Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Si4702/03

Broadcast FM Radio Tuner for Portable Applications

Description

The Si4702/03 extends Silicon Laboratories Si4700 FM tuner family, and further increases the ease and attractiveness of adding FM radio reception to mobile devices through small size and board area, minimum component count, flexible programmability, and superior, proven performance. Si4702/03 software is backwards compatible to existing Si4700/01 FM tuner designs and leverages Silicon Laboratories' highly successful and patented Si4700/01 FM tuner. The Si4702/03 benefits from proven digital integration and 100% CMOS process technology, resulting in a completely integrated solution. It is the industry's smallest footprint FM tuner IC requiring only 10 mm^2 board space and one external bypass capacitor.

The device offers significant programmability. It can be adapted to subjective listening requirements, and it allows adjustability in important parameters such as seek/tune, allowing the Si4702/03 to outperform other solutions by finding more valid stations and not stopping on frequencies that do not have a radio station.

The Si4703 incorporates a digital processor for the European Radio Data System (RDS) and the US Radio Broadcast Data System (RBDS) including all required symbol decoding, block synchronization, error detection, and error correction functions.

RDS enables data such as station identification and song name to be displayed to the user. The Si4703 offers a detailed RDS view and a standard view, allowing adopters to selectively choose granularity of RDS status, data, and block errors. Si4703 software is backwards compatible to the proven Si4701, adopted by leading cell-phone and MP3 manufacturers world-wide.

The Si4702/03 is based on the superior, proven performance of Silicon Laboratories' Aero architecture offering unmatched interference rejection and leading sensitivity. The device uses the same programming interface as the Si4700/01 and supports multiple bus-modes. Power management is also simplified with an integrated regulator allowing direct connection to a 2.7 to 5.5 V battery.

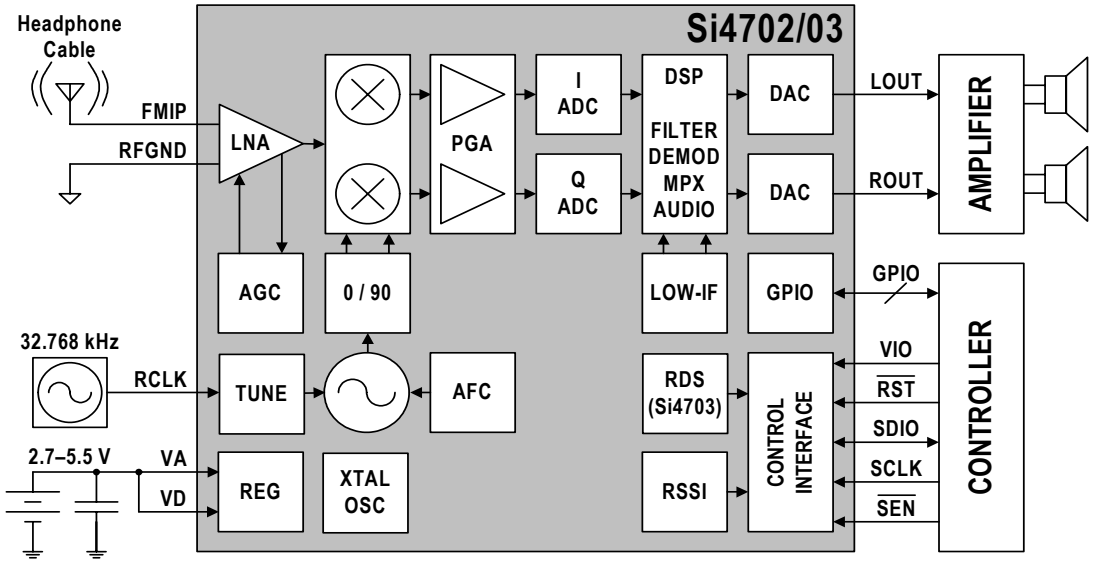
The Si4702/03 device's high level of integration and complete FM system production testing increases quality to manufacturers, improves device yields, and simplifies device manufacturing and final testing.

