# OPERATIONNAL DESCRIPTION REMOTE CONTROL
# TEL007-M

Transmitter:
- Remote RF at 433.245Mhz
- Using a Chipcon/Texas CC1150
- FM GFSK.
- Burst duration: 3000 mS
- Burst Length: 833 µS
- Crystal Oscilator @26MHz +- 30ppm
- Frequency synthesizer with 400Hz frequency resolution.
- Transmitter antenna is an PCB antenna
- Security decoding with a 16 Bit word and 8 Bit command word.
- Battery operated 1 – DL2032 lithium 3V.
- PCB with two signal layers with top and bottom ground plane.

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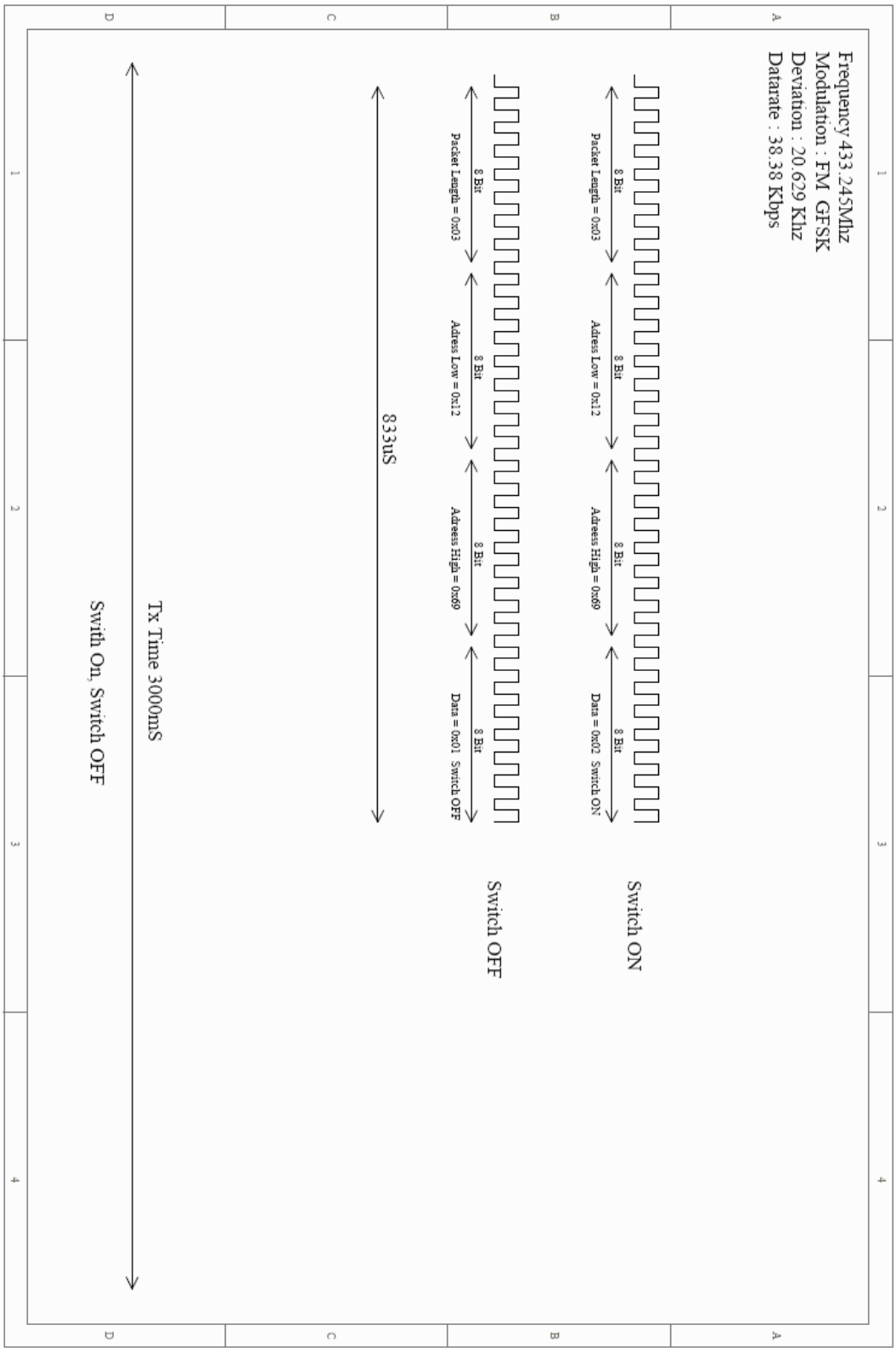

