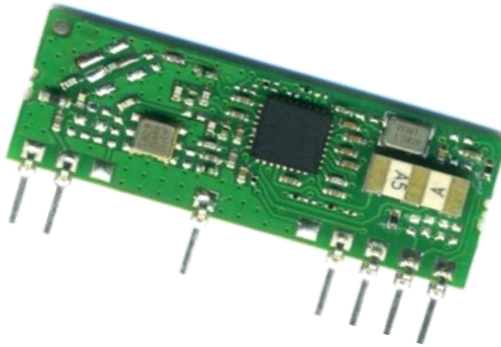


# Wireless Transparent Modules Datasheet

## 32001309

### OOK/ASK SUPER HETERODYNE RECEIVER

## Data Sheet



### Overview

Low cost, high performance OOK/ASK Super Heterodyne receiver in the 434MHZ ISM Band, manufactured in SMT technology on printed circuit board.

Typical applications are remote control system, security systems, data transmission, industrial controls, home automation.

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## I. Description

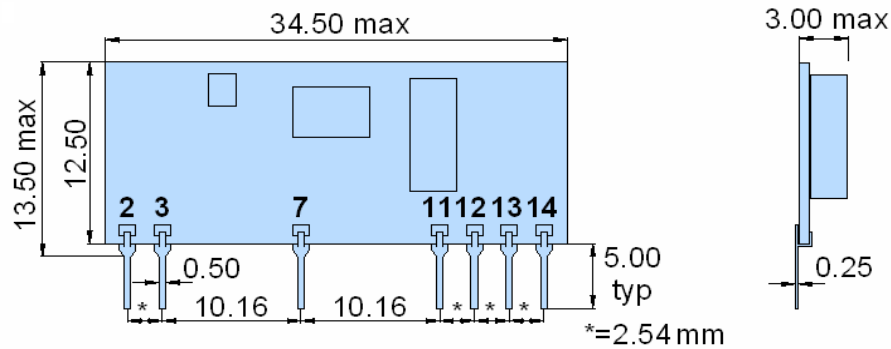
This module is equipped with FRONT-END SAW FILTER for a good out of band interference immunity. Thanks to an efficient embedded noise cancellation filter, you get a good noise reduction and restoration of received signal integrity, providing excellent performances.

Suitable for all HCS, HT12 encodings and similar. RSSI output proportional to received signal level.

Wide supply voltage ranges from 2.1 to 5.5 Vdc. The module meets all the requirements in the industrial temperature range -40/+85°C.

CATEGORY 2 RECEIVER developed according to ETSI EN 300 220 European Standard. The module meets the Radio Equipment Directive (RED) 2014/53/EU.

## 2. Mechanical Dimensions



## 3. Pin Definition

- 2 = GND
- 3 = RF Input (50 Ω)
- 7 = GND
- 11 = GND
- 12 = + Vcc
- 13 = RSSI Out
- 14 = TTL Output – Data OUT

## 4. Electrical characteristics

### 4.1 Absolute Maximum Ratings

Parameter	Max.	Unit
Supply voltage, +Vcc, pin 12:	5.5	V
Radio Frequency Input, pin 3:	10	dBm
Output pins voltage with respect to GND	+Vcc	V
Storage Temperature:	-40 ÷ 100	°C
Operating Temperature:	-20 ÷ 85	°C

