

Description

The Si475x radio receiver family employs RF CMOS technology to bring outstanding radio receiver performance and automotive quality to the automotive infotainment industry. The Si475x family supports worldwide FM, AM, shortwave, longwave, and weatherband radio reception. The Si475x receiver system specifies a minimal bill of materials, resulting in a very small board space requirement, making the solution ideal for any automotive application from single tuner radios to multiple tuner radios addressing companion TMC/AF reception/scanning.

The monolithic IC incorporates a digital signal processor and microcontroller, leveraging Silicon Laboratories patented and proven low-IF architecture, delivering superior RF performance and interference rejection, as well as excellent sensitivity in weak signal environments and superb selectivity and inter-modulation immunity in strong signal environments. The device performs signal conditioning with dynamic AM/FM channel bandwidth control, a comprehensive set of weak signal processing engines, auto-calibrated digital tuning, and proven AM/FM seek functionality based on multiple signal quality and band parameters. The device offers world-class performance for complete Radio Data Service (RDS) decoding, synchronization, error detection and correction. The device is also completely configurable, allowing raw RDS data if so desired.

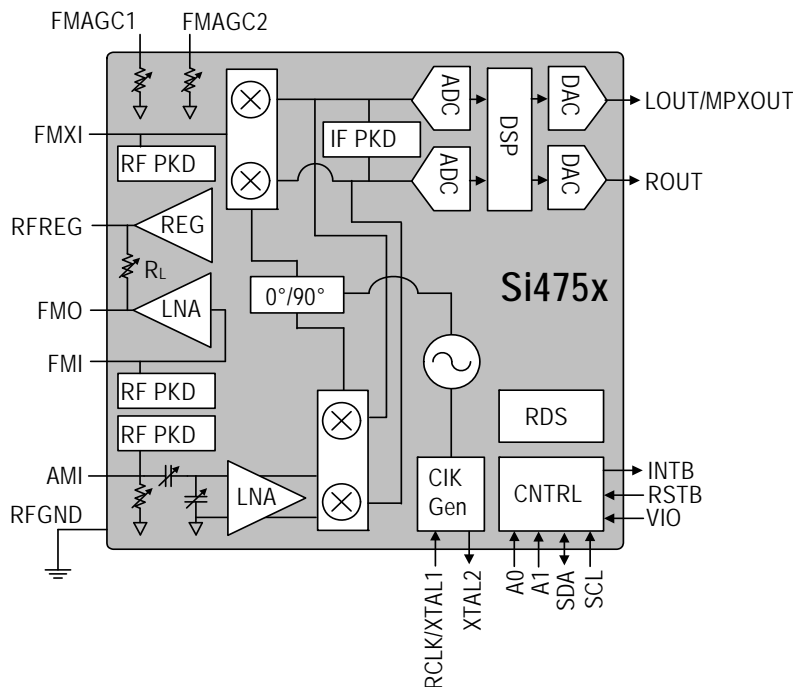
The part provides an integrated clock oscillator or accepts a reference clock and an I²C-compatible 2-wire control interface.

Features

- Worldwide FM band support (64–108 MHz)
- Worldwide AM band support (520–1710 kHz)
- Advanced RDS/RBDS demodulator/decoder
- Digital FM MPX decoder
- Integrated FM loop-through
 - Addresses companion AF/RDS data receiver
- Advanced AM/FM noise blankers
- Dynamic AM/FM channel bandwidth control
- Advanced FM hi-cut control
- Programmable FM stereo-mono blend
- Programmable AM/FM soft mute
- Full suite of signal metrics: RSSI, SNR, multi-path interference, frequency offset, adjacent channel strength
- Analog audio outputs
- Analog FM MPX output
- Low-IF architecture
 - Eliminates expensive 10.7 MHz IF ceramic filters
- On-chip AM/FM AGC with integrated resistor and varactor banks
 - Eliminates external PIN diode attenuators
- 1.5 to 5 V power supplies
- QFN 32, 5 x 5 x 0.85 mm
 - Pb-free/RoHS compliant
- AEC-Q100 qualified