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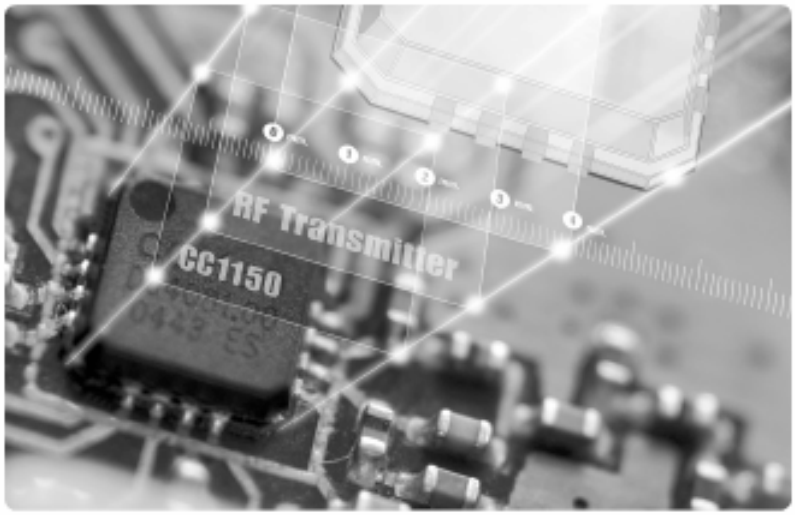
Chipcon Products from Texas Instruments




## CC1150

MULTI-CHANNEL RF TRANSMITTER

## VERY LOW-COST UHF TRANSMITTER

The CC1150 is a highly integrated multichannel RF Transmitter designed for low-power wireless applications. It is designed for the Industrial, Scientific and Medical (ISM) and Short Range Device (SRD) frequency bands at 315, 433, 868 and 915 MHz.

- VERY LOW TOTAL SYSTEM COST
- HIGH INTEGRATION LEVEL
- LOW POWER
- FLEXIBLE & ROBUST

### KEY FEATURES

**Market's lowest system cost**
- Very few external components required.
- Very small footprint. The CC1150 comes in a 4 x 4 mm, RoHS compliant 16-pin QLP package.
- Reference design with a two-layer PCB with all components mounted on the same side.
- CC1150's many powerful digital features allow building a high-performance RF system using an inexpensive microcontroller.

**Very low power consumption**
- TX: 26.4 mA (+10 dBm) and 14.9 mA (0 dBm) at 433 MHz.
- Burst mode data transmission with high over-the-air data rate reduces current consumption.

**Excellent radio performance**
- Programmable data rate from 1.2 - 500 kbps.
- Programmable output power up to +10 dBm for all supported frequency bands.

### APPLICATIONS

The CC1150 can be used in a wide range of applications, such as:

- Home and building automation
- Automatic Meter Reading (AMR)
- Wireless alarm and security systems
- Industrial monitoring and control
- Consumer Electronics
- Ultra low-power wireless applications operating in the 315/433/868/915 MHz ISM/SRD bands

