

### Description

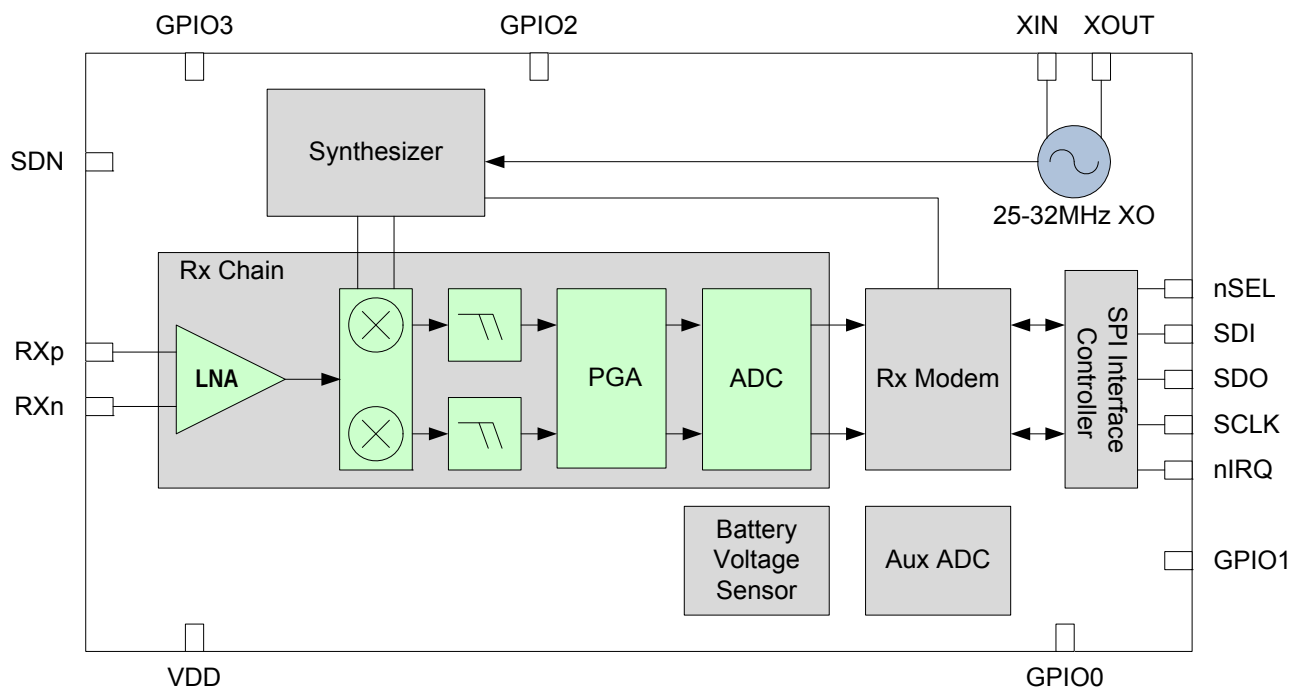
Silicon Laboratories' Si4355 is an easy to use, low current, sub-GHz EZRadio® receiver. Covering all major bands, it combines plug-and-play simplicity with the flexibility needed to handle a wide variety of applications. The compact 3x3 mm package size combined with a low external BOM count makes the Si4355 both space efficient and cost effective. Excellent sensitivity of 116 dBm allows for a longer operating range, while the low current consumption of 10 mA active and 50 nA standby, provides for superior battery life. By fully integrating all components from the antenna to the GPIO or SPI interface to the MCU, the Si4355 makes realizing this performance in an application easy. Design simplicity is further exemplified in the Wireless Development Suite (WDS) user interface module. This configuration module provides simplified programming options for a broad range of applications in an easy to use format that results in both a faster and lower risk development. Like all Silicon Laboratories' EZRadio devices, the Si4355 is fully compliant with all worldwide regulatory standards, such as FCC, ETSI, and ARIB.

### Features

- Frequency range = 283–960 MHz
- Receive sensitivity = –116 dBm
- Modulation
  - (G)FSK
  - OOK
- Low RX Current = 10 mA
- Low standby current = 50 nA
- Max data rate = 500 kbps
- Power supply = 1.8 to 3.6 V
- 64 byte FIFO
- Auto frequency control (AFC)
- Automatic gain control (AGC)
- Integrated battery voltage sensor
- Packet handling including preamble, sync word detection, and CRC
- Low BOM
- 20-Pin 3 mm x 3 mm QFN package

### Applications

- Remote control
- Home security and alarm
- Telemetry
- Garage and gate openers
- Remote keyless entry
- Home automation
- Industrial control
- Sensor networks
- Health monitors



