

Description

The Si21682 integrates two separate high performance DVB-T2, DVB-T, and DVB-C digital demodulators into a single compact package for terrestrial and cable TV standards. Leveraging Silicon Labs' proven digital demodulation architecture, each embedded demodulator achieves excellent reception performance for each media, while significantly minimizing front-end design complexity and cost. Connecting the Si21682 to a dual terrestrial/cable TV tuner results in a high-performance and cost optimized TV front-end solution. Silicon Labs' internally-developed DVB-T2 (including T2-Lite) demodulators support all modes specified by the DVB-T2 standard (V1.3.1). 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 demodulators are enhanced versions of proven and broadly used Si2167/68/69 Silicon Labs devices.

The Si21682 offers an on-chip blind scanning algorithm for the DVB-C standard (as well as blind lock).

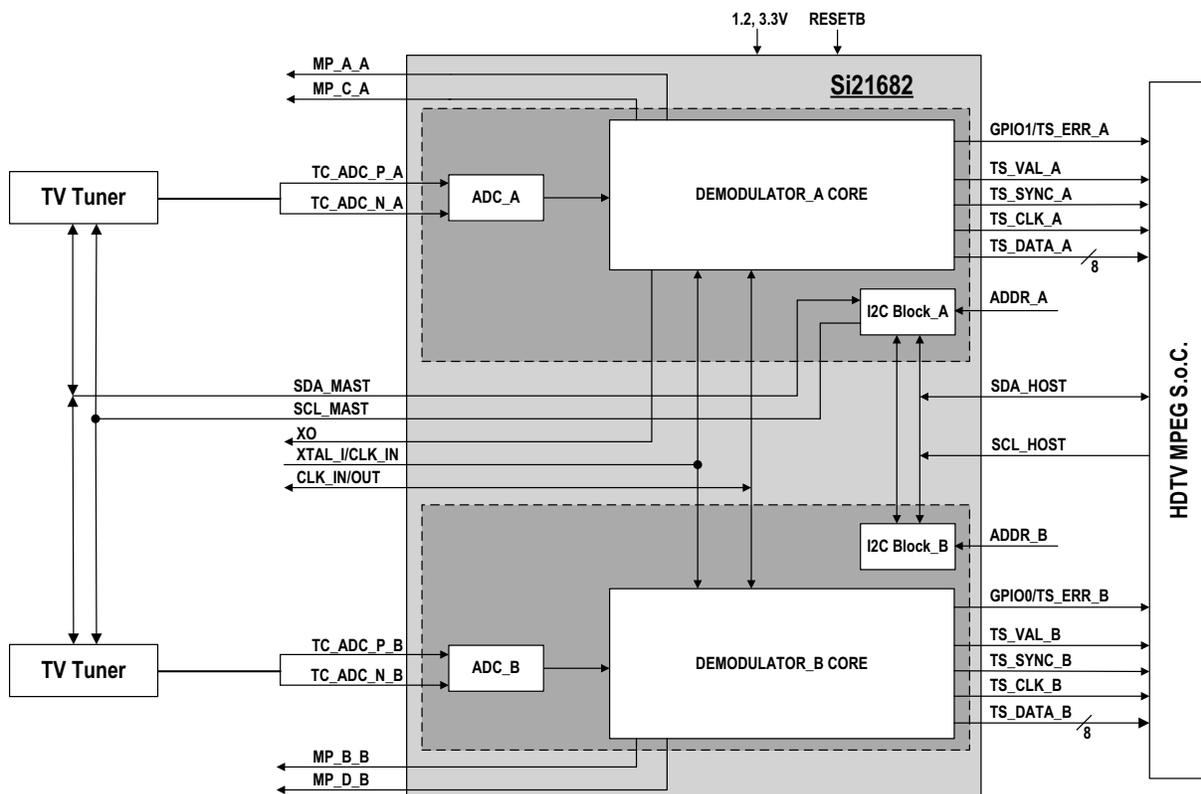
The Si21682 embeds two independent programmable transport stream interfaces which provide a flexible range of output modes and are fully compatible with all MPEG decoders or conditional access modules to support any customer application.

