# Si463x-A10
# Data Short

## Single-Chip, AM/FM/HD/DAB/DAB+ Radio Receiver Family

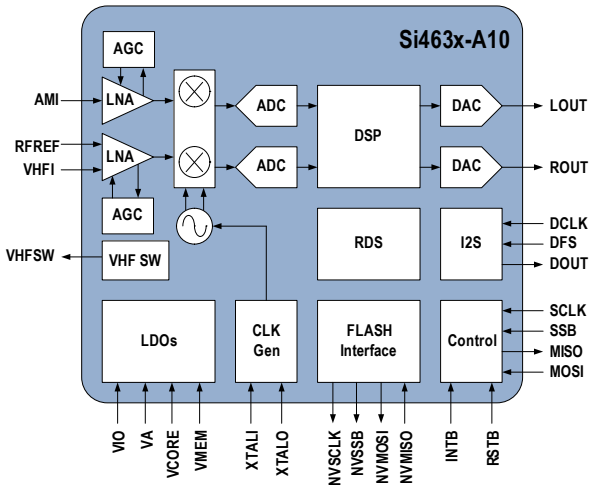
The Si463x single-chip digital receiver is a family of 100% CMOS digital radio broadcast receiver ICs from Silicon Labs. The Si463x family offers a complete and cost-effective digital radio solution integrating the RF tuner, baseband, and audio processing on a single die. The high level of integration provides significant customer benefits compared to traditional digital radio solutions, including a reduction in system implementation complexity, validation and testing, and improved reliability and manufacturability. The Si463x is compatible with the iBiquity Digital and NRSC-5 standards for In-Band-On-Channel (IBOC) digital radio broadcasting, integrating digital channel demodulation and decoding functions, along with audio decoding and IBOC analog-digital blend. The Si463x supports IBOC multicasting, as well as the full range of HD Radio data services, such as PSD, Artist Experience, iTunes® Tagging, Bookmark and real-time Traffic, with the appropriate external decoders.

The Si463x also offers VHF Band III (168-240 MHz) reception capability and is fully compliant with ETSI EN 300 401 and ETSI TS 102 563. The Si463x delivers DAB and DAB+ via an integrated source decoder that supports both MPEG Audio Layer 2 (DAB) and HE-AAC V2 (DAB+). The Si463x supports data services such as Dynamic Labels, Intellitext, Electronic Program Guide (EPG), Slideshow, and Journaline® with the appropriate external decoders.

**For more information, visit the Si463x Digital Radio Receivers web page.**

### Features

- Worldwide FM band support (76-108 MHz)
- Worldwide AM band support (520-1710 kHz)
- LW band support (144-288 kHz)
- SW band support (2.3-30 MHz)
- Advanced RDS/RBDS decoder
- FM HD Radio™ support with on-chip IBOC blend
- DAB, DAB+ Band III support (168-240 MHz)
- Integrated OFDM channel demodulator
- Integrated de-interleaving SRAM
- $I^2S$ digital audio out with ASRC
- Integrated 97 dB stereo audio DAC
- Concurrent $I^2S$ /L-R stereo audio out
- Full range of signal quality metrics
- Fully-integrated VCO /PLL /synthesizer
- SPI and I2C host control interfaces
- QFN 48-pin, 7x7x0.85 mm




### Applications

- Aftermarket car audio systems

**Table 1.1. Selected Electrical Specifications**

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Ambient Temperature | $T_A$ | | -40 | 25 | 85 | °C |
| Analog Supply Voltage | $V_A$ | | 1.71 | 1.8 | 2.0 | V |
| Interface Supply Voltage | $V_{IO}$ | | 1.62 | 1.8 | 3.6 | V |
| Core Digital Supply Voltage | $V_{CORE}$ | | 1.62 | 1.8 | 2.0 | V |
| Memory Supply Voltage | $V_{MEM}$ | | 1.62 | 1.8 | 2.0 | V |
| **Analog FM** | | | | | | |
| Input Frequency | $F_{rf}$ | | 76 | — | 108 | MHz |
| Seek/Tune Time | | | — | — | 60 | ms/ch |
| **FM HD** | | | | | | |
| Input Frequency | $F_{rf}$ | | 87.5 | — | 108 | MHz |
| Seek/Tune Time | | | — | — | 160 | ms/ch |
| **Analog AM** | | | | | | |
| Input Frequency | $F_{rf}$ | | 520 | — | 1710 | kHz |
| **AM HD** | | | | | | |
| Input Frequency | $F_{rf}$ | | 520 | — | 1710 | kHz |
| **DAB/DAB+** | | | | | | |
| Input Frequency | $F_{rf}$ | | 168 | — | 240 | MHz |
| Ensemble Acquisition Time | | For a valid channel, after power-up RF level = -47 dBm | — | 710 | — | ms |

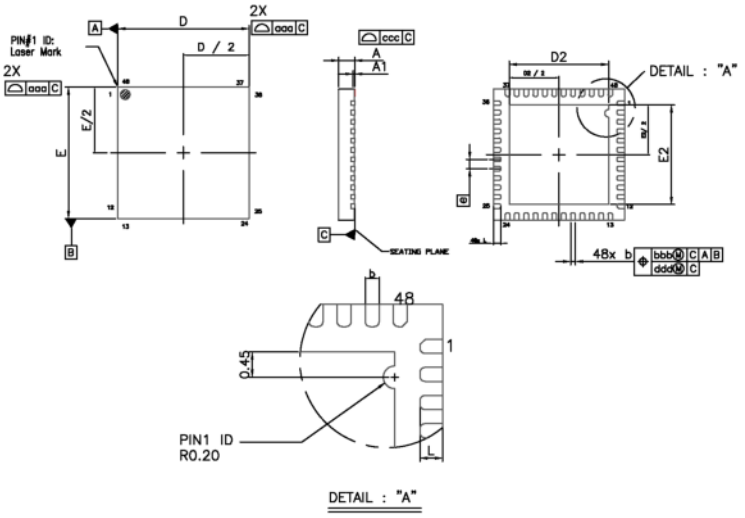



**Figure 1.1. Si463x-A10-GM**

| Dimension | Min | Nom | Max |
|---|---|---|---|
| A | 0.80 | 0.85 | 0.90 |
| A1 | 0.00 | 0.02 | 0.05 |
| b | 0.18 | 0.25 | 0.30 |
| D | | 7.00 BSC | |
| D2 | 5.20 | 5.30 | 5.40 |
| e | | 0.50 BSC | |
| E | | 7.00 BSC | |
| E2 | 5.20 | 5.30 | 5.40 |
| L | 0.30 | 0.40 | 0.50 |
| aaa | | 0.15 | |
| bbb | | 0.10 | |
| ccc | | 0.10 | |
| ddd | | 0.05 | |

**Note:**

1. All dimensions are shown in millimeters (mm) unless otherwise noted.
2. Dimensioning and tolerancing per ASME Y14.5M-1994.
3. This drawing conforms to JEDEC Outline MO-220, Variation VKKD-4.
4. Recommended card reflow profile is per the JEDEC/IPC J-STD-020 specification for Small Body Components.

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