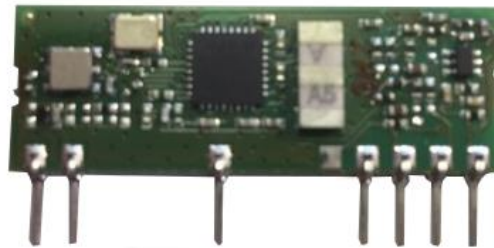


Wireless Transparent Modules

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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1 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

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.

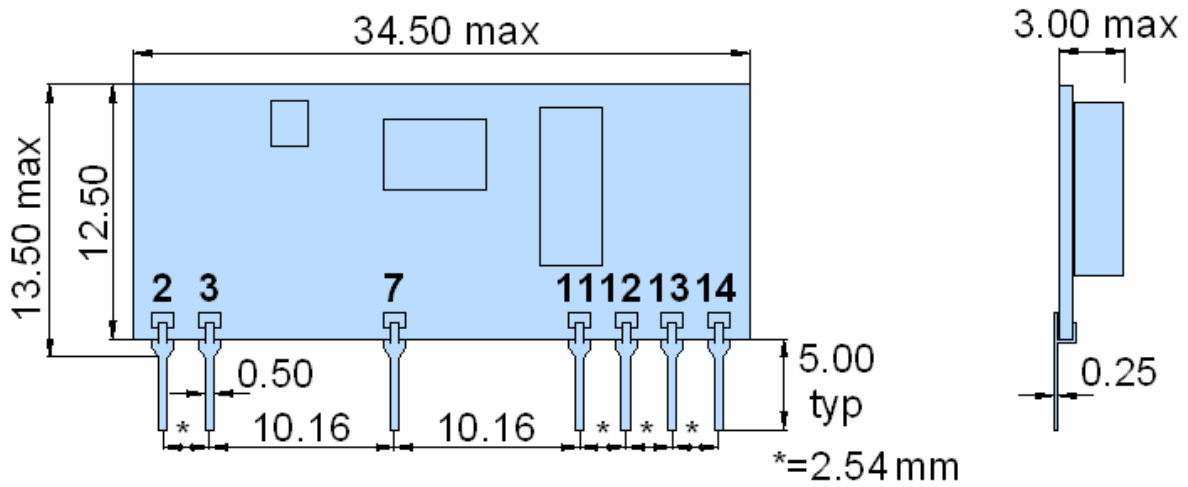
Suitable for all HCS, HT12 encodings and similar.

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
3	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

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 parameters measured with RF input (pin 1, 2) connected to a 50-Ω impedance signal source or load, Power Supply Voltage @ 5.0 V DC, Temperature 25 °C.

