



DVB-T2/T/C Digital TV Demodulator

Description

The Si2¹168D integrates digital demodulators for first and second generation DVB standards (DVB-T2/T/C) in a single advanced CMOS die. Leveraging Skyworks' proven digital demodulation architecture, the Si2168D achieves excellent reception performance for each media while significantly minimizing frontend design complexity, cost, and power dissipation. Connecting the Si2168D to a hybrid TV tuner or digital only tuner, such as Skyworks' Si217x/5x/4x devices, results in a high-performance and cost optimized TV or STB front-end solution.

Skyworks internally developed DVB-T2, including T2-Lite, demodulator can accept a standard IF (36 MHz) or low-IF input and support all modes specified by the DVB-T2 standard. Main features of the DVB-T2 mode are 256 QAM with rotated constellations, SISO and MISO support, FEF management, fully autonomous signal acquisition including automatic L1 signaling parsing, 600 kHz acquisition range, support for all pilot patterns, and DVB-T2/T auto-detection.

DVB-T and DVB-C demodulators are next-generation enhanced versions of proven and broadly-used Skyworks' Si2169/68/67/64/62/60 devices.

The cable reception allows demodulating widely deployed DVB-C legacy standard (ITU-T J.83 Annex A/C) and the Americas' cable standard (ITU-T J.83 Annex B).

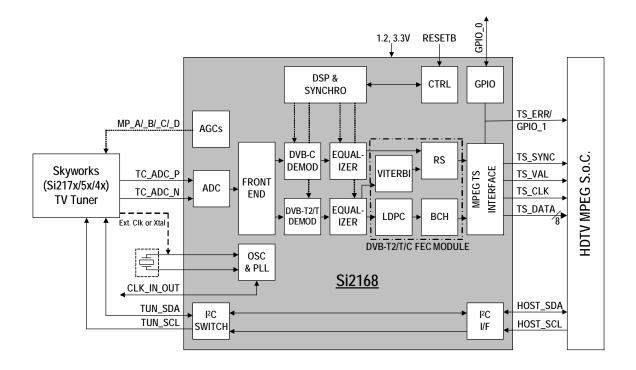
The Si2168D offers an on-chip blind scan algorithm for the DVB-C standard, as well as a blind lock function. The Si2168D programmable transport stream output interface provides a flexible range of output modes and is fully compatible with all MPEG decoders or conditional access modules to support any customer application.

Features

- Pin-to-pin compatible with all Si216x/8x single demods family
- API compatible with all single and dual demods families
- DVB-T2 (ETSI EN 302 755-V1.4.1) with T2-Lite (Annex I)
 - Bandwidth: 1.7, 5, 6, 7, and 8 MHz (and extended BW)
 - NorDig Unified 2.5 and D-Book 8 compliant
- DVB-T (ETSI EN 300 744)
 - OFDM demodulator and enhanced FEC decoder
 - NorDig Unified 2.5 and D-Book 8 compliant
- DVB-C (ETSI EN 300 429) and ITU-T J.83 Annex A/B/C
 - QAM demodulator and FEC decoder
 - 1 to 7.2 MSymbol/s
- I²C serial bus interfaces (master and host)
- Firmware control (embedded ROM/NVM)
- Upgradeable with patch download via I²C or fast SPI
- Flexible TS output interface (serial, parallel, and slave)
- Fast lock times for all media
- Low power consumption
- Two power supplies: 1.2 and 3.3 V
- 7x7 mm, QFN-48 pin package, Pb-free/RoHS compliant Applications

iDTV: on-board design or in a NIM

- Advanced multimedia STB, PVR, and Blu-ray recorders
- PC-TV accessories





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Selected Electrical Specifications

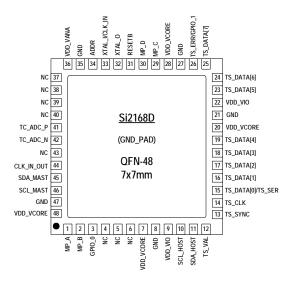
 $(T_A = -10 \text{ to } 75 \text{ }^{\circ}\text{C})$

Parameter	Test Condition	Min	Тур	Max	Unit
General		.	ı		-
Input clock reference		4	_	30	MHz
Supported XTAL frequency		16	_	30	MHz
Total power consumption	DVB-T2 ¹	_	356		mW
	DVB-T ²	_	182	_	mW
	DVB-C ³	_	142	_	mW
Thermal resistance	2 layer PCB	_	35	_	°C/W
	4 layer PCB	_	23	_	°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: 6.9 Mbaud, 256-QAM, parallel TS.

Pin Assignments



Selection Guide

Part Number	Description	
Si2168-D60-GM	DVB-T2/T/C Digital TV Demodulator, 7x7 mm QFN-48	