

Broadcast Audio Solutions

HIGHLY INTEGRATED AND EASY TO IMPLEMENT
SINGLE-CHIP SOLUTIONS



PRODUCT DESCRIPTION

Silicon Laboratories' family of Si47xx broadcast audio solutions are the industry's first to leverage digital integration and 100% CMOS process technology, resulting in a completely integrated solution that requires only two external components and less than 15 mm² of board space. Offering unmatched integration, the Si47xx family enables FM transmission and AM and FM radio reception in any device, especially those where board space, low power consumption, performance, and ease of use are essential. Leveraging Silicon Labs' proven digital low intermediate frequency (low-IF) receiver architecture and frequency synthesizer technology, the Si47xx family delivers superior RF performance and interference rejection. Digital signal processing is utilized to provide optimum sound quality under varying reception conditions. The high level of integration and simplified bill of materials (BOM) enable on-board production testing, increased quality, and improved manufacturing. The Si47xx family also uses a streamlined programming model, which further reduces development time. Having shipped worldwide, the Si47xx family are proven products ready to be integrated into any portable device.

MOST INNOVATIVE BROADCAST SOLUTIONS

- First AM/FM digital CMOS solution family
- First, and smallest, FM transceiver (receive and transmit)
- First to support small integrated antenna for FM receive and transmit
- First AM/FM IC with RDS
- First AM/FM IC with no manual alignment required
- First footprint compatible family of broadcast audio products
- Smallest footprint
- Highest level of integration

FEATURES

- Worldwide FM band support (76–108 MHz)
- Worldwide AM band support (520–1720 kHz)
- Requires only 2 external components
- Frequency synthesizer with integrated VCO
- Advanced AM/FM seek tuning
- PCB trace/integrated antenna support with self-calibrated capacitor tuning for FM receive and transmit
- Excellent receive overload immunity
- Adaptive noise suppression
- Programmable audio characteristics
- Digital stereo modulator/demodulator
- Programmable transmit level
- Line-level analog input/output
- RDS/RBDS receive and transmit decoder/encoder
- Digital gain compression
- Digital audio interface
- Programmable reference clock
- Integrated LDO regulator
- Pb-free and RoHS Compliant

APPLICATIONS

- Cellular handsets/hands free
- Portable media players and accessories
- Consumer electronics
- Navigation devices
- Satellite radios
- AM/FM portable and countertop radios

SOLUTIONS GUIDE

HIGHLY INTEGRATED

BEST-IN-CLASS PERFORMANCE

EASIEST TO DESIGN



HIGHLY INTEGRATED EASIEST TO IMPLEMENT

Highest Level of Integration

The Si47xx family of products are the first fully integrated broadcast audio ICs. These solutions require only two external components and 15 mm² or less of board space in contrast to dozens of external components and as much as five times the amount of board space for competitive products. The high level of integration, small footprint and low power consumption enable the integration of an FM receiver, AM/FM receiver, FM transmitter, or FM transceiver into any consumer device such as mobile phones, MP3 accessories, media players, and navigation devices.

Best-in-Class Performance

The Si47xx's excellent selectivity and sensitivity improve user experience and result in reduced interference and increased reception. Its advanced digital audio processing delivers optimum sound quality superior to other solutions even in the presence of variable signal conditions, and its digital architecture enables performance that is unmatched compared to standard analog solutions. With advanced AM and FM seek algorithms, and software programmable audio flexibility, the Si47xx provides an unmatched level of performance.

Easiest to Design and Manufacture

The Si47xx family is delivered as a fully tested system requiring no factory alignment. Its simple hardware design reduces development time, unlike other solutions that require dozens of components limiting production flow and adding performance variability across products. Evaluation and design is easy with a full reference board including schematics and layout files, and a robust development graphical user interface (GUI). These solutions also accept a wide range of antenna inputs from headphone cables, to ultra-small ferrites and integrated tuned loops.

Single PCB for All Broadcast Audio Designs

Footprint Compatible

The Si47xx family requires only two external components and offers footprint compatible FM receivers, AM/FM receivers, FM transmitters, and FM transceivers

Si4702/03

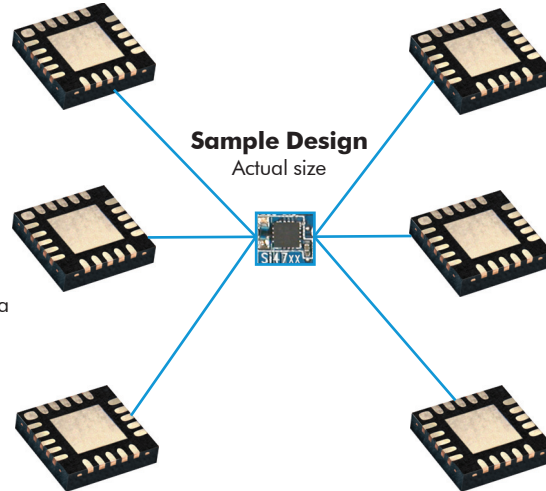
- FM receiver
- RDS (Si4703)

Si4704/05

- FM receiver
- Requires no external antenna
- RDS (Si4705)

Si4710/11

- FM transmitter
- RDS (Si4711)



Si4712/13

- FM transmitter
- RDS (Si4713)
- Receive Power Scan (RPS)

Si4720/21

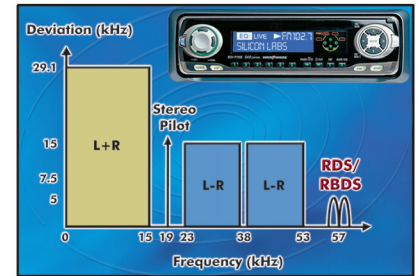
- FM transceiver
- Requires no external antenna
- RDS (Si4721)

Si4730/31

- AM/FM receiver
- RDS (Si4731)

RDS and RBDS Support

The Si47xx family includes a series of solutions that incorporate 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 correction functions. Using this feature, these products enable data such as station identification, artist name and song title to be transmitted to and displayed on any RDS/RBDS receiver.



Broadcast Audio Product Family

Features	Si4702/03	Si4704/05	Si4710/11	Si4712/13	Si4720/21	Si4730/31
FM receiver	✓	✓		RPS*	✓	✓
AM receiver						✓
FM transmitter			✓	✓	✓	
Digital Audio Interface		✓	✓	✓	✓	✓
Integrated Antenna**		✓	✓	✓	✓	
Advanced Seek	✓	✓	✓	✓	✓	✓
3 x 3 20-Pin QFN	✓	✓	✓	✓	✓	✓
Layout Compatible	✓	✓	✓	✓	✓	✓
RDS/RBDS	Si4703	Si4705	Si4711	Si4713	Si4721	Si4731

*Integrated Receive Power Scan

**No headphone cable required for antenna