Features

- DVB-T2 and T2-Lite (ETSI EN 302 755-V1.3.1)
 - Bandwidth: 1.7, 5, 6, 7 or 8 MHz (and extended BW)
 - Supports up to 255 PLP(s) and outputs the data PLP plus the common PLP (on a single TS)
 - Scrambling of L1 post-signaling supported
 - NorDig Unified 2.4, D-Book 7 V2 compliant
- DVB-T (ETSI EN 300 744)
 - NorDig Unified 2.4, D-Book 7 V2 compliant
- DVB-C (ETSI EN 300 429) / ITU J.83 Annex A/B/C
 - 1 to 7.2 MSymbol/s
 - C-Book compliant
- I²C serial bus interfaces (master and host)
- Dual independent differential IF input for T/C tuners
- GPIOs and multi-purpose ports (two per demodulator)
- Firmware control for upgradeability
- Separate flexible TS interfaces with serial or parallel outputs
- Fast lock times for all standards, including DVB-T2
- Only two power supplies: 1.2 and 3.3 V
- 8x8 mm, QFN-68 pin package, Pb-free/RoHS compliant
- Pin-to-pin and API compatible with all dual demodulator family: Si216x2

Applications

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

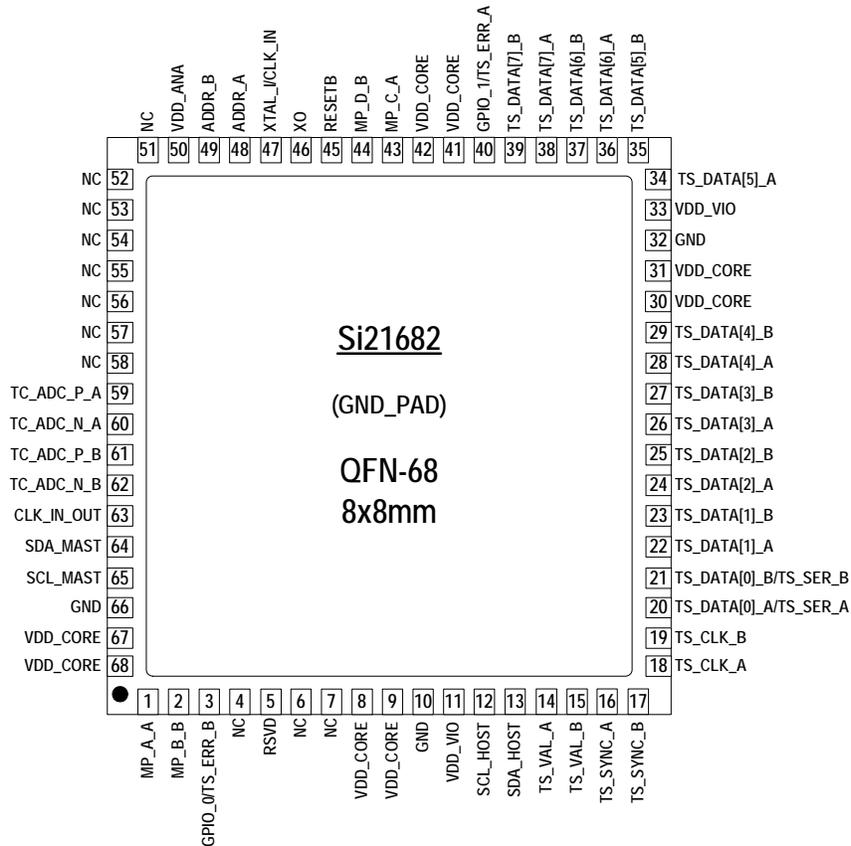


Selected Electrical Specifications

(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	—	420	—	mW
	DVB-T ² /DVB-C ³	—	190/180	—	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, C/N at picture failure.					
2. Test conditions: 8 MHz, IF mode, 8K FFT, 64 QAM, parallel TS output.					
3. Test conditions: 6.9 MBaud, IF mode, 256 QAM, parallel TS output.					

Pin Assignments



Selection Guide

Part #	Description
Si21682-B40-GM/R	Dual Digital TV Demodulator for DVB-T2/T/C, 8x8 mm QFN-68