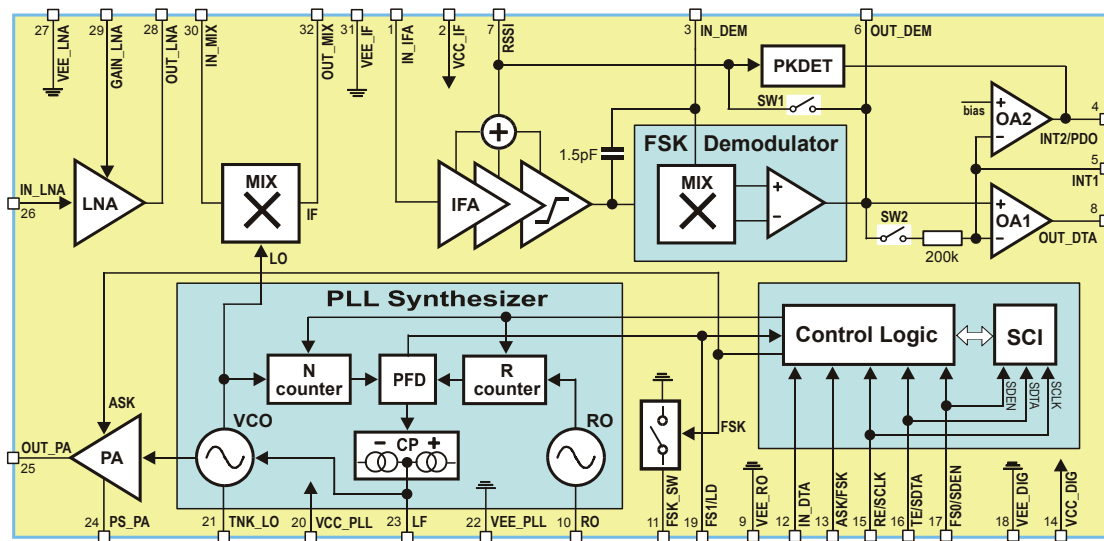
Silicon MEMS

CMOS Imaging

Bus ICs

IR Temperature

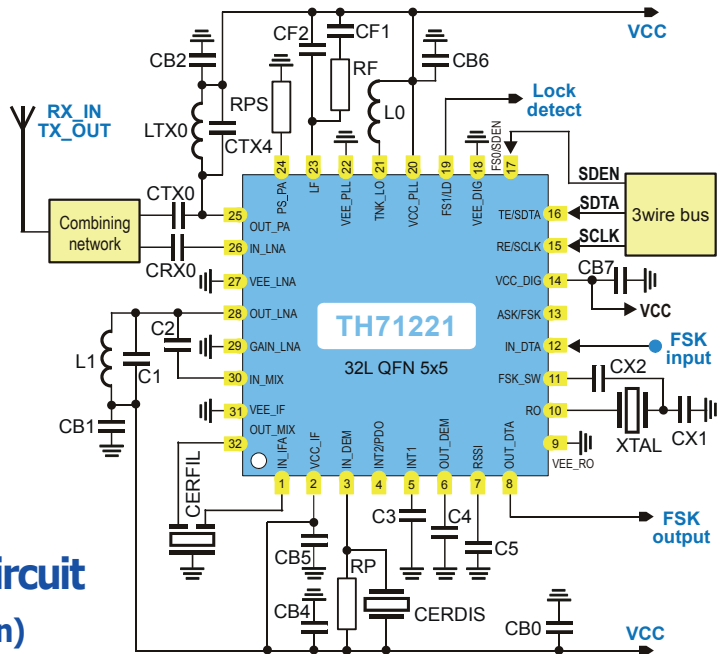
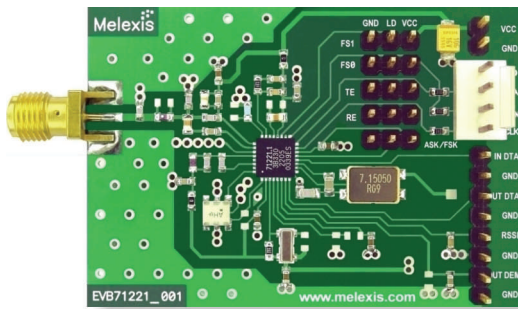
Block Diagram



Applications

- General bi-directional half duplex digital data RF signaling or analog signal communication
- Tire Pressure Monitoring Systems (TPMS)
- Remote Keyless Entry (RKE)
- Networking solutions
- Low-power telemetry systems
- Home and building automation
- Alarm and security systems
- Garage door openers
- Active RFID tags

Evaluation Board



FSK Application Circuit (internal AFC Option)

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Feb 2007