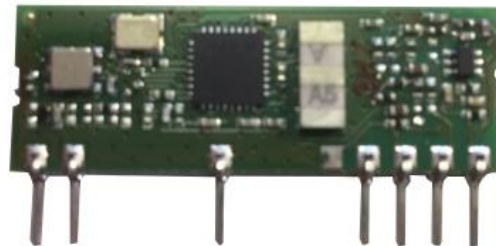


Wireless Transparent Modules Datasheet

32001520V3

OOK/ASK 434 MHz SUPERHETERODYNE RECEIVER

Datasheet



Overview

High performance Superheterodyne OOK/ASK receiver with low profile and height in the 434 MHz SRD band.

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I. Product Features

Mechanical highlights:

- ✓ Compact dimensions
(35.50 mm x 13.50 mm)

RF performances:

- ✓ -115 dBm Sensitivity
- ✓ Category 1.5 Receiver

Additional features:

- ✓ RSSI output pin
- ✓ Front End filter

Applications:

- ✓ Remote control systems
- ✓ Data transmission
- ✓ Industrial controls
- ✓ Home automation

This module is equipped with a differential image rejection mixer for a good out of band interference immunity.

Thanks to an efficient embedded noise cancellation filter, this receiver reaches a good noise reduction of the received signal, providing excellent performances.

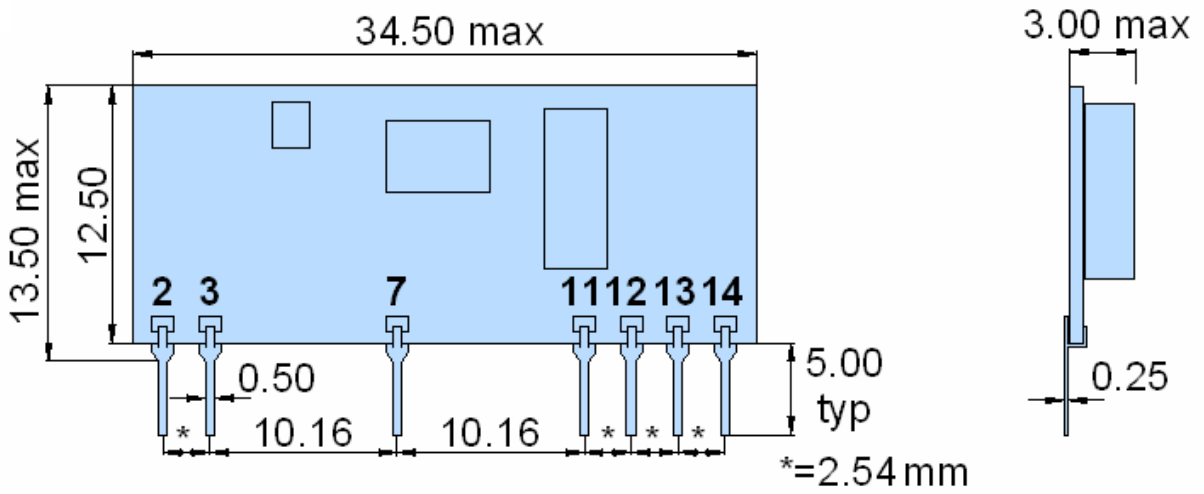
Suitable for all HCS, HT12 encodings and similar.

Standard supply voltage range from 3.0 V to 3.6 V. The module meets all the requirements in the industrial temperature range -40 / +85 °C.

CATEGORY 1.5 RECEIVER developed according to ETSI EN 300 220 European Standard. The module meets the Radio Equipment Directive (RED) 2014/53/EU.

Compliant with REACH and RoHS directives.

2. Mechanical Dimensions



3. Pin Definition

Pin	Name	Type
2	GND	S
4	RF Input (50 Ω)	RF
7	GND	S
11	GND	S
12	+ VCC	S
13	RSSI Out	O
14	Data OUT	O

LEGEND: S = Power supply, O = Output, I = Input, RF = Antenna port, NC = Do Not Connect

4. Electrical Characteristics

4.1 Absolute Maximum Ratings

Parameter	Max.	Unit
Supply Voltage (VCC)	+4.0	V
Output pins voltage with respect to GND	VCC	V
Radio Frequency Input, pin 1:	10	dBm
Storage Temperature	-40 ÷ 100	°C
Operating Temperature	-40 ÷ 85	°C

4.2 Operating Condition

Note: All RF parameters measured with input (pin 1) connected to a 50 Ω impedance signal source or load.

GENERAL ELECTRICAL CHARACTERISTICS @ 25 °C

Parameter	Min.	Typ.	Max.	Unit	Notes
Supply Voltage (VDD)	3.0	-	3.6	V	
DC Current drain	-	5.7	6.8	mA	4
Operating Frequency	-	433.92	-	MHz	
Channel Frequency Precision	-	±30	-	kHz	
Sensitivity	-	-115	-	dBm	2,3
-3 dB RF Bandwidth	-	-	300	kHz	
Spurious response rejection	-	1	-	dBm	5
Spurious radiated level	-	-	-57	dBm	
Start-up time	-	60	170	ms	6
Settling time	-	-	5	ms	7
Data Rate	300	-	4800	bit/s	
Output Logic low	GND	-	0.4	V	
Output Logic high	VCC - 0.4	-	VCC	V	

4.2.1 Notes:

Note 1: VCC = 3.0 V.