SmartRF®04 - Product line

# OPERATIONNAL DESCRIPTION REMOTE CONTROL
# TEL007-M

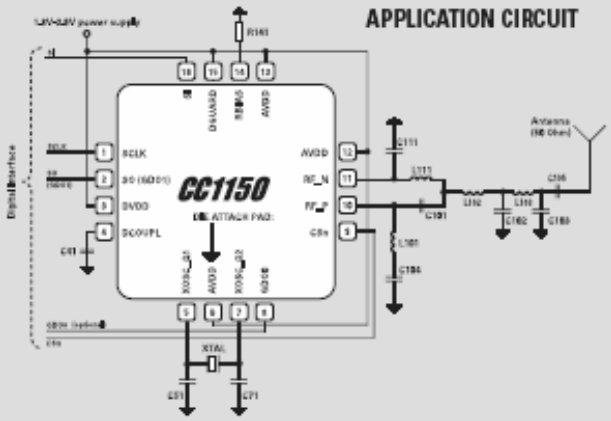
## GENERAL CHARACTERISTICS

| PARAMETER | MIN | TYP | MAX | UNIT | CONDITION |
|---|---|---|---|---|---|
| OPERATING CONDITIONS: | | | | | |
| Operating temperature range: | -40 | | +85 | °C | |
| Operating supply voltage | 1.8 | | 3.6 | V | |
| CURRENT CONSUMPTION | | | | | |
| Current consumption TX (+10 dBm), 433 MHz | | 26.4 | | mA | |
| Current consumption TX (0 dBm), 433 MHz | | 14.9 | | mA | |
| Current consumption, power down | | 200 | | nA | |
| RF CHARACTERISTICS | | | | | |
| Frequency range | 300 | | 348 | MHz | |
| | 400 | | 464 | MHz | |
| | 800 | | 928 | MHz | |
| Data rate (programmable) | 1.2 | | 500 | kbps | |
| Output power (programmable) | -30 | | +10 | dBm | GFSK, FSK and OOK |
| | -30 | | 0 | dBm | ASK |

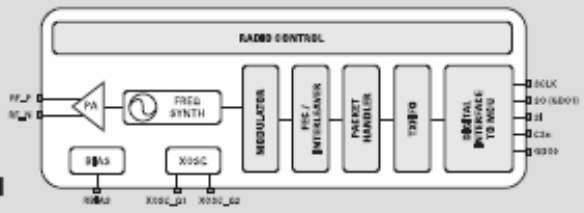
### The SmartRF®04 Technology

The SmartRF®04 Technology is Chipcon's latest platform for product development. It is based on an advanced 0.18 µm CMOS technology facilitating superior RF performance in combination with high-density and low-power integration of digital modules.

## APPLICATION CIRCUIT




## BLOCK DIAGRAM




## FEATURES

- Full packet handling including preamble generation, sync word insertion, flexible packet length and automatic CRC
- 64-byte TX data FIFO for burst mode data transmission. No limit on packet lenght during transmission
- SPI interface for configuration and data communication
- Optional Forward Error Correction coding with interleaving, for enhanced link reliability
- Optional data whitening/dewhitening.
- Very fast startup time from power down (0.3 ms) saves power consumption
- 2-FSK, GFSK, MSK and ASK/OOK supported
- Support for asynchronous transparent operation for backwards compatibility with existing radio communication protocols
- In a typical system, the CC1150 will be accompanied by an inexpensive micro-controller and low-cost passive components
- Reference design compliant with ETSI EN 300 220 (Europe) and FCC CFR47, Part 15 (US)
- CC1150 is based on Chipcon's SmartRF®04 technology in 0.18 µm CMOS
- Pin and register compatible with its 2.4 GHz counterpart (the CC2550)
- Ideally suited for one-way systems accompanied by the CC1100 RF transceiver
- RoHS compliant QLP16 package

## ABOUT CHIPCON

Chipcon is a leading international semiconductor company that designs, produces and markets high performance standard radio frequency integrated circuits (RF-ICs) for use in a variety of wireless applications in the 300 to 1000 MHz and 2.4 GHz frequency bands.

Chipcon targets both consumer electronics and home and building automation end markets and has a strong position within both proprietary and standards-based radio technologies.

Chipcon Group ASA is the parent company and holding company that controls the activities of its wholly owned subsidiaries Chipcon AS and Chipcon Inc. Chipcon's products are distributed worldwide and we are represented at 55 locations in 31 countries.


Texas Instruments
Sandakerveien 21, N-0349 Oslo, Norway
Tel: +47 22 95 85 44 Fax: +47 22 95 85 46
www.chipcon.com E-mail: info@chipcon.com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