## Description

The Si4624 single-chip digital receiver is a 100% CMOS digital radio broadcast receiver IC from Silicon Labs. It provides significant advances in size, power consumption, and performance to enable DAB/DAB+ data services reception in automotive infotainment systems and car radios.

The Si4624 offers a complete and cost-effective platform to support global analog VHF Band II and digital VHF Band III radio standards by integrating multiband RF tuner, demodulator, and channel decoder on a single die. The high level of integration and complete system production test simplifies design-in, increases system quality, and improves reliability and manufacturability.

The Si4624 incorporates a fully integrated decoder for the European Radio Data System (RDS) and the North American Radio Broadcast Data System (RDBS), including all required symbol decoding, block synchronization, error detection, and error correction functions.

The Si4624 additionally supports digital DAB and DAB+ data reception, incorporating digital channel demodulation and decoding functions.

Leveraging Silicon Laboratories' proven and patented digital low intermediate frequency (Low-IF) receiver architecture, the Si4624 delivers superior RF performance and interference rejection. The solution offers auto-calibrated digital tuning, and proven FM seek functionality based on multiple signal quality and band parameters. In addition, the Si4624 provides an integrated clock oscillator or accepts a reference clock and supports a selectable control interface (SPI or I$^2$C).

The Si4624 receiver system requires a minimal bill of materials and offers low power consumption, making the solution ideal for today's infotainment systems.

## Features

- Worldwide FM band support (76–108 MHz)
- Advanced RDS/RBDS decoder
- DAB/DAB+ Band III support (168–240 MHz)
- Supports WorldDMB Receiver Profiles I, II, III, and IV
- Integrated SRAM supporting time and frequency de-interleaving
- Advanced seek functionality
- Full range of analog and digital signal quality metrics
- Fully-integrated VCO/PLL/synthesizer
- Fully-integrated advanced AGC and alignment
- Flash memory interface for application program load
- SPI, I$^2$C control interfaces
- 7x7 mm 48-pin QFN package
- Pb-free/RoHS compliant
- AEC-Q100 qualified

## Applications

- OEM automotive infotainment systems
- Aftermarket car radio systems
- OEM automotive PND docking systems
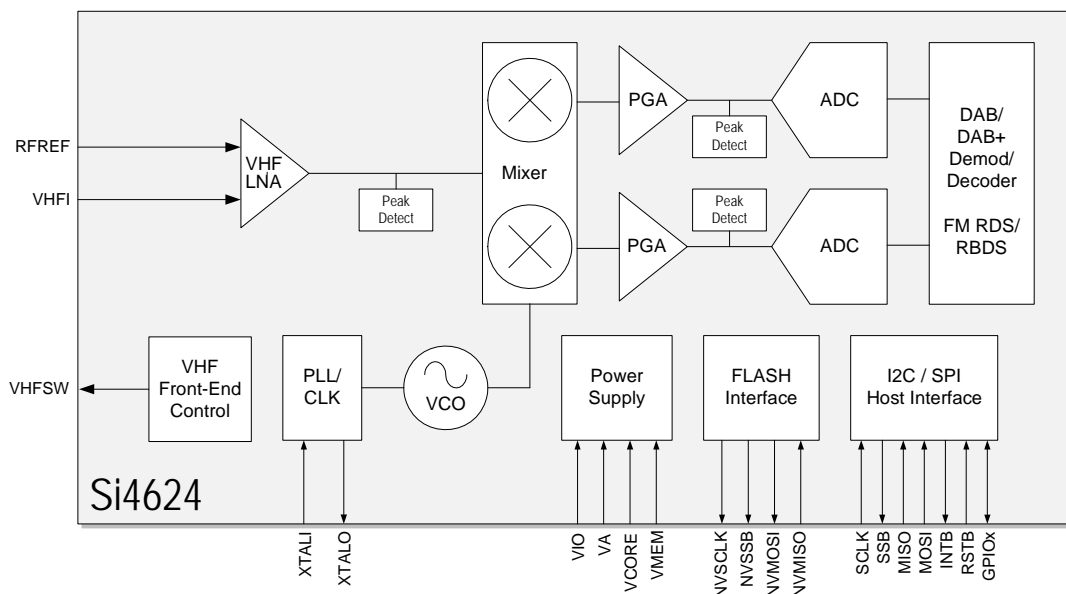
## Selected Electrical Specifications

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| FM Input Frequency | $F_{rf}$ | | 76 | — | 108 | MHz |
| DAB Input Frequency | | | 168 | — | 240 | MHz |
| 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 |

### Si4624-A10
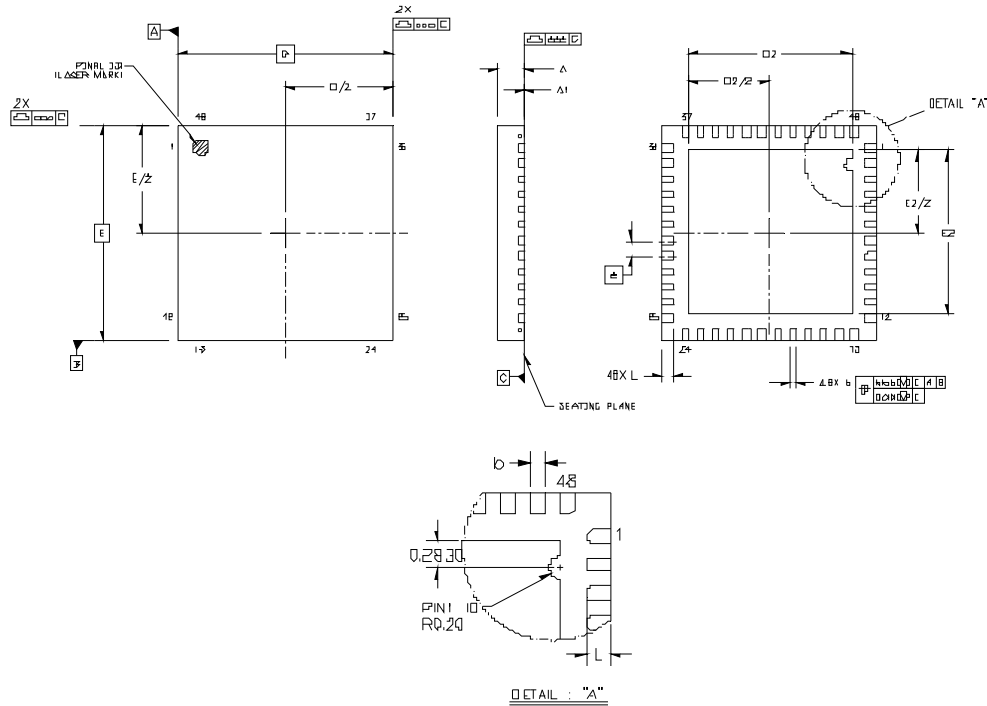


| Dimension | Min | Nom | Max |
|---|---|---|---|
| A | 0.80 | 0.85 | 0.90 |
| A1 | 0.00 | 0.02 | 0.05 |
| b | 0.18 | 0.25 | 0.30 |
| D | 7.00 BSC | | |
| D2 | 5.20 | 5.30 | 5.40 |
| e | 0.50 BSC | | |
| E | 7.00 BSC | | |
| E2 | 5.20 | 5.30 | 5.40 |
| L | 0.30 | 0.40 | 0.50 |
| aaa | 0.15 | | |
| bbb | 0.10 | | |
| ddd | 0.05 | | |
| eee | 0.08 | | |

**Notes:**
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 the JEDEC Solid State 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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