



MLX73290-M 299 to 960MHz Multi-Channel RF Transceiver

The MLX73290-M is a 299 to 960MHz multi-channel transceiver chip. The IC is designed for general purpose applications for example in the European bands at 433MHz and 868MHz or for similar applications in North America or Asia, e.g. at 315MHz or 915MHz. It is also well-suited for narrow-band applications which meet the ARIB standard STD-T67 in the frequency range 426MHz to 470MHz.

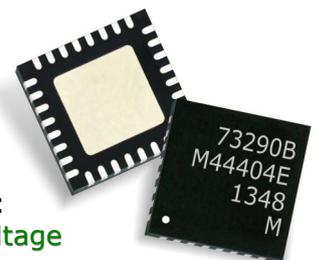
The output power, frequency channel, modulation type and frequency deviation are programmable via the serial programming interface (SPI). The synthesizer operates with a fractional-N PLL and VCO with integrated inductor.

The high frequency resolution of the MLX73290-M and its PLL phase noise performance facilitate it for narrow-band applications. There are six selectable modulation schemes: on-off keying (OOK), binary frequency shift keying (FSK), minimum shift keying (MSK) as well as their Gaussian filtered versions (GFSK, GMSK, GOOK).

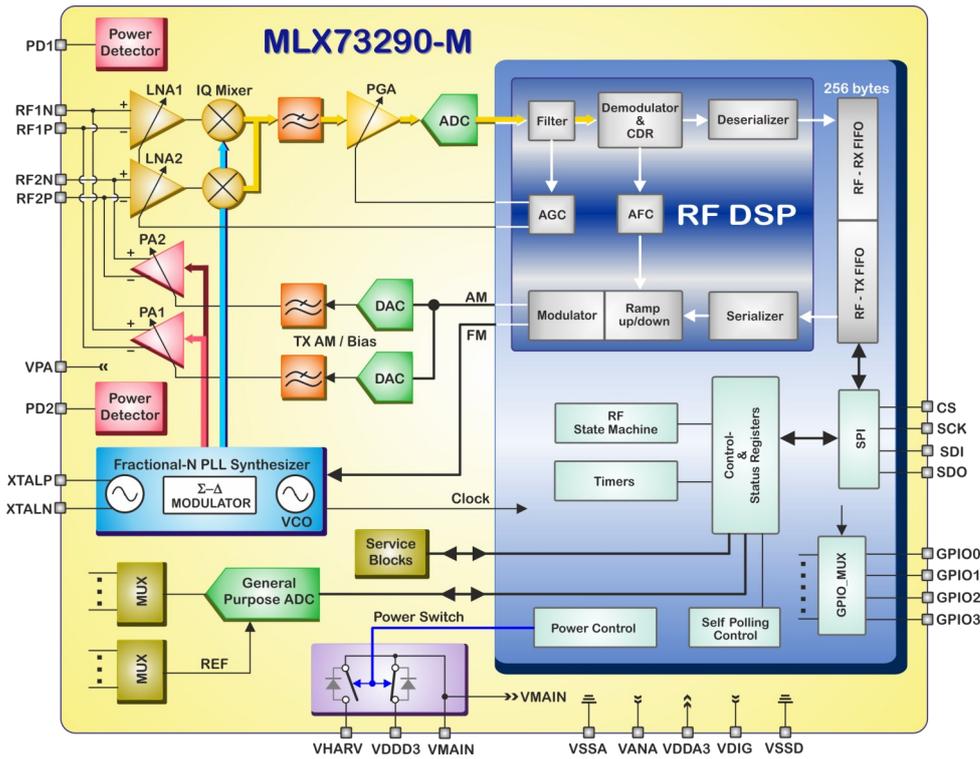
The low-IF receiver part comprises fully digital demodulation and self-polling features together with channel scanning and packet recognition.

