Si2148

Worldwide Digital TV Tuner

Description

The Si2148 is a universal digital TV tuner supporting all worldwide terrestrial and cable digital TV standards. The Si2148 requires no external balun and offers the lowest-cost BOM for a digital TV tuner. By combining Silicon Labs' proven digital low-IF architecture with a 4th-generation RF front-end, the Si2148 maintains the highest performance that exceeds MOPLL-based tuners, including industry-leading 2nd-order distortion performance.

Compared with competing silicon TV tuners, the Si2148 delivers an unprecedented level of front-end integration, resulting in the lowest number of external BOM components. No external tracking filters, wire-wound inductors, LNAs, SAW filters or inductive power supply filtering components are needed. The Si2148 offers low power consumption as well as an option for single or dual power supply operation. Also included is an internal power-on reset circuit, eliminating the need for external brownout protection components or additional pins in module applications.

For next-generation digital TV broadcast standards, such as DVB-T2 and DVB-C2, that are sensitive to integrated phase noise, the Si2148 offers industry-leading phase noise performance. A software-selectable cable mode is also included which offers high return-loss performance.

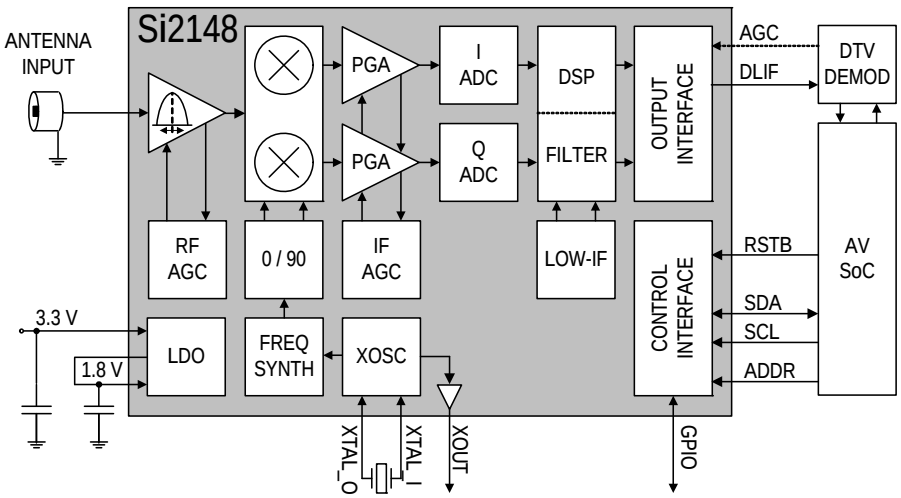
As with prior-generation Silicon Labs TV tuners, the Si2148 delivers superior picture quality and a higher number of received stations when compared to other silicon tuners and discrete MOPLL-based tuners. Incorporating worldwide field testing experience from three previous tuner generations in high-volume production, the Si2148 delivers the highest tolerance to real-world field reception conditions. The Si2148 also incorporates a harmonic-rejection mixer that delivers excellent immunity to Wi-Fi and LTE interference across the full RF input frequency range, with no need for external filtering components.

Features

- Worldwide digital TV tuner
  - ATSC/QAM, DVB-T2/T/C2/C, ISDB-T/C, DTMB
  - 42–1002 MHz frequency range
- Industry-leading margin to A/74, NorDig, D-Book, C-Book, ARIB, EN55020, SCTE-40, and OpenCable™ specifications
- Lowest BOM for a silicon digital TV tuner
  - No balun at RF input
  - No external SAW filters or wire-wound inductors
  - Integrated LNAs and complete tracking filters
- Best-in-class real-world reception
  - Exceeds discrete MOPLL-based tuners
  - Industry-leading phase noise performance
  - High immunity to Wi-Fi and LTE interference
- Low power consumption
  - 3.3 V and 1.8 V power supplies
  - Single-supply option for 3.3 V-only operation
- Integrated power-on reset circuit
- Low-IF output to SoC or external demodulator
- Standard CMOS process technology
- 4x4 mm, 28-pin QFN package
- RoHS compliant