4.3 Electrical characteristics @ 25 °C

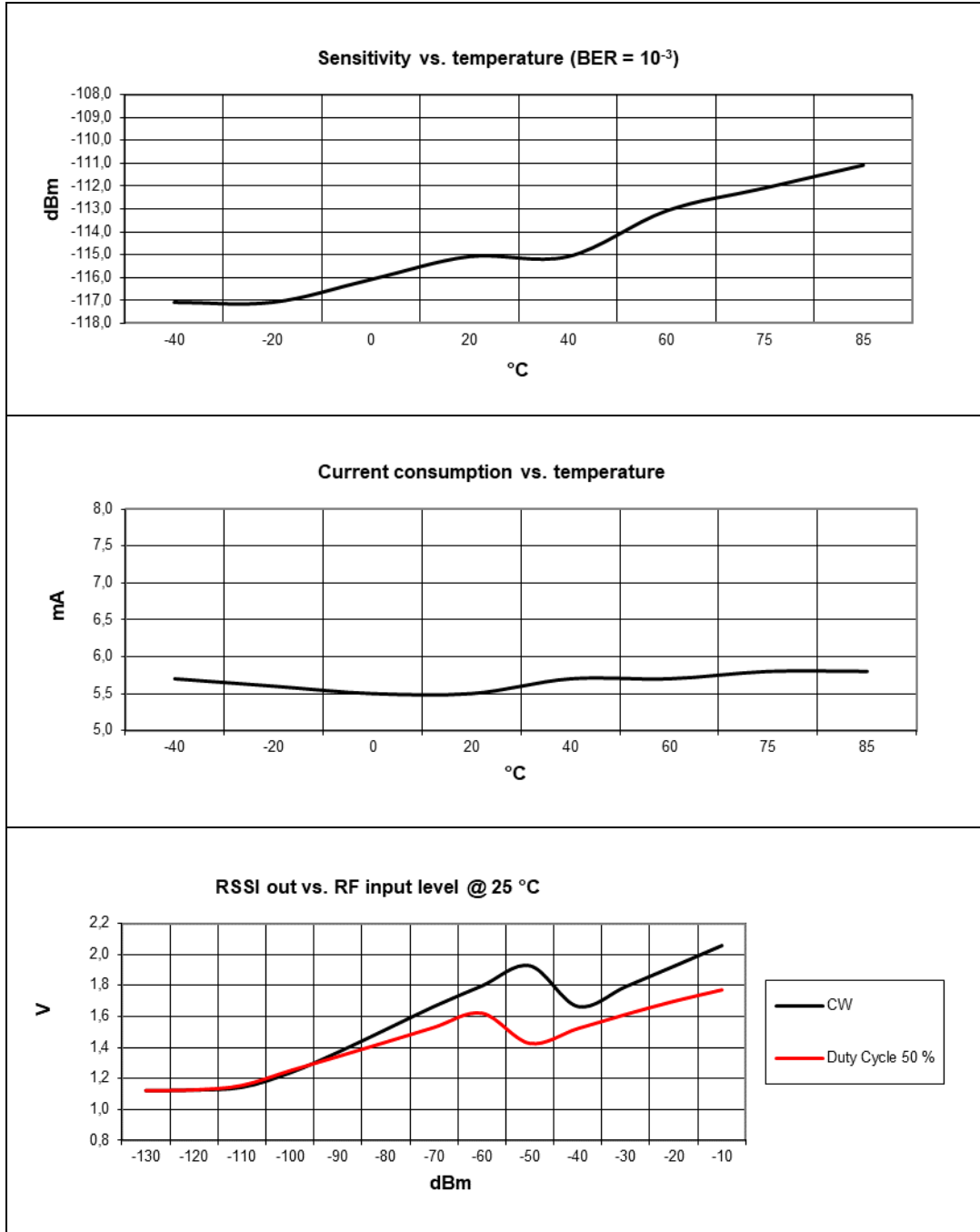
Parameter	Min.	Typ.	Max.	Unit	Notes
Supply Voltage (VCC)	3.0	-	3.6	V	
DC Current drain	-	5.7	6.8	mA	1,4
Operating Frequency	-	433.92	-	MHz	
Channel Frequency Precision	-	±30	-	kHz	
Sensitivity	-115	-	-	dBm	2,3
-3 dB RF Bandwidth	-	-	300	kHz	
RF input impedance	-	50	-	Ω	
Spurious response rejection	-	1	-	dB	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	
Load impedance for Data Out signal	47	-	-	kΩ	
Load impedance for RSSI Out signal	1	-	-	MΩ	8

4.3.1 Notes:

- 1) VCC = 3.0 V.
- 2) All RF parameters measured with input (pin 1, RF Input) connected to 50- Ω impedance signal source or load.
- 3) Pseudo random code NRZ, BER (bit error rate) = 0.1 % or better, OOK modulation, Bit Rate = 2400 bit/s.
- 4) Typical consumption is measured with -100 dBm OOK 1.2 kHz square modulated signal.
- 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.
- 6) Time by power-on to valid data reception.
- 7) Time by test signal at RF input to valid data reception.
- 8) In order to read RSSI values, use a high-impedance input buffer. If this pin is not used, leave floating; do not connect to ground.

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
32001520_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
0.3	23.06.2023	Corrected RF pin number
0.4	20.09.2023	Defined load impedance values for RF, data out and RSSI pins