Note 2: All RF parameters measured with input (pin 1, RF Input) connected to 50 Ω impedance signal source or load.

Note 3: Pseudo random code NRZ, OOK BER (bit error rate) = 0.1 % or better, OOK modulation, Bit Rate = 2400 bit/s.

Note 4: Typical consumption is measured with -100 dBm OOK 1.2 kHz square modulated signal.

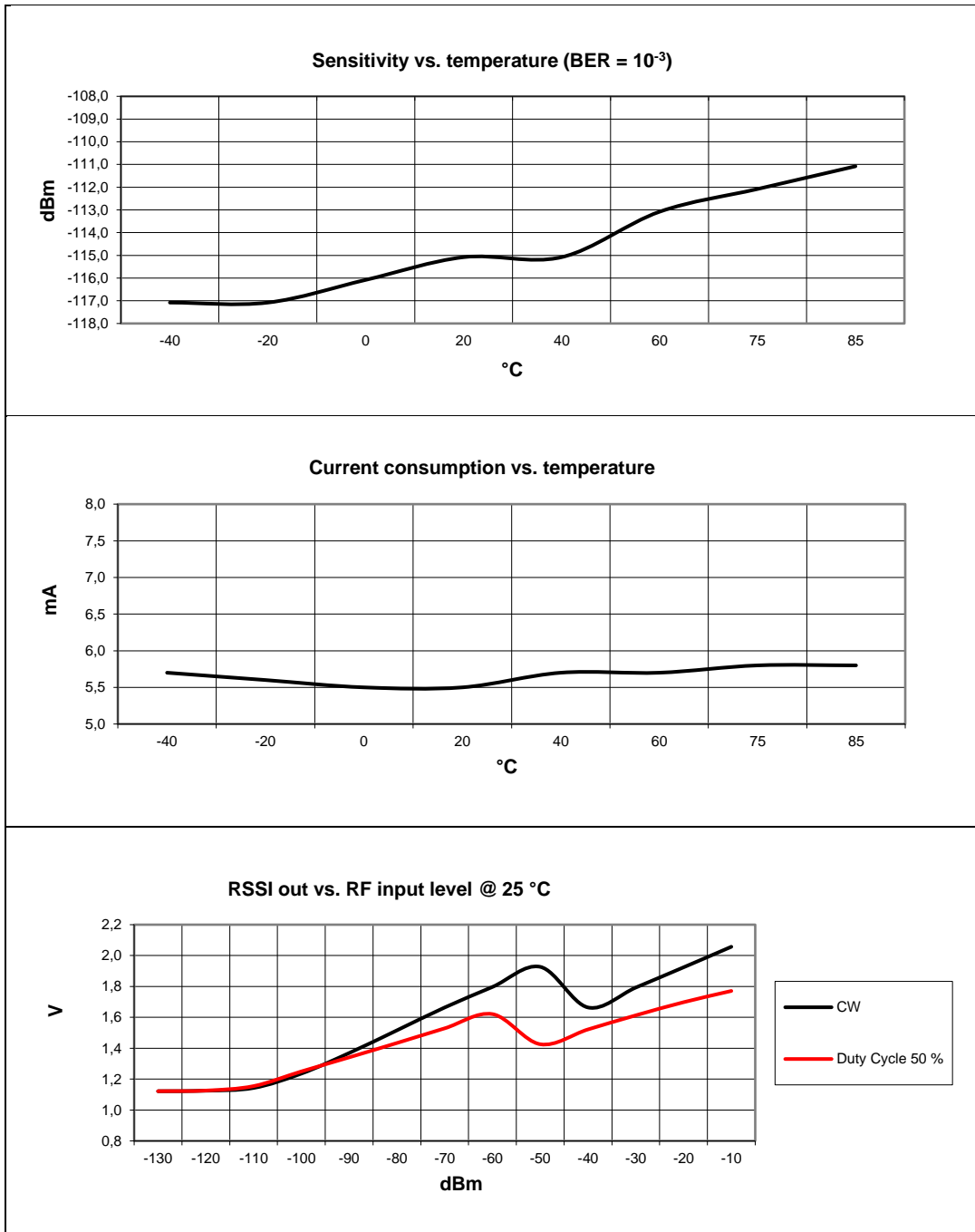
Note 5: Spurious response rejection, given for a single tone interferer and referenced to sensitivity + 6 dB, test performed with unmodulated signal measured as per ETSI 300 220-1.

Note 6: Time by power-on to valid data reception.

Note 7: Time by test signal at RF input to valid data reception.

5 Temperature Range Curves

Note: All RF parameters measured with input (pin 1) connected to a 50 Ω impedance signal source or load.



6 Application Notes

Title	Description	Doc
Frame Structure for Radio Communication	Description on data encoding techniques	AN_RF_001.pdf
PCB Layout Guidelines	Hints how to make for a good RF design	AN_RF_002.pdf

7 Regulatory Approvals

Doc	Title	Description
32001520V3_DoC.pdf	Declaration of Conformity	Declaration of the conformity with the essential requirements of the European Directive 2014/53/EU

8 Revision History

Revision	Date	Description
0.1	29.10.2021	First release
0.2	27.05.2022	Template change