SmartLEWIS™ TRX – TDA5340
Multi-Channel Transceiver for Sub 1GHz

Long range, low energy consumption and flexible adaption to customer requirements combined with the need for high quality and reliability. **Impossible? Not with our high sensitivity, low-power, multichannel transceiver TDA5340**. 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. -118dBm for FSK; typ. -116dBm for ASK
- High efficient class C power amplifier with up to +14dBm 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: 11.5mA
  - Transmit mode at 10dBm and 434MHz: 12.5mA
  - Power down mode: 0.9µA
  - Additional sleep and deep sleep modes available
- Autonomous receiver functionality and RF channel scanning:
  The SmartLEWIS™ TRX provides 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 and one crystal
- 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 receiver family and TDA5340 transceiver)
- 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
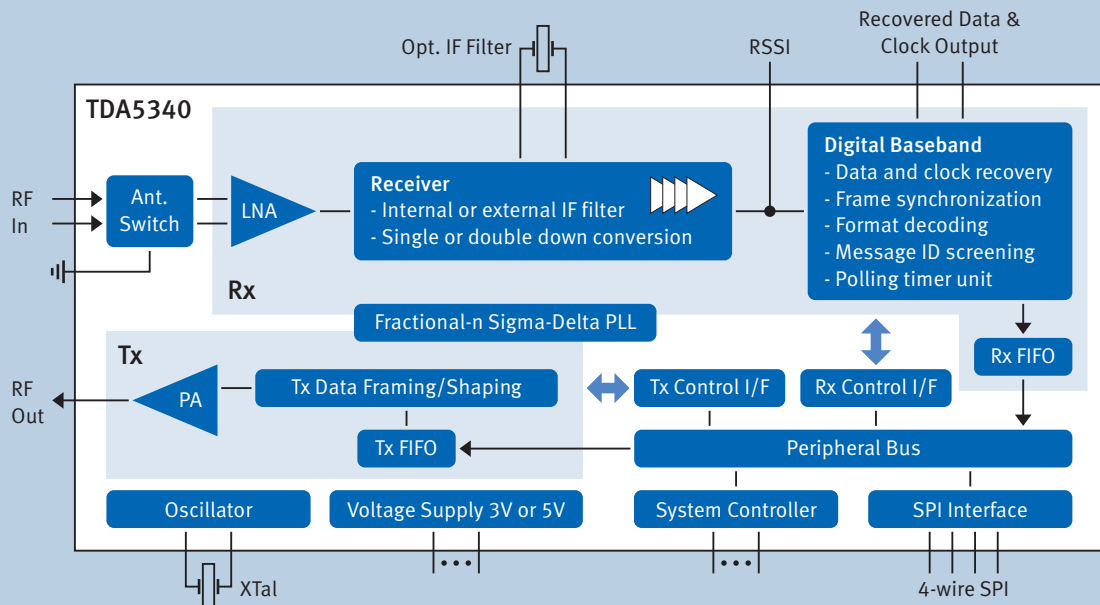
www.infineon.com/tda5340

Main Features

- Multiband / Multi-channel: 300–320MHz, 415–495MHz, 863–960MHz
- Highest efficiency available while achieving the highest sensitivity and low current draw
- Programmable power amplifier with up to +14dBm 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 independent of modulation or data rates
- 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 3.6V and 4.5 to 5.5V
- Temperature range: -40°C to +110°C
- PG-TSSOP-28 package

SmartLEWIS™ TRX – TDA5340 Multi-Channel Transceiver for Sub 1GHz

Block Diagram TDA5340

Opt. IF Filter   RSSI   Recovered Data & Clock Output

TDA5340

RF In

Ant. Switch — LNA — **Receiver** - Internal or external IF filter - Single or double down conversion

Digital Baseband - Data and clock recovery - Frame synchronization - Format decoding - Message ID screening - Polling timer unit

Rx

Fractional-n Sigma-Delta PLL

Rx FIFO

Tx

RF Out

PA — Tx Data Framing/Shaping

Tx Control I/F   Rx Control I/F

Tx FIFO

Peripheral Bus

Oscillator   Voltage Supply 3V or 5V   System Controller   SPI Interface

XTal   4-wire SPI

Type	Frequency	Output Power	Order Code
TDA5340_315_BOARD	315MHz	10dBm	SP000926798
TDA5340_434_BOARD	434MHz	10dBm	SP000926802
TDA5340_868_BOARD	868MHz	13dBm	SP000926808
TDA5340_915_BOARD	915MHz	13dBm	SP000926812

Development Tooling

Infineon offers evaluation boards optimized for the major sub 1GHz ISM frequency bands. The TDA5340 "Explorer"–Tool enables an easy configuration of TDA5340 and certain protocol examples additionally ease your design and development.

Applications	High Performance or Low Cost
■ Bi-directional remote control systems ■ Bi-directional RKE (with integrated TPMS and Passive Entry functionality) ■ Smart Meters/Automated Meter Reading (AMR) ■ 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 21 external components. However, you can also save these costly components and still achieve high performance with 18 external components only.

ATTENTION PLEASE!
The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

INFORMATION
For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

WARNINGS
Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.