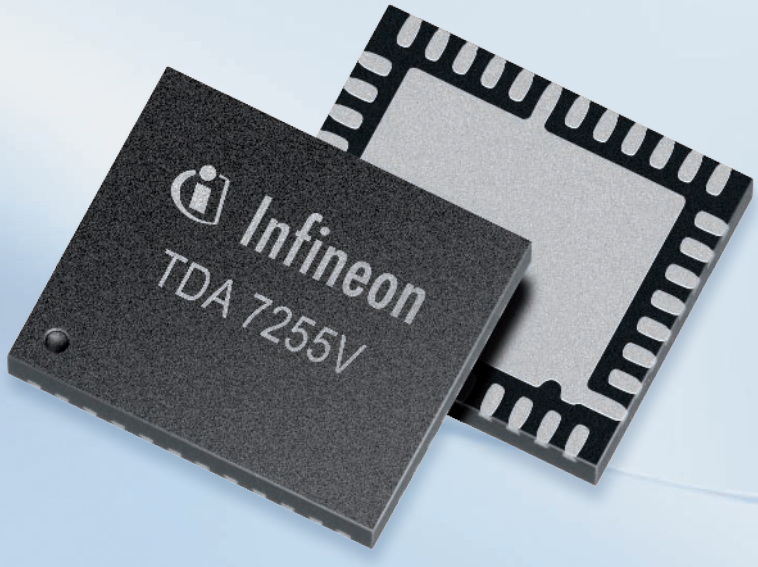
Product Brief




# TDA 7255V

## ASK/FSK single-channel Transceiver for the 434MHz frequency band in a tiny VQFN package

More and more consumer products are shrinking and engineers are working hard to reduce PCB area and costs wherever possible.

With TDA 7255V Infineon offers a VQFN-40 package variant of its popular TDA 5255 transceiver achieving highest sensitivity performance in a tiny package. This new device is targeted specifically at highly size-sensitive industrial and consumer applications such as small home automation or security and alarm systems.

TDA 7255V is an ASK/FSK single-channel transceiver for the 434MHz ISM frequency band. The device is highly integrated and requires only a few external components. The extreme low current consumption in receive, transmit and power down mode and the wide supply voltage range make TDA 7255V the ideal choice for small, battery driven applications. Additionally, TDA 7255V offers high functionality with its on-chip self-polling logic, data filter, data slicer and peak detectors.

### Applications

- Bi-directional remote control systems
- Home automation
- Lighting control
- Security and alarm systems
- Industrial control
- Low bit-rate communication systems

### Ordering Information

| Type | Package | Ordering Code |
|---|---|---|
| TDA 7255V | PG-VQFN-40 | SP000698114 |

### Evaluation Kit

| Type | Modulation | Frequency | Ordering Code |
|---|---|---|---|
| TDA 7255V_TDA 7255V_434_10 | ASK/FSK | 434MHz | SP000745294 |

