

Description

The Si21622C integrates two separate high-performance digital demodulators for the DVB-T2/T, and DVB-C2/C standards into a single compact package. Leveraging Silicon Labs' proven digital demodulation architecture, the Si21622C achieves excellent reception performance for each media while significantly minimizing front-end design complexity, cost, and power dissipation. Connecting the Si21622C to a dual terrestrial/cable TV tuner results in a high-performance and cost optimized TV front-end solution.

Silicon Labs' internally developed DVB-C2 demodulator can accept a standard IF (36 MHz) or low-IF input (differential) and support all modes specified by the DVB-C2 standard. The main features of the DVB-C2 mode are 4096-QAM, 6 or 8 MHz bandwidth, management of notch insertion (broadband and narrowband), and support of multiple data slices and PLPs.

DVB-T2 (including T2-Lite) demodulators support all modes specified by the DVB-T2 standard (V1.4.1). Main features of the DVB-T2 mode are, SISO and MISO support, FEF management, fully autonomous signal acquisition including automatic L1 signaling parsing support for all pilot patterns, and DVB-T2/T auto-detection. The DVB-T and DVB-C, including ITU-T J.83 annex B, demodulators are enhanced versions of proven and broadly used Si2164/67/68/69 Silicon Labs devices.

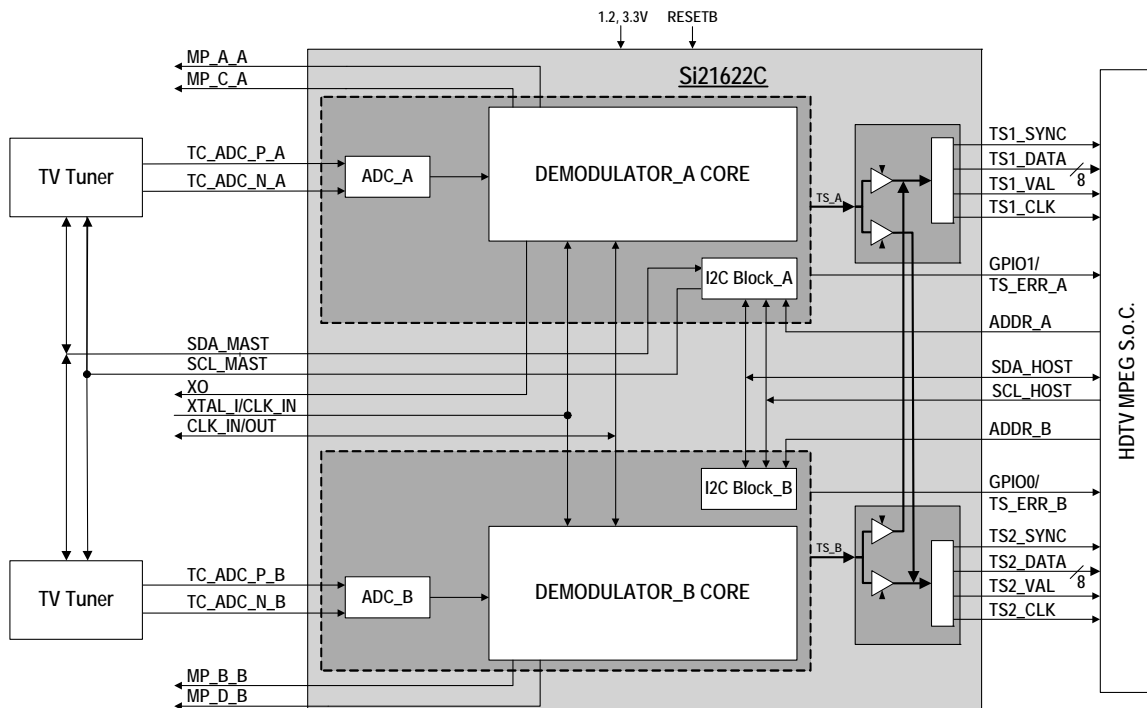
The Si21622C offers an on-chip blind scanning algorithm for the DVB-C, as well as blind lock function. The Si21622C embeds two independent programmable transport stream interfaces which provide a flexible range of output modes, including a cross-bar functionality, and are fully compatible with all MPEG decoders or conditional access modules to support any customer application.