General Features

- Wide frequency band coverage:
 - 299 – 960MHz
- Fast fractional-N PLL with:
 - 61Hz resolution
- Modulation Techniques:
 - FSK/GFSK/OOK/GOOK/MSK/GMSK
- Programmable data rate:
 - 0.15 – 250kbps (FSK)
- Programmable channel filter BW:
 - 9 to 600kHz
- Receiver sensitivity @ 15kHz BW, 2.4kbps:
 - -116dBm @ 868MHz (FSK)
 - -120dBm @ 433MHz (FSK)
- Programmable output power:
 - -20dBm to 13dBm @ 868MHz
- Low Power Consumption:
 - 200nA Sleep current (RCO off)
 - 400nA Sleep current (RCO on)
- Receiver Peak Current:
 - 17mA @ 868MHz, 100kbps
 - 14mA @ 433MHz, 100kbps
- Transmitter Current:
 - 36mA @ 868MHz, +10dBm, 100kbps
- 10 bit general purpose ADC
 - Also for external applications
- 4 Programmable GPIO ports
- 2 differential LNA/PA Ports:
 - RX and TX can be separately connected
- Fully digital RSSI generation:
 - 7bit 1.5dB per step
 - 90dB dynamic range
- RX self polling for low-power current consumption:
 - Up to 38 hours possible
- Power detectors for measuring the RF power:
 - Interesting for FCC applications
- Autonomous calibration routines:
 - VCO, I/Q imbalance and RC oscillator
- Flexible configuration options of the RF protocol:
 - Freely programmable preamble pattern
 - Sync word 16-, 24-, 32-bit
 - CRC and data whitening
- 256 Byte TX/RX FIFO buffer:
 - Can be split 128/128 for RX/TX
- Transparent data reception:
 - Without packet handling
- SPI-Bus Interface
- Automotive-quality graded:
 - -40 to 105°C
- Wide Supply Voltage Range:
 - 2.1 V – 3.6 V Battery Voltage
- 32 lead DQN 5x5 package



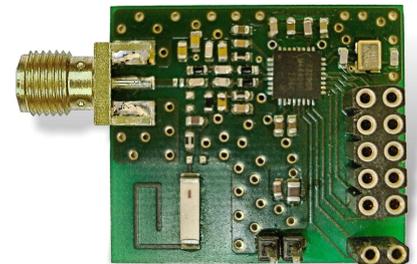
MLX73290-M Block Diagram



Applications

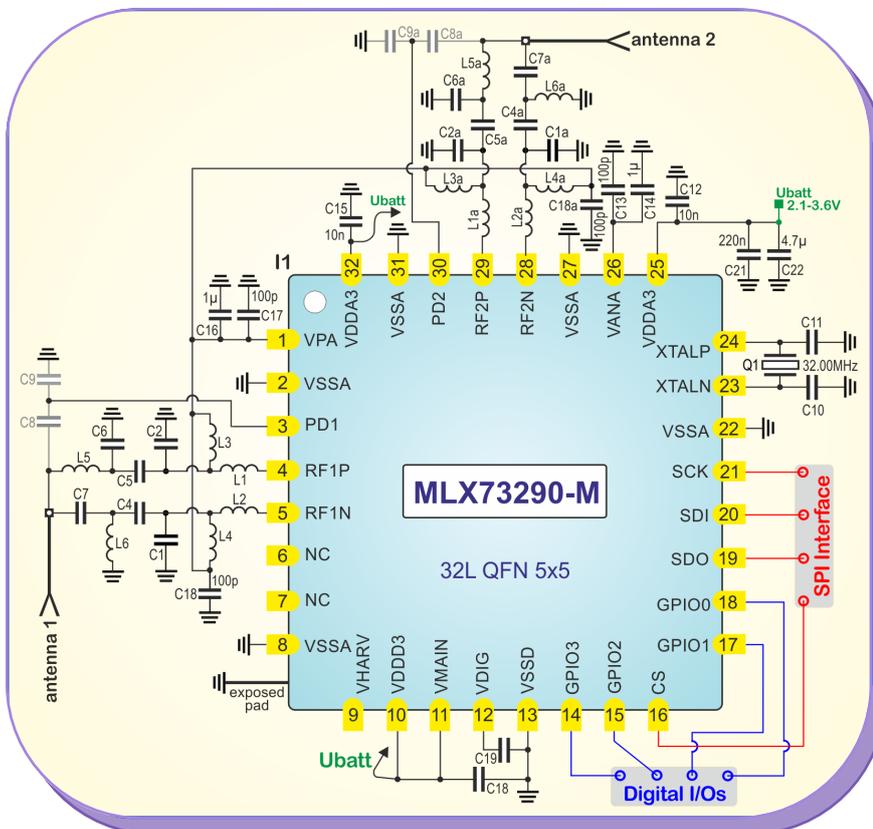
- Automatic meter reading (AMR)
- Remote controls
- Home and building automation
- Alarm and security systems
- Garage door openers
- Medical applications
- Industrial appliances
- Automotive keyless entry

EVB73290-M_1RF



- Board size: 31 x 27mm²
- SMA Antenna Connector
- Ceramic Antenna 868MHz

Typical Application Circuit with 2RF Ports



EVB73290-M_2RF



- Board size: 31 x 38mm²
- SMA Antenna Connector
- Ceramic Antenna 868MHz