### 4.2 Operating Condition

GENERAL ELECTRICAL CHARACTERISTICS @ 25 °C

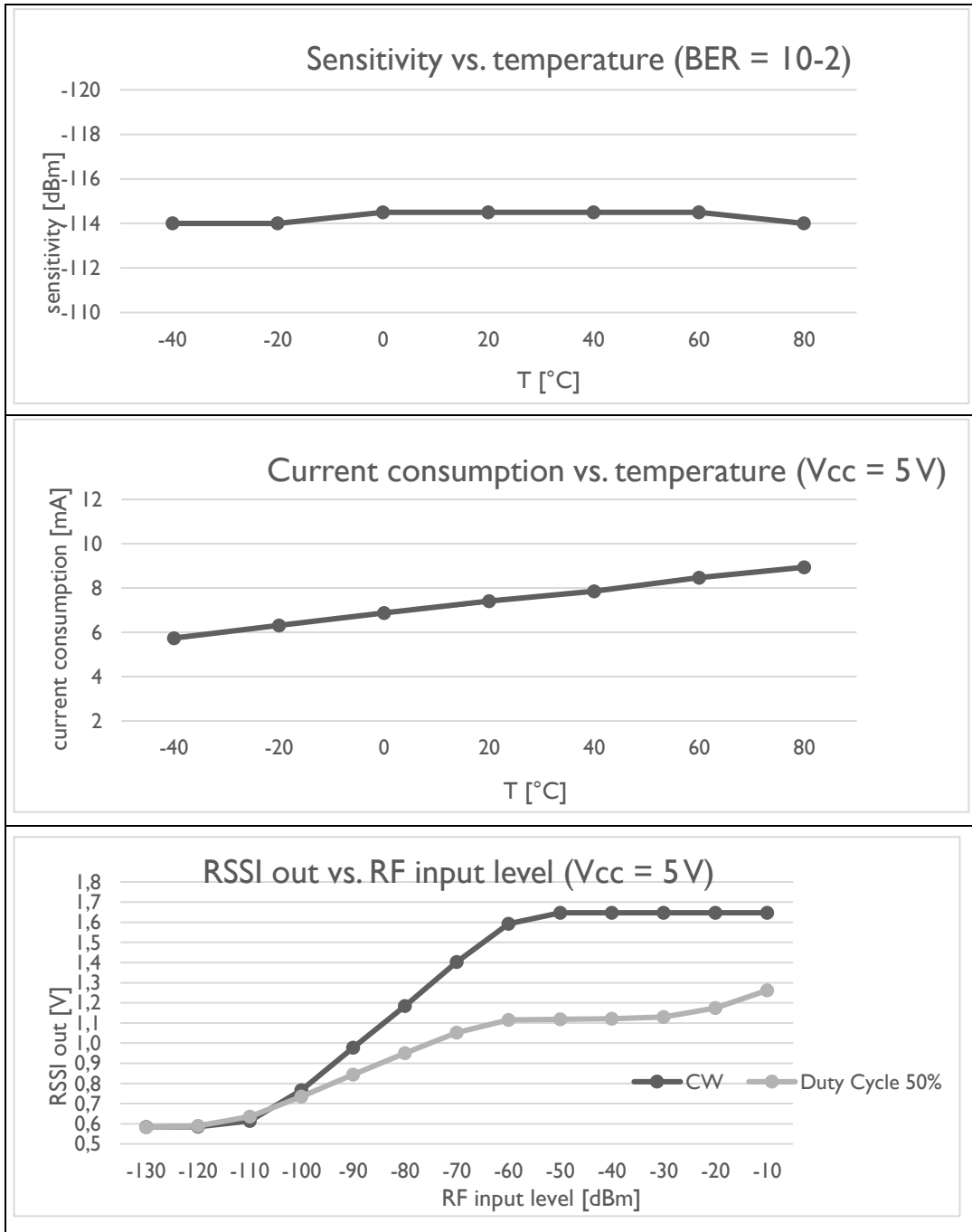
Parameter	Min.	Typ.	Max.	Unit	Notes
Supply Voltage (Vcc)	2.1	3.0	5.5	V	
DC Current Drain	-	8.5	-	mA	
Operating Frequency	-	433.92	-	MHz	
Sensitivity	-	-111	-	dBm	See note 1
RF Bandwidth (-3dB)	-	300	-	kHz	See note 5
Selectivity (-6dB)					See note 5
Selectivity (-60dB)					See note 5
Image frequency rejection					See note 6
Spurious Radiated Emissions	-	-	-57	dBm	See note 7
Baud Rate	300	2400	4800	Baud	
Start-up time	-	-	6	ms	See note 2
Settling time	-	-	5	ms	See note 3
Output Logic Low	GND	-	0.1	V	See note 4
Output Logic High	+Vcc-0.1	-	+Vcc	V	
Output load (pin14)	50	-	-	kΩ	

#### 4.2.1 Notes:

- Note 1:** Test signal AM pseudo random code NRZ (mod. depth 100%) 2400 Baud. Result at BER=10<sup>-2</sup> or better.
- Note 2:** Test signal AM pseudo random code NRZ (mod. depth 100%) 2400 Baud. Result at BER=10<sup>-2</sup> or better.
- Note 3:** Time by test signal at RF input to valid data reception
- Note 4:** RSSI measurement: AM modulation 100 %, square wave, 1.2 kHz frequency; the linearity of RSSI level is not maintained in the -55 dBm to -45 dBm range due to AGC circuit
- Note 5:** All RF parameters measured with input (pin 3) connected to 50-Ω impedance signal source or load
- Note 6:** Measured as per ETSI 300 220-1, 5.17.3.3 “Spurious response rejection – Conducted measurement”, test signal ASK 2400 Baud, 100 %, fi @ 412.52 MHz
- Note 7:** No significant emission detected. As per ETSI 300 220-1, 5.9.3.3.1 “UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN - Conducted measurement” and 5.9.3.3.2 “UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN - Radiated measurement”; f < 1 GHz: < -57 dBm; f > 1 GHz: < -47 dBm

### 4.3 Temperature Range Curves

**Note:** All RF parameters measured with input (pin 3) connected to a 50-Ω impedance signal source or load.



## 5. Application Notes

Title	Description	Doc
PCB Layout Guidelines	Hints how to make a good RF design	AN_RF_001.pdf

## 6. Regulatory Approvals

Doc	Title	Description
32001309_DoC.pdf	Declaration of Conformity	Declaration of the conformity with the essential requirements of the European Directive 2014/53/EU

## 7. Revision History

Revision	Date	Description
1.4	09.12.2020	Final Release