# Si21682-D60



# Dual DVB-T2/T/C Digital TV Demodulator

#### Description

The Si21682D integrates two separate high-performance digital demodulators for the DVB-T2/T and DVB-C standards into a single compact package. Leveraging Skyworks' proven digital demodulation architecture, the Si21682D achieves excellent reception performance for each media while significantly minimizing front-end design complexity, cost, and power dissipation. Connecting the Si21682D to a dual terrestrial/cable TV tuner results in a high-performance and cost optimized TV front-end solution.

Skyworks' internally-developed 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 Skyworks devices.

The Si21682D offers an on-chip blind scanning algorithm for the DVB-C standard, as well as blind lock function. The Si21682D 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-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
- I<sup>2</sup>C serial bus interfaces (master and host)
- Upgradeable with firmware patch download via fast SPI or I<sup>2</sup>C (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





### **Table 1. Selected Electrical Specifications**

 $(T_A = -10 \text{ to } 70 \degree \text{C}).$ 

Parameter	Test Condition	Min	Тур	Max	Unit
General					
Input clock reference		4	—	30	MHz
Supported XTAL frequency		16	—	30	MHz
Total power consumption for each demodulator	DVB-T2 <sup>1</sup>	—	356	—	mW
	DVB-T <sup>2</sup>	—	182	—	mW
	DVB-C <sup>3</sup>	—	142	—	mW
Thermal resistance $(\theta_{JA})$	4 layer PCB	—	42	—	°C/W
Power Supplies			•		
V <sub>DD_VCORE</sub>		1.14	1.20	1.30	V
V <sub>DD_VANA</sub>		3.00	3.30	3.60	V
V <sub>DD_VIO</sub>		3.00	3.30	3.60	V

Test conditions: 8 MHz, 8K FFT, 64-QAM, parallel TS. 2. 3.

Test conditions: 6.9 Mbaud, 256-QAM, parallel TS.

# **Pin Assignments**



# **Table 1. Selection Guide**

Part #	Description
Si21682-D60-GM/R	Dual Digital TV Demodulator for DVB-T2/T/C, 8x8 mm QFN-68

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