

Description

The Si2136 integrates a complete analog tuner with analog TV demodulator supporting all worldwide terrestrial and cable ATV standards. Leveraging Silicon Labs' field proven digital low-IF architecture, the Si2136 incorporates the unmatched performance and design simplicity of the Si2173 into a platform optimized for analog-only reception, while further reducing footprint size and bill of materials cost. No external LNAs, tracking filters, wirewound inductors or SAW filters are used.

Compared with competing silicon tuners and discrete MOPLL-based tuners, the Si2136 delivers a higher number of received stations in crowded and near/far real-world reception conditions. The Si2136 incorporates Silicon Labs' third generation analog demodulator, which delivers superior picture quality and tolerance to a wide range of transmitter performance variations and overmodulation conditions. The high linearity and low noise RF front-end delivers superior blocking performance and higher sensitivity in the presence of strong undesired channels and interference.

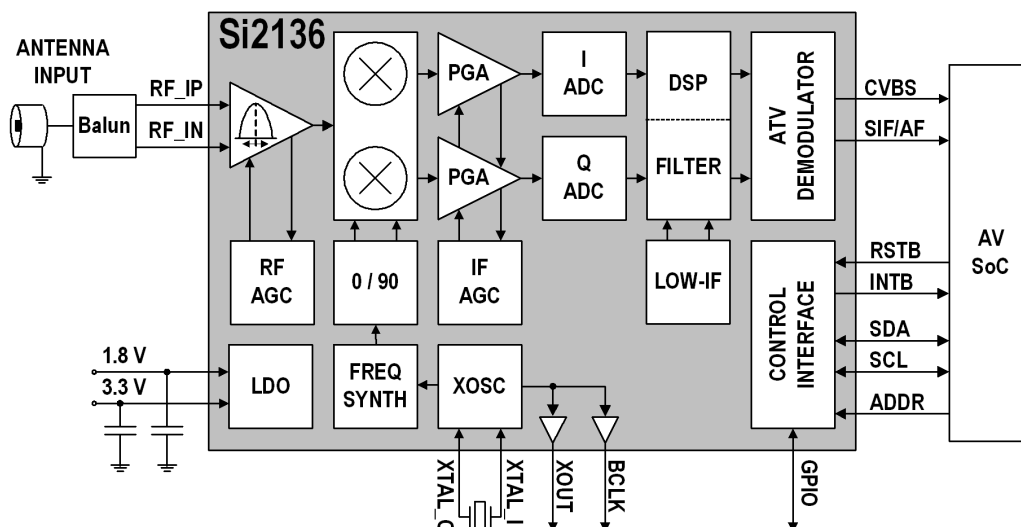
The Si2136 integrates the complete signal path from antenna input to analog video and sound outputs. Compared to traditional discrete MOPLL-based tuners, the Si2136 eliminates hundreds of external components including external LNAs, tracking filter varactors and inductors (unlike competing silicon tuners), and SAW filters, resulting in the simplest, lowest-cost BOM for an analog TV receiver while improving performance in difficult reception conditions.

Features

- Worldwide analog TV receiver
 - Analog TV tuner with integrated NTSC and PAL/SECAM demodulator
 - 42–1002 MHz frequency range
- Compliance to EN55020, OpenCable™ specifications
- Best-in-class real-world reception
 - Exceeds discrete MOPLL-based tuners
- Highly integrated, lowest BOM
 - No SAW filters or wirewound inductors required
 - Integrated LNAs and complete tracking filters
- No alignment, tuning or calibration required
- Proprietary low-IF architecture
 - Integrated channel select filters
- Analog TV demodulator
 - Superior video SNR performance
 - Customizable video filters
 - Overmodulation and ICPM tolerant
- Flexible output interface
 - CVBS + SIF/AF to audio/video processor or SoC
- 3.3 and 1.8 V power supplies
- Standard CMOS process technology
- 5 x 5 mm, 32-pin QFN package
- RoHS compliant

Applications

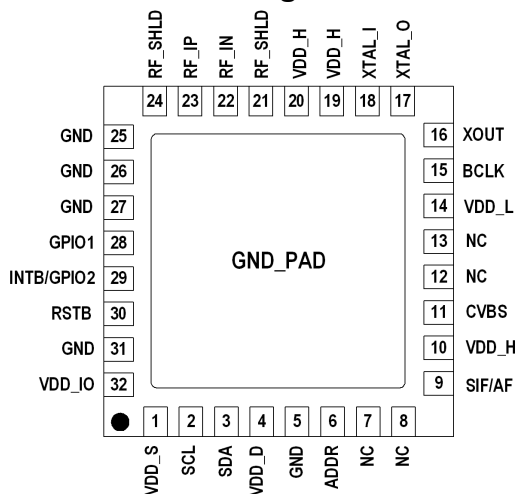
- Analog TV module (NIM)
- TV with on-board analog front-end
- ATV to PC monitor converter box
- PCTV card



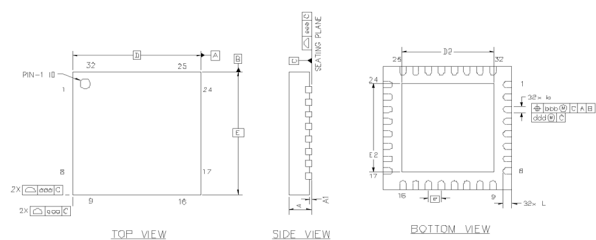

$$(V_{DD_H} = 3.3 \text{ V}, V_{DD_L} = 1.8 \text{ V}, V_{DD_D} = 1.8 \text{ V}, T_A = 25^\circ \text{C})$$

Parameter	Test Condition	Typ	Unit
Supply Voltage		1.8 and 3.3	V
Total Power Consumption	VHF bands UHF bands	0.98 0.87	W
RF Input Frequency Range		42 to 1002	MHz
Noise Figure*	max gain	4.0	dB
Wideband IIP3*	N±18,±36; max RF gain	+18	dBm
Inband IIP3*	N±1,±2; max RF gain	−7	dBm
LO Phase Noise at 860 MHz	125 Hz 250 Hz 1 kHz 10 kHz 100 kHz	−83 −91 −96 −95 −104	dBc/Hz
LO Integrated Phase Noise at 860 MHz	DSB: 125 Hz to 4 MHz	0.4 (−43)	deg. rms (dBc)
ATV Receiver Sensitivity	30 dB video SNR; M/N B/G, D/K I L/L'	−67.5 −67 −66 −68	dBm
ATV Receiver Unweighted Video SNR	+1 dBm input level; M/N B/G, D/K I L/L'	55.5 55 53.5 56.5	dB
*Note: Measured at the F-connector input of the Si2136 reference design and includes all connector, PCB, and front-end circuit losses.			

Pin Assignments



5 x 5 mm QFN-32 Package



Symbol	Min	Nom	Max	Unit
A	0.80	0.85	0.90	mm
D, E	5.00 BSC			mm
e	0.50 BSC			mm

Selection Guide

Part #	Description
Si2136	Worldwide analog TV tuner IC with analog demodulator for NTSC, PAL/SECAM