### Selected Electrical Specification

| Parameter                | Symbol         | Test Condition                                                          | Min | Typ  | Max | Unit |
|--------------------------|----------------|-------------------------------------------------------------------------|-----|------|-----|------|
| Supply Voltage           | $V_{DD}$       |                                                                         | 1.8 | 3.3  | 3.6 | V    |
| Frequency Range          | $F_{RX}$       |                                                                         | 283 | —    | 350 | MHz  |
|                          |                |                                                                         | 425 | —    | 525 | MHz  |
|                          |                |                                                                         | 850 | —    | 960 | MHz  |
| Current Consumption      | $I_{Shutdown}$ |                                                                         | —   | 30   | —   | nA   |
|                          | $I_{Standby}$  |                                                                         | —   | 50   | —   | nA   |
|                          | $I_{RX}$       |                                                                         | —   | 10   | —   | mA   |
| Rx Sensitivity           | $P_{RX\_2}$    | BER < 0.1%, 2.4 kbps, GFSK, BT = 0.5, $\Delta F$ = 25kHz, 114 kHz Rx BW | —   | -116 | —   | dBm  |
|                          | $P_{RX\_OOK}$  | BER < 0.1%, 1 kbps, 185 kHz Rx BW, OOK, PN15 data                       | —   | -113 | —   | dBm  |
| Selectivity <sup>2</sup> | $C/I_{1-CH}$   | ±1 Channel Offset                                                       | —   | -56  | —   | dB   |
|                          | $C/I_{2-CH}$   | ±2 Channel Offset                                                       | —   | -59  | —   | dB   |
| Blocking <sup>2</sup>    | $200k_{BLOCK}$ | 200 kHz–1 MHz Offset                                                    | —   | -58  | —   | dB   |
|                          | $1M_{BLOCK}$   | 1 MHz Offset                                                            | —   | -61  | —   | dB   |
|                          | $8M_{BLOCK}$   | 8 MHz Offset                                                            | —   | -79  | —   | dB   |
| Image Rejection          | $Im_{REJ}$     | Rejection at the image frequency IF = 468 kHz                           | —   | -35  | —   | dB   |
| Data Rate                | $DR_{FSK}$     | (G)FSK Modulation                                                       | 1.0 | —    | 500 | kbps |
|                          | $DR_{OOK}$     | OOK Modulation                                                          | 0.5 | —    | 120 | kbps |

#### Notes:

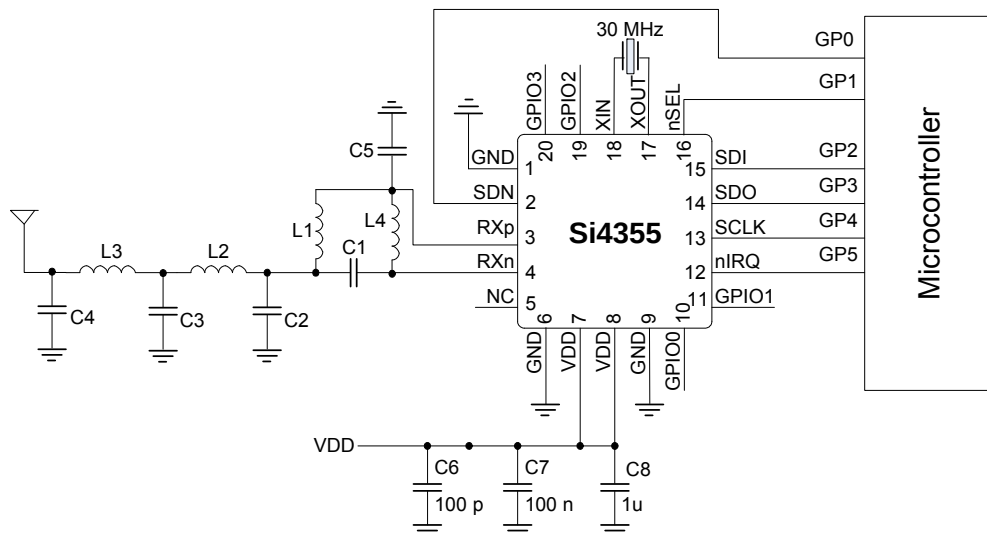
- Test Conditions: 3.3 VDC  $V_{DD}$ , 25 °C, external reference signal ( $X_{IN}$ ) = 1.0 V<sub>PP</sub> at 30MHz, centered around 0.8 VDC. Sensitivity measured at 434 MHz.
- Desired reference signal 3 dB above sensitivity, BER < 0.1%, Interferer is CW and desired modulation with 2.4 kbps,  $\Delta F$  = 30 kHz, GFSK with BT = 0.5, Rx BW = 114 kHz, 100 kHz channel spacing.

### Ordering Guide

| Part Number*  | Description         | Package Type       | Operating Temperature |
|---------------|---------------------|--------------------|-----------------------|
| Si4355-B1A-FM | EZRadio Transceiver | 3x3 QFN-20 Pb-free | -40 to 85 °C          |

\*Note: Add an "R" at the end of the device part number to denote tape and reel option.

### Application Circuit





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