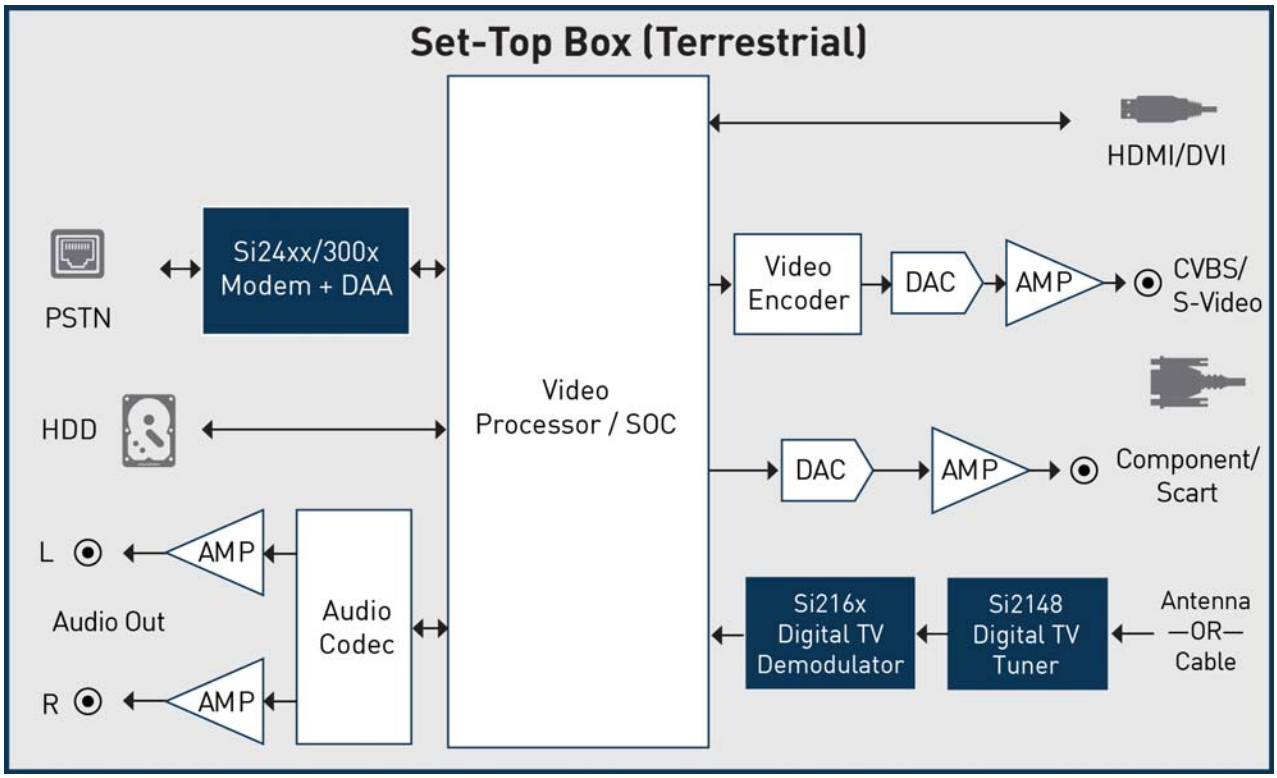
Applications

- Digital 1/2-NIM tuner module
- iDTV (Integrated Digital TV)
- Digital terrestrial and cable STB
- Digital PVR, DVD and Blu-Ray disc recorder
- PC-TV accessories



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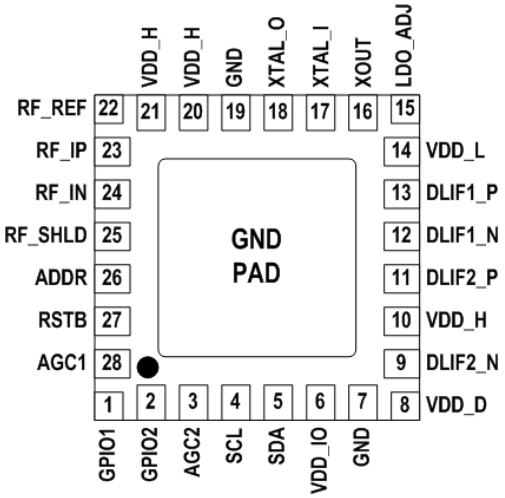
Application Example: Set-Top Box (Terrestrial)



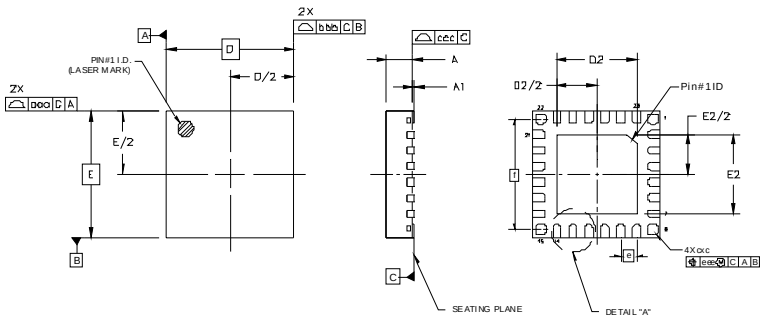
Selection Guide

Part #	Description
Si2148	Worldwide digital TV tuner for ATSC/QAM, DVB-T2/T/C2/C, ISDB-T/C, DTMB

Pin Assignments



4x4 mm QFN-28 Package Information



Symbol	Min	Nom	Max	Unit
A	0.80	0.85	0.90	mm
D, E		4.00 BSC		mm
e		0.50 BSC		mm
f		3.50 BSC		mm

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