Applications

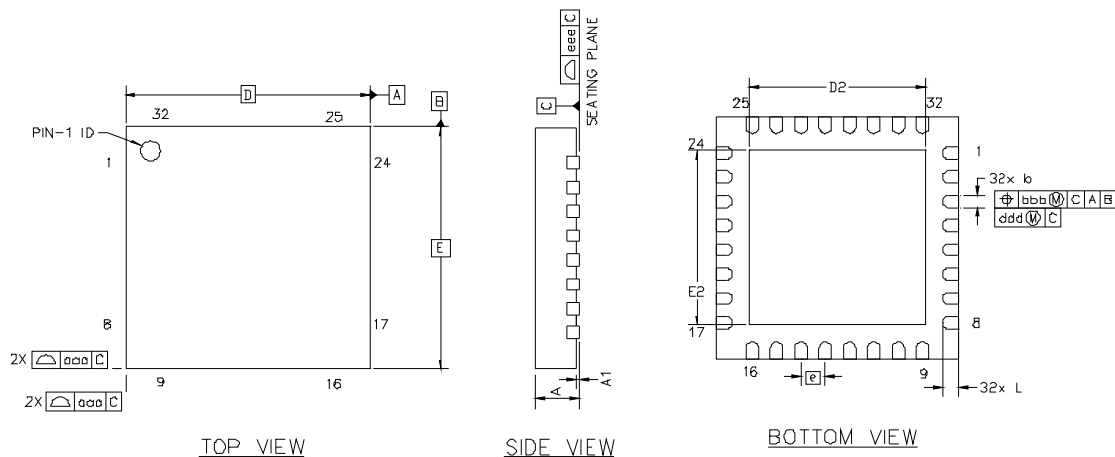
- OEM Car Radio Systems
- Aftermarket Car Radio Systems
- OEM Car PND Docking System



Selected Electrical Specifications

Parameter	Test Conditions	Min	Typ	Max	Units
Ambient temperature		-40	25	85	°C
Analog supply voltage 5 V (VA)		4.5	5	5.5	V
Digital supply voltage 3.3 V (VD)		2.7		3.6	V
Interface supply voltage (VIO)		1.7		3.6	V
Analog supply current			150		mA
Digital supply current			50		mA
Interface supply current (VIO)			5		mA
FM					
Input frequency		64		108	MHz
Tune time			0.9		msec
AF scan time			8		msec
Seek time/channel			35		msec
Max frequency deviation			150		kHz
Maximum RF input voltage			130		dBuV
AM					
Input frequency		510		1710	kHz
Seek time/channel			50		msec
Maximum RF input voltage			145		dBuV

Package Outline



Dimensions	Min	Nom	Max
AT	0.80	0.85	0.90
A1	0.00	0.02	0.05
b	0.18	0.25	0.30
D	5.00 BSC.		
D2	3.45	3.60	3.75
e	0.50 BSC.		
E	5.00 BSC.		

Dimensions	Min	Nom	Max
E2	3.50	3.60	3.70
L	0.35	0.40	0.45
aaa	—	—	0.15
bbb	—	—	0.10
ddd	—	—	0.05
eee	—	—	0.08

Notes:

- All dimensions shown are in millimeters (mm) unless otherwise noted.
- Dimensioning and Tolerancing per ANSI Y14.5M-1994.
- This drawing conforms to the JEDEC Solid State Outline MO-220, variation VHHD except for custom features D2, E2, L, and L1 which are toleranced per supplier designation.
- Recommended card reflow profile is per the JEDEC/IPC J-STD-020 specification for Small Body Components.



Smart.
Connected.
Energy-Friendly



Products
www.silabs.com/products



Quality
www.silabs.com/quality



Support and Community
community.silabs.com

Disclaimer

Silicon Laboratories intends to provide customers with the latest, accurate, and in-depth documentation of all peripherals and modules available for system and software implementers using or intending to use the Silicon Laboratories products. Characterization data, available modules and peripherals, memory sizes and memory addresses refer to each specific device, and "Typical" parameters provided can and do vary in different applications. Application examples described herein are for illustrative purposes only. Silicon Laboratories reserves the right to make changes without further notice and limitation to product information, specifications, and descriptions herein, and does not give warranties as to the accuracy or completeness of the included information. Silicon Laboratories shall have no liability for the consequences of use of the information supplied herein. This document does not imply or express copyright licenses granted hereunder to design or fabricate any integrated circuits. The products must not be used within any Life Support System without the specific written consent of Silicon Laboratories. A "Life Support System" is any product or system intended to support or sustain life and/or health, which, if it fails, can be reasonably expected to result in significant personal injury or death. Silicon Laboratories products are generally not intended for military applications. Silicon Laboratories products shall under no circumstances be used in weapons of mass destruction including (but not limited to) nuclear, biological or chemical weapons, or missiles capable of delivering such weapons.

Trademark Information

Silicon Laboratories Inc., Silicon Laboratories, Silicon Labs, SiLabs and the Silicon Labs logo, CMEMS®, EFM, EFM32, EFR, Energy Micro, Energy Micro logo and combinations thereof, "the world's most energy friendly microcontrollers", Ember®, EZLink®, EZMac®, EZRadio®, EZRadioPRO®, DSPLL®, ISOmodem®, Precision32®, ProSLIC®, SiPHY®, USBXpress® and others are trademarks or registered trademarks of Silicon Laboratories Inc. ARM, CORTEX, Cortex-M3 and THUMB are trademarks or registered trademarks of ARM Holdings. Keil is a registered trademark of ARM Limited. All other products or brand names mentioned herein are trademarks of their respective holders.



Silicon Laboratories Inc.
400 West Cesar Chavez
Austin, TX 78701
USA

<http://www.silabs.com>