



**THE DATASHEET OF  
SI4682-A10-GMR**





**SKYWORKS®**

## PRODUCT SUMMARY

# Si4683-A10 Single-Chip, AM/FM/HD Radio Receiver

The Si4683 single-chip digital receiver is one member of a family of 100% CMOS digital radio broadcast receiver ICs from Skyworks. The Si468x family offers a complete and cost-effective digital radio solution integrating the RF tuner, baseband and audio processing on a single die. The high level of integration provides significant customer benefits compared to traditional digital radio solutions including a reduction in system implementation complexity, validation and testing, and improved reliability and manufacturability.

The Si4683 is compatible with the iBiquity Digital and NRSC-5 standards for AM/FM In-Band-On-Channel (IBOC) digital radio broadcasting, integrating digital channel demodulation and decoding functions, along with audio decoding and IBOC analog-digital blend. The Si4683 is capable of tuning HD Radio™ reception to cover additional AM/FM frequencies for future IBOC adoption outside of North America. The Si4683 additionally supports IBOC multicasting, as well as the full-range of HD Radio data services, such as PSD (Program Service Data), Artist Experience, iTunes® Tagging, Bookmark and real-time traffic, with the appropriate external decoders.

The Si4683 additionally supports worldwide AM/FM radio reception and incorporates a fully integrated decoder for the European Radio Data System (RDS) and the North American Radio Broadcast Data System (RBDS) including all required symbol decoding, block synchronization, error detection, and error correction functions. For more information, visit the [Skyworks Si468x Digital Radio Receivers page](#).

## Applications

- Clock and tabletop radios
- Stereo boomboxes
- Mini/micro systems
- Docking stations

## Features

- Worldwide FM band support (76 to 108 MHz)
- Worldwide AM band support (520 to 1710 kHz)
- Advanced RDS/RBDS decoder
- AM/FM HD Radio™ support
- Integrated HD blend
- Advanced seek functionality
- Advanced audio DSP processing
- I<sup>2</sup>S digital audio out with ASRC
- Integrated 97 dB stereo audio DAC
- Concurrent I<sup>2</sup>S/L-R stereo audio out
- Full range of signal quality metrics
- Fully-integrated VCO / PLL / synthesizer
- SPI and I<sup>2</sup>C host control interfaces
- QFN 48-pin, 7 x 7 x 0.85 mm



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.