Features

- Worldwide FM band support (76–108 MHz)
- 3x3 mm 20-pin QFN package
  - Pb-free/RoHS compliant
- Digital low-IF receiver
- Frequency synthesizer with integrated VCO
- Seek tuning
- Automatic frequency control (AFC)
- Automatic gain control (AGC)
- Excellent overload immunity
- Signal strength measurement
- Programmable de-emphasis (50/75 µs)
- Adaptive noise suppression
- Volume control
- Line-level analog output
- 32.768 kHz reference clock
- RDS/RBDS processor (Si4703 only)
- 2-wire and 3-wire control interface
- 2.7 to 5.5 V supply voltage
- Integrated LDO regulator allows direct connection to battery

Applications

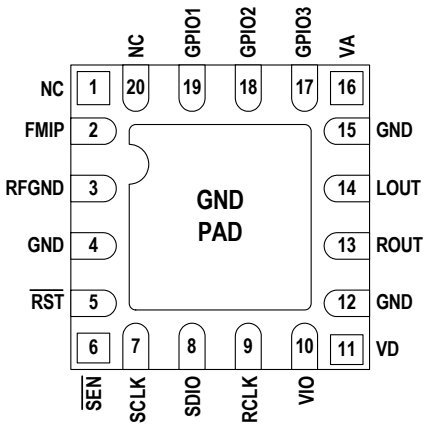
- Cellular handsets
- MP3 players
- PDAs, Notebook PCs
- Portable radios
- Portable navigation
- Automobile applications
- Consumer electronics
- USB FM radios



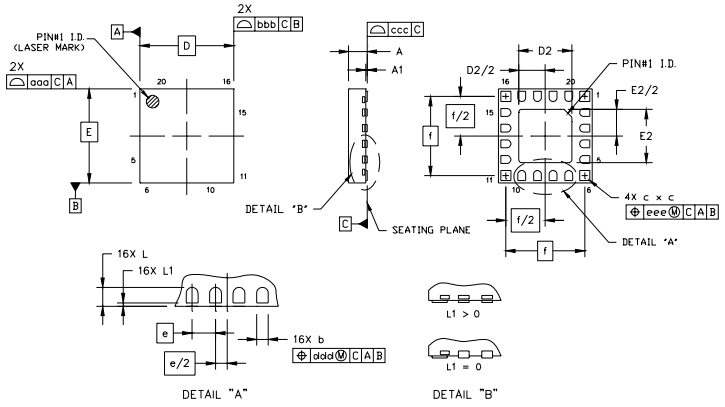
Selected Electrical Specifications

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Input Frequency	f_{RF}		76	—	108	MHz
Sensitivity		(S+N)/N = 26 dB	—	2.5	—	µV EMF
Input IP3		$\|f_2 - f_1\| > 1$ MHz; $f_0 = 2 \times f_1 - f_2$ AGC disabled	—	108	—	dBµV EMF
Adjacent Channel Selectivity		±200 kHz	—	50	—	dB
Alternate Channel Selectivity		±400 kHz	—	70	—	dB
RCLK Frequency			—	32.768	—	kHz
RCLK Frequency Tolerance			–200	—	200	ppm
Audio Output Voltage			72	80	90	mVrms
Audio Band Limits		±1.5 dB	30	—	15k	Hz
Audio S/N			—	63	—	dB
Audio THD			—	0.1	0.5	%
Supply Voltage	V_D, V_A		2.7	—	5.5	V
Interface Supply Voltage	V_{IO}		1.5	—	3.6	V
Ambient Temperature	T_A		–20	25	85	°C
Supply Current	I_{AD}		—	18	—	mA
Powerdown Current	I_{PD}		—	5	15	µA
Seek/Tune Time			—	—	60	ms/channel
SCLK Frequency	f_{CLK}	3-wire operation	—	—	2.5	MHz
	f_{SCL}	2-wire operation	—	—	400	kHz
Powerup Time		From powerdown	—	—	110	ms

Pin Assignments



Package Information



Symbol	Millimeters		
	Min	Nom	Max
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
b	0.18	0.25	0.30
c	0.27	0.32	0.37
D		3.00 BSC	
D2	1.65	1.70	1.75
e		0.50 BSC	
E		3.00 BSC	
E2	1.60	1.70	1.80

Symbol	Millimeters		
	Min	Nom	Max
f		2.53 BSC	
L	0.35	0.40	0.45
L1	0.00	—	0.10
aaa	—	—	0.10
bbb	—	—	0.10
ccc	—	—	0.08
ddd	—	—	0.10
eee	—	—	0.10