Product Brief

SmartLEWIS™ TRX - TDA5340, TDA5325 Multi-Channel Transceiver Family for Sub 1 GHz

Long range, low energy consumption and flexible adaptation to customer requirements combined with the need for high quality and reliability. **Impossible? Not with our new high sensitivity, low-power, multi-channel transceiver family SmartLEWIS TRX, consisting of TDA5340 and TDA5325.** Due to its high level of integration all of those requirements are covered with a minimum of external components.

Long range
- Highest receive sensitivity with integrated LNA:
  - typ. -118 dBm for FSK; typ. -116 dBm for ASK
- High efficient class C power amplifier with up to +13 dBm output power (adjustable in fine tuning steps)
- Integrated antenna switch allows for antenna diversity to further enhance the link reliability and as such the range of coverage

Low energy consumption
- Very low current consumption: (values typ.)
  - Receive Mode: 12 mA
  - Transmit Mode at 10 dBm and 434 MHz: 13 mA
  - Power Down Mode: 0.8 uA
  - Additional sleep and deep sleep modes available
- Autonomous receiver functionality and RF channel scanning: The SmartLEWIS TRX devices provide fully recovered payload data to the microcontroller. As such, the MCU keeps asleep as long as unwanted RF-signals are received

Highest Flexibility and Functionality
- All frequencies covered with one device/one crystal:
  - multi-channel, multiband including 950 MHz ARIB T-96 standard for Japan
- Multi-protocol handling to support various applications with one TRX only (up to 4 parameter sets and 16 different frequency channels while operating in autonomous mode)
- Easy product configuration/programming to adapt for various protocols
- One PCB design for uni- and bi-directional applications possible (based on TDA5240/25 and TDA5340/25)
- Low cost or highest performance with the same device. Save external components if performance requirements allow for it:
  - No external SAW and IF filter and/or usage of internal antenna switch

Highest Quality
- Wide temperature range: -40°C to +110°C
- Automotive quality grade standing beside high qualification standards for zero defect culture with minimum ppm rates and long product availability
- SmartLEWIS TRX is based on the industry leading SmartLEWIS RX+ design (TDA5240 receiver family) using proven technology and package

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Main features

- Multiband / Multi-channel : 300-320 MHz, 425-450 MHz, 863-876 MHz, 902-928 MHz, 950-960 MHz
- Highest efficiency available while achieving the highest sensitivity and low current draw
- Programmable power amplifier with up to +13 dBm output power
- ASK/FSK capability with programmable Gaussian data shaping
- On-chip IF filter with selectable bandwidth (optional an external CER-filter is possible)
- Sigma-delta fractional-N PLL synthesizer with high resolution
- Automatic Frequency Control function (AFC) for offset carrier frequency
- Multi protocol handling: Up to 4 parameter sets for autonomous scanning and receiving from different sources
- Wake-up generator & polling timer unit
- Brownout detector & on-chip temperature sensor
- Integrated 4-wire SPI bus interface
- 32-bit wide Unique ID on chip
- Supply voltage range: 3.0 to 3.6 V and 4.5 to 5.5 V
- Temperature range -40°C ... +110°C
- PG-TSSOP-28 package

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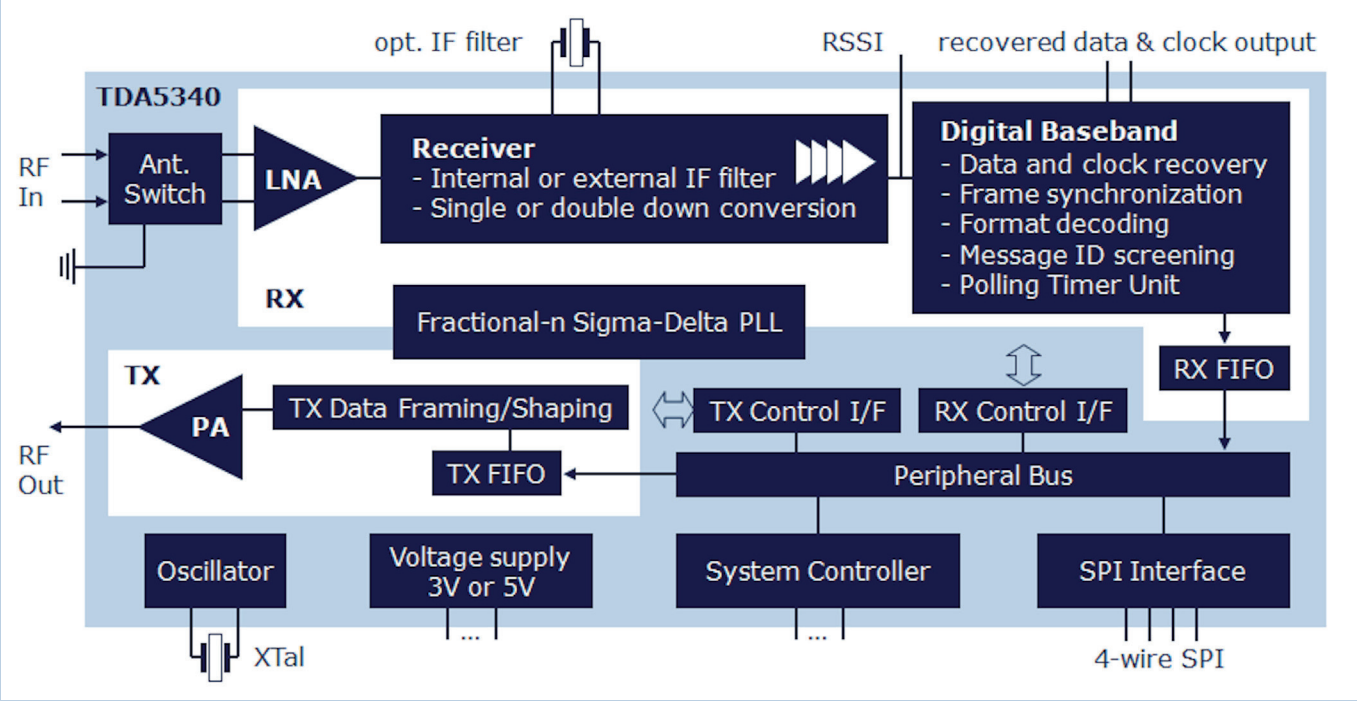
Block Diagram TDA 5340



TDA 5340 versus TDA 5325

TDA 5340 includes full functionality and beside all main features in special following digital baseband features:

- Integrated data and clock recovery for optimal performance
- Autonomous receive functionality:
  Frame synchronization, format decoding, message ID screening (supporting all bi-phase format schemes and NRZ)
- 288 Bit RX/TX-FIFO for receive and transmit data
- Ultra-fast wake-up on RSSI

TDA 5325 has the same analog functionality as TDA 5340, but does not support the above mentioned digital baseband features.

Applications	High performance or low cost?
■ Bi-directional remote control systems ■ Bi-directional RKE (with integrated TPMS and Passive Entry functionality) ■ Automated Meter Reading (AMR) / Smart Meters ■ Security and alarm systems ■ Home Automation ■ Industrial control ■ Low bit-rate communication systems	No matter what your requirements are, SmartLEWIS TRX offers all the flexibility you need: Highest system performance is achievable, when using an external antenna switch, a SAW filter, an external IF filter and an enhanced matching network. Such a high system performance design is supported by SmartLEWIS TRX with only 20 external components. However, you can also save all these costly components and still achieve high performance with around 14 external components only.

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