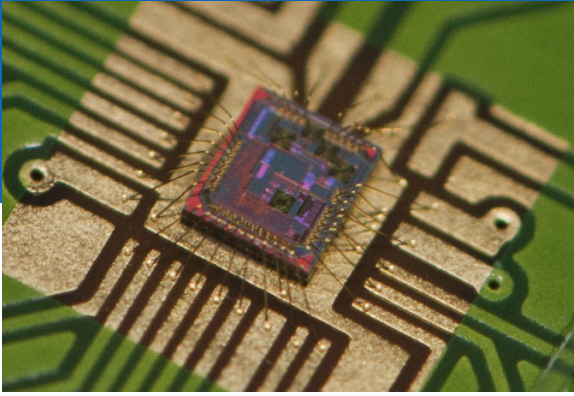# Ultra low-power 2.4GHz transceiver for Bluetooth Smart & IoT

*icy*TRX
for the most demanding low-power applications

The *icy*TRX ultra-low-power RF transceiver is designed to meet standards such as Bluetooth Low Energy (Bluetooth Smart), 802.15.4 PHY Layer (e.g. ZigBee), and proprietary standards with data-rates from 62.5 kBit/s up to 4 Mbit/s. *icy*TRX offers less than 5.5mW consumption in receive mode from a 1.0V supply. *icy*TRX is a complete transceiver that is designed for miniaturization, yielding a die size of less than 1.6 mm^2 in 55 nm CMOS, requiring minimal external components thanks to high degree of integration. *icy*TRX is designed for easy integration into ASICs and SoCs.
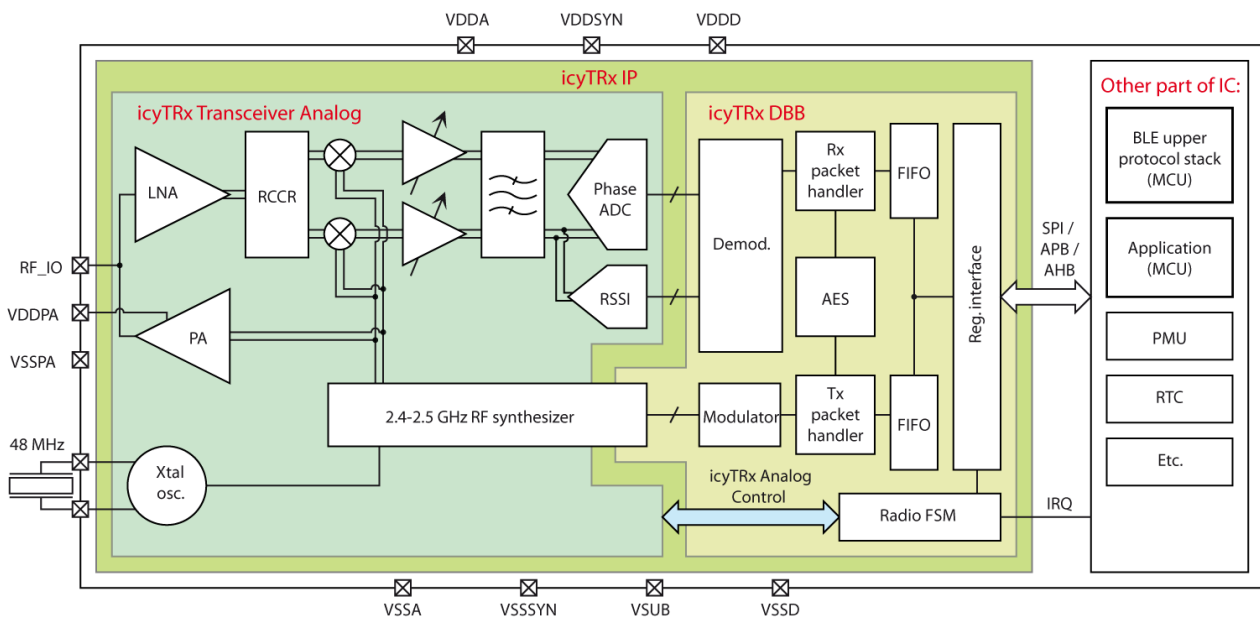
Applications

- Wearable sensors
- Wireless sensor networks
- Smart watches + fitness bands

Availability

- Available under license as an embedded IP block for integration in CMOS SoCs and ASICs
- Samples and development kits are available

Typical features

- Voltage supply: 1.3V to 1V (functional down to 0.9V)
- RX current 5.3 mA (1 MBit/s)
- TX current 8.6 mA (@ 1 dBm)
- Exceeds BLE and IEEE802.15.4 requirements
- Proprietary modes with adjustable bitrate from 62.5 kBit/s up to 4 Mbit/s
- RX sensitivity : -97 dBm at 1 Mbit/s
- Transmitter frequency synthesizer settling 5 μs
- Single Rx and Tx port
- No external RF matching components required
- Fully integrated FSK-based modem, with programmable pulse shape, data rate and modulation index
- Link layer functionalities, including automatic packet handling, CRC, separate Rx and Tx FIFOs
- Silicon area < 1.6 mm^2 (55 nm CMOS)

Application diagram