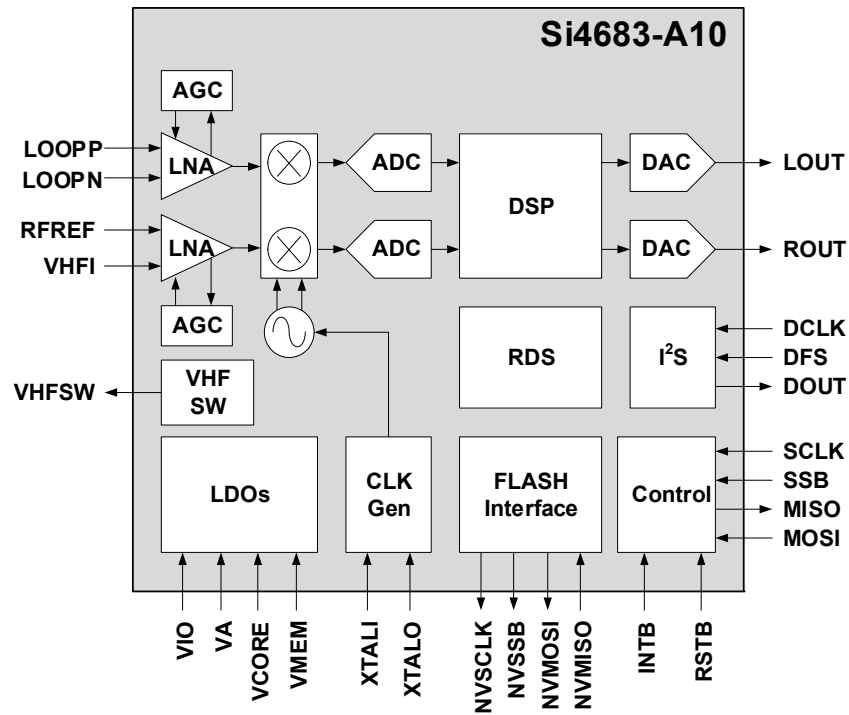


Figure 1. Functional Block Diagram

Table 1. Selected Electrical Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Ambient temperature	$T_A$	-40	25	85	°C
Analog supply voltage	$V_A$	1.71	1.8	2.0	V
Interface supply voltage	$V_{IO}$	1.62	1.8	3.6	V
Core digital supply voltage	$V_{CORE}$	1.62	1.8	2.0	V
Memory supply voltage	$V_{MEM}$	1.62	1.8	2.0	V
<b>Analog FM</b>					
Input frequency	$F_{rf}$	76	—	108	MHz
Seek/tune time		—	—	60	ms/ch
<b>FM HD</b>					
Input frequency	$F_{rf}$	87.5	—	108	MHz
Seek/tune time		—	—	60	ms/ch
<b>Analog AM</b>					
Input frequency	$F_{rf}$	520	—	1710	kHz
Seek/tune time		—	—	60	ms/ch
<b>AM HD</b>					
Input frequency	$F_{rf}$	520	—	1710	kHz
Seek/tune time		—	—	60	ms/ch

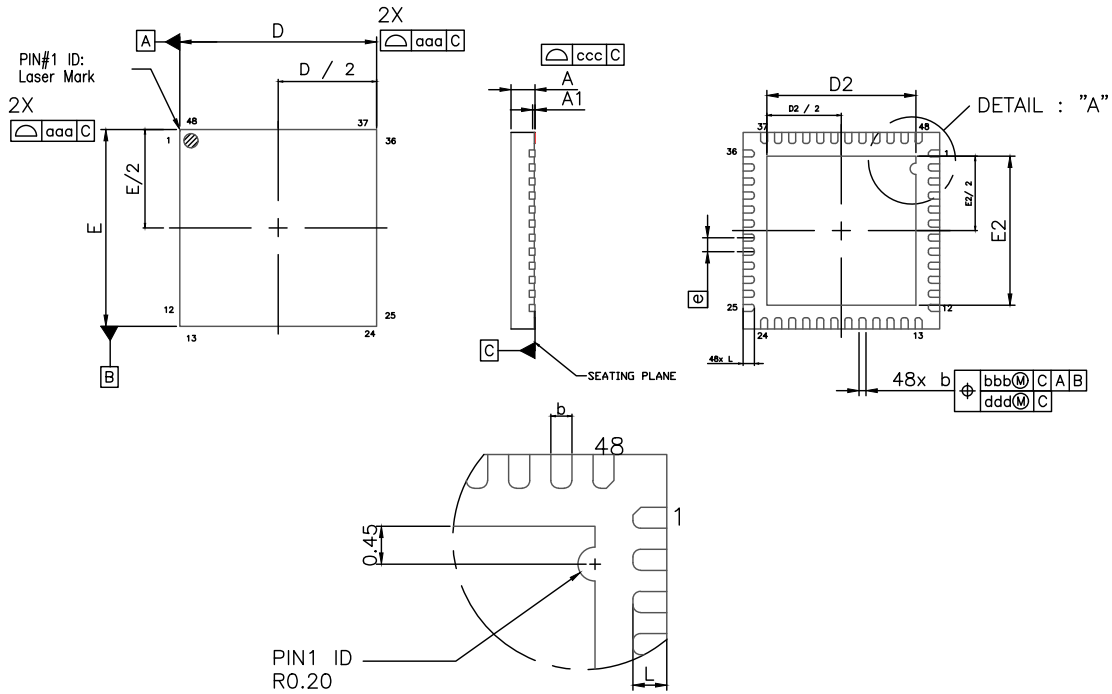


Figure 2. 7x7 mm 48-Pin QFN Package Diagram

Table 2. Package Diagram Dimensions<sup>1,2,3,4</sup>

Dimension	Min	Nom	Max
A	0.80	0.85	0.90
A1	0.00	0.02	0.05
b	0.18	0.25	0.30
D	7.00 BSC		
D2	5.20	5.30	5.40
e	0.50 BSC		
E	7.00 BSC		
E2	5.20	5.30	5.40
L	0.30	0.40	0.50
aaa	0.15		
bbb		0.10	
ddd		0.05	
eee		0.08	

1. All dimensions are shown in millimeters (mm) unless otherwise noted.
2. Dimensioning and tolerancing per ASME Y14.5M-1994.
3. This drawing conforms to JEDEC Outline MO-220, Variation VKKD-4.
4. Recommended card reflow profile is per the JEDEC/IPC J-STD-020 specification for Small Body Components.

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