

# SVI-TRX402T

## High Performance ISM Band Transceiver

Silicon Vision, Ultra Low Power Sub-1GHz Radio Transceiver (315/415/433/470/868/915/950MHz)

### MAIN FEATURES

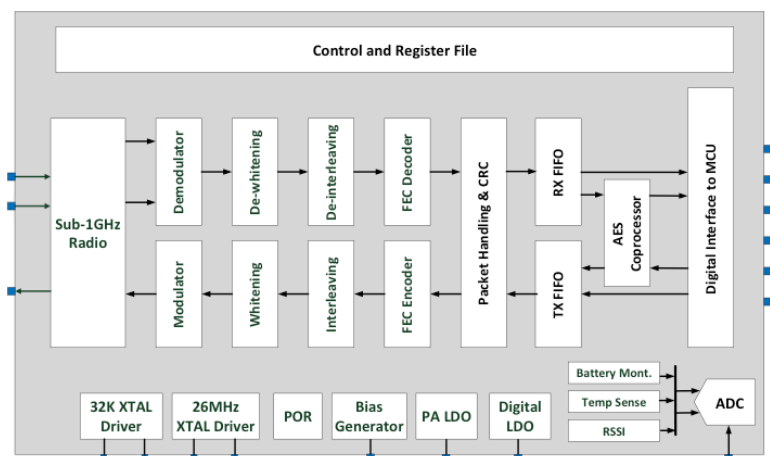
- Silicon Verified
- Process: TSMC-RF 180nm (1P6M)
- Compatible with *IEEE 802.15.4G*
- Frequency bands:  
415/433/470/510/868/915/950MHz
- 2-FSK, GFSK, GMSK, and MSK
- Sensitivity = -112dBm @ 10kbps
- Supply: 1.9 to 3.6V
- Output power range: -10 to +17 dBm
- Ultra low power consumption
  - 500nA in Deep-Sleep state
  - Less than 1.8  $\mu$ A in Sleep state
  - Less than 400  $\mu$ A in Standby state
  - Less Than 1.1 mA in Idle state
  - 17.5 mA @ Receive
  - 25 mA @ 0 dBm Transmit
  - 76 mA @ +17 dBm Transmit
- Data Rate: up to 200 kbps
- Temperature range: -40 – +85 °C
- Programmable IF filter bandwidth  
(50/100/200/400 kHz)
- Ultra low power OFF/Standby modes
- Automatic Frequency Correction (AFC)
- Single ended & Differential PA options
- Offset Cancellation Loop
- FEC with 1-bit error correction
- AES-256 encryption/decryption
- Efficient 4-wire SPI interface

### IP DESCRIPTION

Silicon Vision, SVITRX402T is a highly integrated, low power, high performance multiband radio transceiver IP covering the all the sub1-GHz band (400 to 960MHz) and specially the 415/433/510/868/915/950MHz ISM bands (Industrial, Scientific and Medical) and compatible with **IEEE 802.15.4G standard**. SVITRX402T contains an integrated +18dBm power amplifier and receiver sensitivity of -112Bm at 10kbps on air data rate. SVITRX402T is an ideal solution for longer-range low data rate applications and is widely used in smart meters. The integrated hardware protocol accelerator and encryption co-processor offload time critical protocol functions from the application microcontroller enabling the implementation of advanced and robust wireless connectivity with low cost 3rd-party microcontrollers.

### APPLICATIONS

- Smart Cities
- Metering systems (AMR)
- VoIP headsets
- Remote keyless entry
- Industrial control
- Sensor networks



Block Diagram for SVITRX402T



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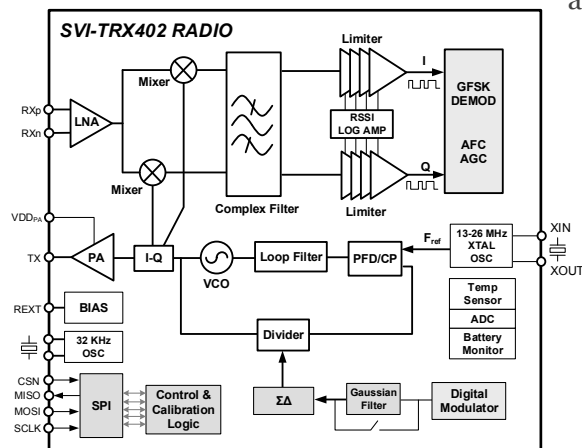
### MAIN FEATURES

- 64 bytes TX/RX FIFOs
- CRC/LQI/CCA
- Optional packet scrambling
- Automatic VCO & RX filter tuning
- No external components (only matching network and crystal)
- Automatic Frequency Correction (AFC)
- Integrated 26MHz XTAL oscillator
- Integrated 32kHz XTAL oscillator
- Integrated 32kHz RC oscillator
- RSSI resolution ( $\pm 0.5$  dB)
- Integrated Sleep timers
- Temperature sensor ( $\pm 2.5$  °C)
- Battery monitor ( $\pm 100$  mV)
- 9-bit auxiliary ADC
- Frequency hopping capability
- Programmable packet length from 1 to 256 bytes
- Can fit in 20/32-LQFN package in case of standalone IC

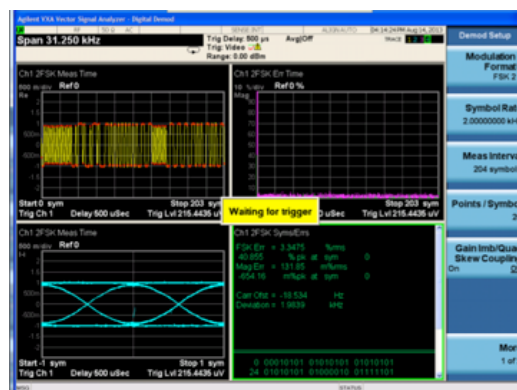
Evaluation Boards (EVB402) available:  
Please contact [info@si-vision.com](mailto:info@si-vision.com)  
for more details

### IP DESCRIPTION

The SVITRX402T integrates a complete sub-1GHz ISM radio transceiver; RF frequency synthesizer and baseband logic, including the integrated hardware protocol accelerator and encryption co-processor supporting a high-speed SPI interface for the application controller. No external loop filter, resonators, or VCO varactor diodes are required, only a low cost crystal, matching circuitry and antenna.



Block Diagram for SVI-TRX402T PHY



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