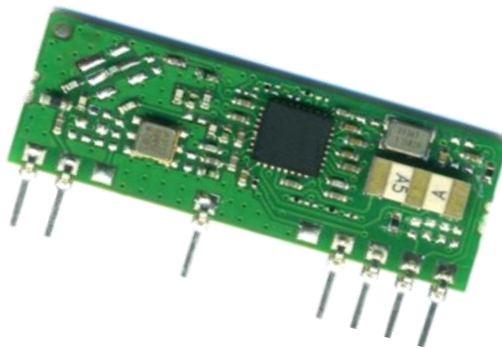


Wireless Transparent Modules Datasheet

3200I309F

OOK/ASK SUPER HETERODYNE RECEIVER

Data Sheet



Overview

Low cost, high performance OOK/ASK Super Heterodyne receiver in the 868MHZ 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

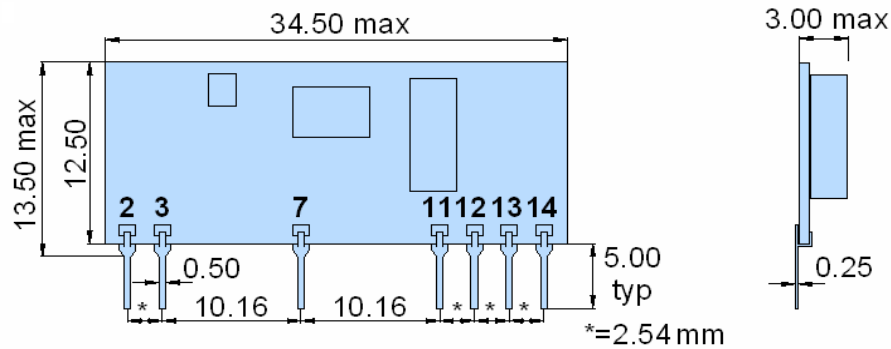
This module is equipped with FRONT-END SAW FILTER for a good out of band interference immunity. Thanks to an efficient embedded noise cancellation filter, you get a good noise reduction and restoration of received signal integrity, providing excellent performances.

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

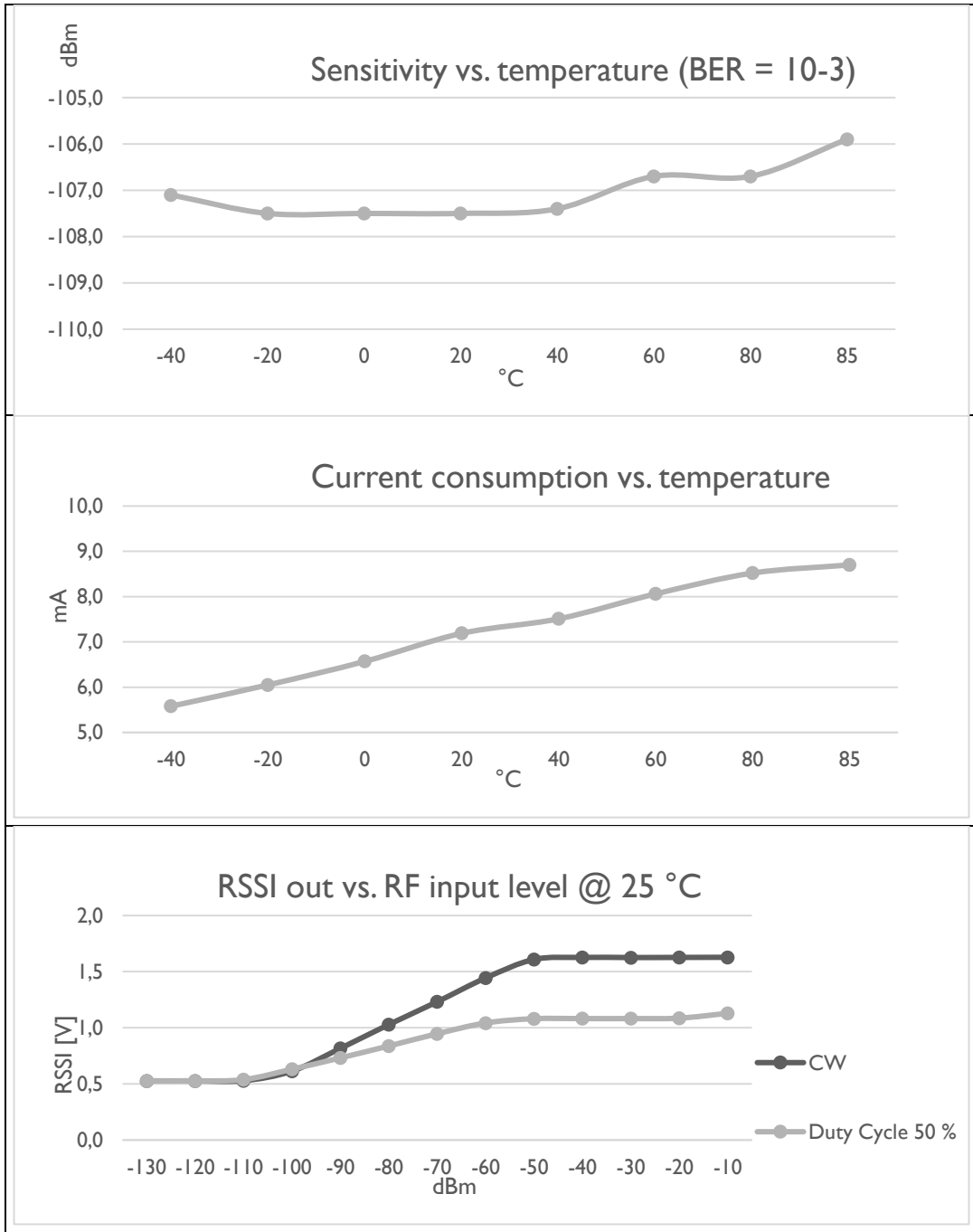
| Parameter | Min. | Typ. | Max. | Unit | Notes |
|-----------------------------|----------|-------|------|------|------------|
| Supply Voltage (Vcc) | 2.1 | 3.0 | 5.5 | V | |
| DC Current Drain | - | 8.0 | - | mA | |
| Operating Frequency | - | 868.3 | - | MHz | |
| Sensitivity | - | -107 | - | dBm | See note 1 |
| RF Bandwidth (-3dB) | - | 300 | - | kHz | See note 5 |
| Selectivity (-6dB) | - | 360 | - | kHz | See note 5 |
| Selectivity (-60dB) | - | 17 | - | MHz | See note 5 |
| Image frequency rejection | - | 80 | - | dB | 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=10⁻² or better.
- Note 2:** Test signal AM pseudo random code NRZ (mod. depth 100%) 2400 Baud. Result at BER=10⁻² 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 |
|-------------------|---------------------------|--|
| 32001309F_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 |
|----------|------------|---------------|
| 1.3 | 09.12.2020 | Final Release |
| | | |
| | | |