www.infineon.com/transceiver

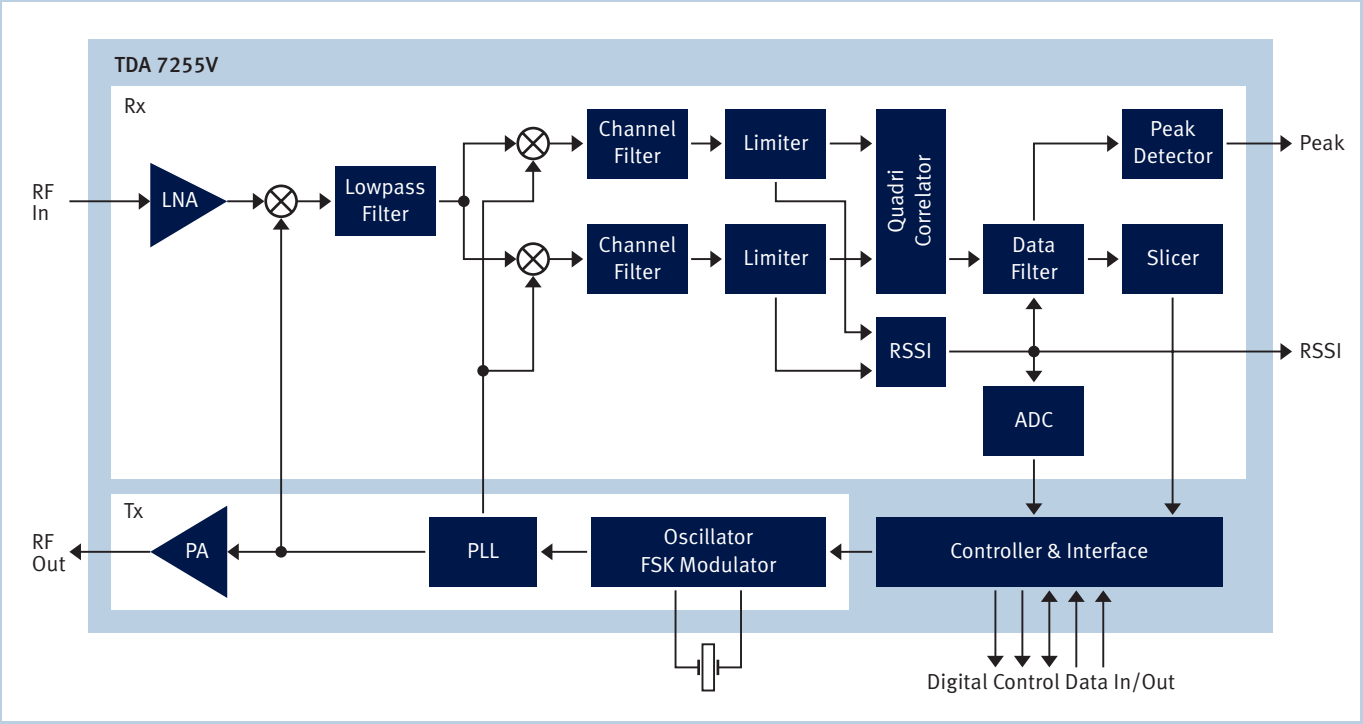
### Main Features

- ASK and FSK operation
- Frequency range: 433 ... 435MHz
- -112dBm ASK sensitivity (typ. at 4kbit/s datarate)
- -115dBm FSK sensitivity (typ. at 4kbit/s datarate)
- Transmit power up to +13dBm
- Low supply current
- Very low supply current in power down mode (5nA typ.)
- Supply voltage range: 2.1 ... 5.5V
- Data rates up to 64kbit/s Manchester Encoded
- Fully integrated VCO, PLL synthesizer and loop filter with on-chip crystal oscillator tuning
- On-chip low pass channel select filter and data filter with tunable bandwidth
- Data slicer with self-adjusting threshold and 2 peak detectors
- Self-polling logic with ultra fast data rate detection
- I²C µController Interface
- Temperature range -40 ... +85°C
- 5.5 x 6.5mm small VQFN-40 package

RoHS

# TDA 7255V

## Block Diagram TDA 7255V




## Product Summary

| Feature | TDA 7255V |
|---|---|
| Frequency Range | 433 ... 435MHz |
| Supply Voltage | 2.1 ... 5.5V |
| Temperature Range | -40 ... +85°C |
| Package | PG-VQFN-40 |
| Rx | |
| Supply Current typ. @ 3V | 8.6mA (ASK)<br>9.0mA (FSK) |
| Sensitivity @ 4kbit/s Manchester | -112dBm (ASK)<br>-115dBm (FSK) |
| Tx | |
| Supply Current typ. @ 3V | 13.5mA |
| RF transmit Power typ. | 9dBm |

## Major Blocks and its Key Benefits

The device contains a low noise amplifier (LNA), a double balanced mixer, a fully integrated VCO, a PLL synthesizer, a crystal oscillator with FSK modulator, a limiter with RSSI generator, an FSK demodulator, a data filter, a data comparator (slicer), a positive and a negative peak detector, a highly efficient class C power amplifier and a complex digital timing and control unit with I²C/3-wire microcontroller interface. Additionally there is a power down feature to save battery power.

The transmit section uses direct ASK modulation by switching the power amplifier, and crystal oscillator detuning for FSK modulation. The necessary detuning load capacitors are external. The capacitors for fine tuning are integrated. The receive section is using a novel single-conversion/direct-conversion scheme that is combining the advantages of both receive topologies. The IF is contained on the chip, no RF channel filters are necessary as the channel filter is also on the chip.

The self-polling logic can be used to let the device operate autonomously as a master for a decoding microcontroller.

Published by
Infineon Technologies AG
85579 Neubiberg, Germany



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Order Number: B142-H9511-X-X-7600
Date: 08 / 2010

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