

# Product Information

## TH71102

### 315/433MHz Receiver

The TH71102 FSK/FM/ASK double-conversion super-heterodyne receiver IC is designed for applications in the European 433 MHz industrial-scientific-medical (ISM) band, according to the EN 300 220 telecommunications standard. It can also be used for any other system with carrier frequencies ranging from 260 MHz to 510 MHz (e.g. for applications according to FCC part 15 and ARIB STD-T67).



## Features

- Double-conversion superhet architecture for low external component count
- FSK for digital data and FM reception for analog signal transmission
- FSK/FM demodulation with phase-coincidence demodulator
- Low current consumption in active mode and very low standby current
- Switchable LNA gain for improved dynamic range
- RSSI allows signal strength indication and ASK detection
- 32-pin Low profile Quad Flat Package (LQFP32)

## Technical Data Overview

- Input frequency range: 260 MHz to 510 MHz
- Power supply range: 2.3 V to 5.5 V @ ASK
- Temperature range: -40 °C to +85 °C
- Standby current: 50 nA
- Operating current: 6.5 mA at low gain mode  
8.2 mA at high gain mode
- Sensitivity: -113 dBm @ ASK, 180 kHz IF filter BW  
-107 dBm @ FSK, 180 kHz IF filter BW
- Range of first IF1: 10 MHz to 80 MHz
- Range of second IF2: 400 kHz to 22 MHz
- Maximum data rate: 260 kbps NRZ @ ASK  
180 kbps NRZ @ FSK
- Image rejection: > 65 dB (e.g. with SAW front-end filter and at 10.7 MHz IF2)
- Maximum input level: -10 dBm at ASK  
0 dBm at FSK
- Spurious emission: < -70 dB
- Input frequency acceptance: up to ±100 kHz
- RSSI range: 70 dBm
- FM/FSK deviation range: ±2.5 kHz to ±80 kHz
- Maximum analog modulation frequency: 15 kHz



Automotive ICs

Hall ICs

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Silicon MEMS

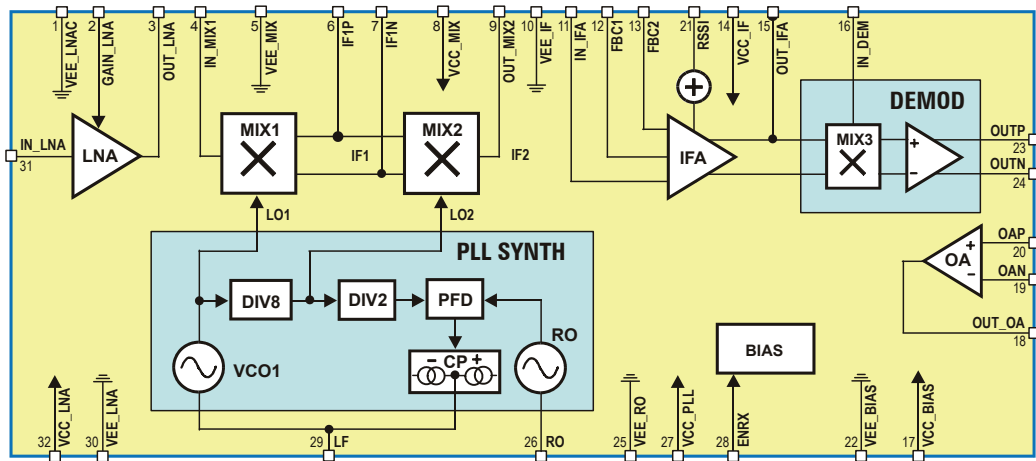
CMOS Imaging

Bus ICs

IR Temperature

Small things make a big difference.

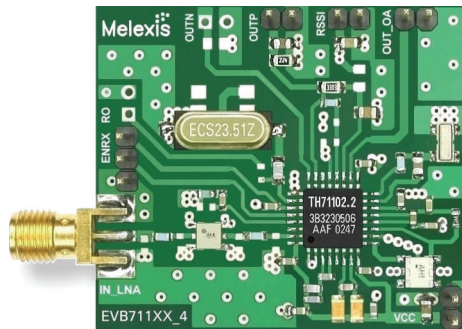
# Block Diagram



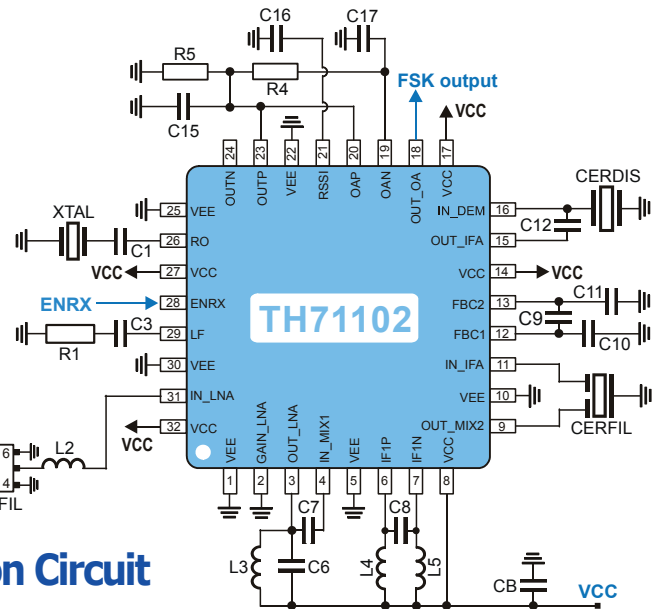
# Applications

- General digital and analog data receiving
- Tire Pressure Monitoring Systems (TPMS)
- Remote Keyless Entry (RKE)
- Wireless access control
- Low-power telemetry systems
- Home and building automation
- Alarm and security systems
- Garage door openers
- Remote controls

# Evaluation Board



**FSK Application Circuit**



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