

Description

The Si2137 integrates a PAL/SECAM/NTSC analog TV demodulator with a universal TV tuner supporting all worldwide analog TV standards. By combining Silicon Laboratories' proven digital low-IF architecture with a 5th-generation RF front-end, the Si2137 maintains the highest performance that exceeds that of MOPLL-based tuners, including industry-leading 2nd order distortion performance. Pin- and API-compatibility to the previous generation minimize customers' development effort.

The Si2137 delivers unprecedented integration with no external balun, tracking filters, LNAs, SAW filters, or inductive power supply filtering. While other solutions may also eliminate the balun, they suffer degradation in NF and 2nd order distortion compromising reception. Silicon Laboratories' proprietary and field-proven architecture offers not only an optimized BOM but also world-class system performance. Options for single or dual supply and internal power-on reset are included. A harmonic rejection mixer conveys outstanding immunity to Wi-Fi and LTE interference, replacing the need for external filtering. Additionally, a software-selectable cable mode offers optimized return loss.

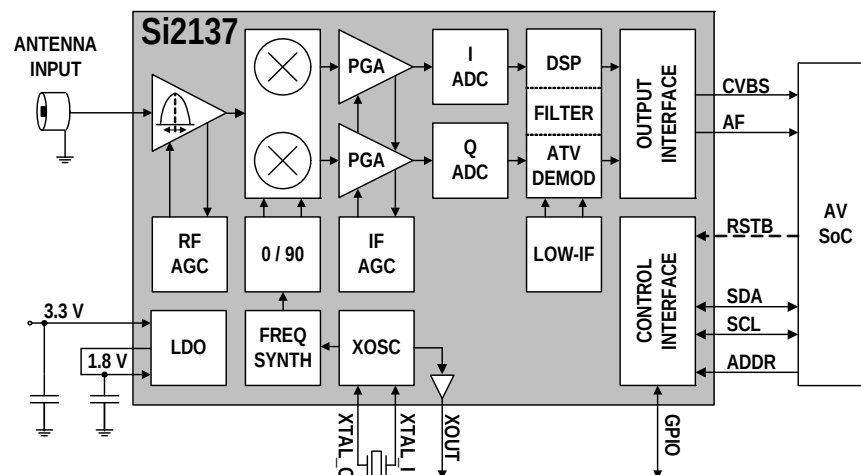
The Si2137 delivers exceptional picture quality and a higher number of received stations when compared to other solutions. Incorporating worldwide field experience from four prior tuner generations in mass production, the Si2137 provides the highest tolerance to real-world reception conditions.

Features

- Worldwide analog TV receiver
 - NTSC, PAL/SECAM
- Analog TV demodulator
 - Superior video SNR
 - Overmodulation and ICPM tolerant
- Industry-leading margin to EN55020, OpenCable™ specifications
- Lowest BOM for a silicon analog TV tuner
 - No balun
 - No 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
- CVBS + AF outputs
- Standard CMOS process technology
- 4x4 mm, 28-pin QFN package
- RoHS compliant

Applications

- Analog tuner module
- TV with on-board analog front-end
- Analog portable TV and DVD player
- PC-TV accessories



Selected Electrical Specifications

($V_{DD_H}=3.3$ V, $V_{DD_L}=1.8$ V, $V_{DD_D}=1.8$ V, $T_A=25$ °C)

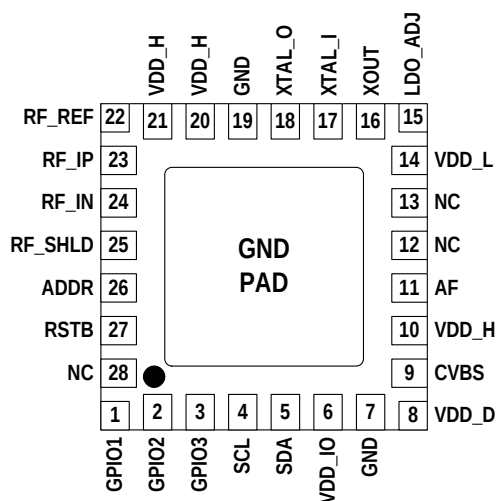
Parameter	Test Condition	Typ	Unit
Supply voltage		1.8 and 3.3, or only 3.3	V
Total Power Consumption		496	mW
RF Input Frequency Range		42 to 870	MHz
NF, terrestrial*	VHF-L	4.0	dB
	VHF-H	3.7	dB
	UHF	3.8	dB
Return Loss*	Terrestrial mode	3	dB
	Cable mode	9	dB
Wideband IIP3*	VHF-H, $N\pm 18$, ± 36	+5	dBm
Inband IIP3*	VHF-H, $N\pm 1$, ± 2	-6	dBm
LO Phase Noise at 860 MHz	1 kHz 10 kHz 100 kHz 1 MHz	-100 -100 -105 -132	dBc/Hz
LO Integrated Phase Noise at 860 MHz	DSB: 125 Hz to 4 MHz	0.25 (-47)	°rms (dBc)
Analog IF Spurious Distortion	S=P	-72	dB
ATV Receiver Sensitivity	30dB 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 Si2157 EVB and includes all connector, PCB, and front-end circuit losses.

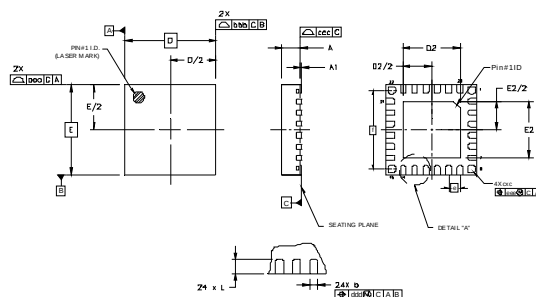
Selection Guide

Part #	Description
Si2137	Worldwide analog TV receiver for NTSC, PAL/SECAM

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