Features

- Pin-to-pin compatible with all dual demodulator family: Si216x2 and Si218x2
- API compatible with all single and all dual demodulators
- DVB-T2 and T2-Lite (ETSI EN 302 755-V1.4.1)
 - Bandwidth: 1.7, 5, 6, 7 or 8 MHz
 - NorDig Unified 2.5 and D-Book 8 compliant
- DVB-C2 (ETSI EN 302 769)
 - 16-QAM to 4096-QAM OFDM demodulation
- DVB-T (ETSI EN 300 744)
 - NorDig Unified 2.5, D-Book 8 compliant
- DVB-C (ETSI EN 300 429) / ITU-T J.83 Annex A/B/C
 - 1 to 7.2 MSymbol/s, C-Book compliant
- I²C serial bus interfaces (master and host)
- Upgradeable with firmware patch download via fast SPI or I²C (broadcast mode supported)
- Dual independent differential IF input for T/C tuners
- GPIOs and multi-purpose ports (two per demodulator)
- Separate flexible TS interfaces with serial or parallel outputs and cross-bar feature
- Fast lock times for all standards
- Only two power supplies: 1.2 and 3.3 V
- 8x8 mm, QFN-68 pin package, Pb-free/RoHS compliant

Applications

- Multi-receiver iDTV: on-board or in a NIM
- Advanced multimedia PVR STBs
- PC-TV accessories
- PVR, DVD, and Blu-Ray disc recorders

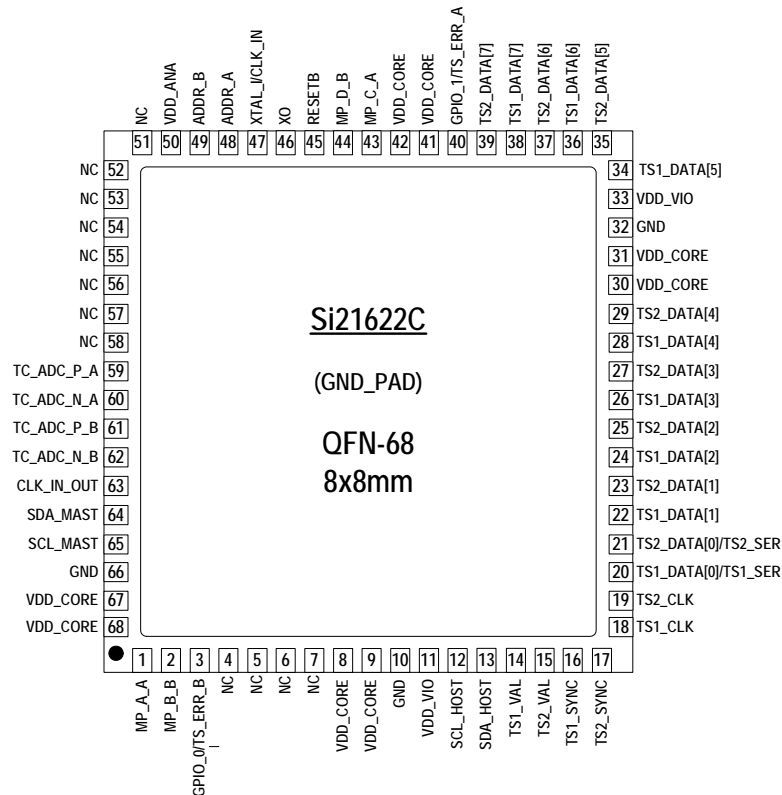


Selected Electrical Specifications

(T_A = -10 to 70 °C).

Parameter	Test Condition	Min	Typ	Max	Unit
General					
Input clock reference		4	—	30	MHz
Supported XTAL frequency		16	—	30	MHz
Total power consumption for each demodulator	DVB-T2 ¹	—	356	—	mW
	DVB-T ²	—	182	—	mW
	DVB-C2 ³	—	327	—	mW
	DVB-C ⁴	—	142	—	mW
Thermal resistance (θ _{JA})	4 layer PCB	—	42	—	°C/W
Power Supplies					
V _{DD_VCORE}		1.14	1.20	1.30	V
V _{DD_VANA}		3.00	3.30	3.60	V
V _{DD_VIO}		3.00	3.30	3.60	V
Notes:					
1. Test conditions: 8 MHz, 256-QAM, 32K FFT, CR = 3/5, GI = 1/128, PP7, parallel TS, C/N at picture failure.					
2. Test conditions: 8 MHz, 8K FFT, 64-QAM, parallel TS.					
3. Test conditions: 4096-QAM, CR = 5/6, GI = 1/128, C/N = 34 dB (at picture failure).					
4. Test conditions: 6.9 Mbaud, 256-QAM, parallel TS.					

Pin Assignments



Selection Guide

Part #	Description
Si21622-C60-GM/R	Dual Digital TV Demodulator for DVB-T2/T/C2/C, 8x8 mm QFN-68