Si475x-A10

High Performance Automotive AM/FM Radio Receiver

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 Skyworks 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.

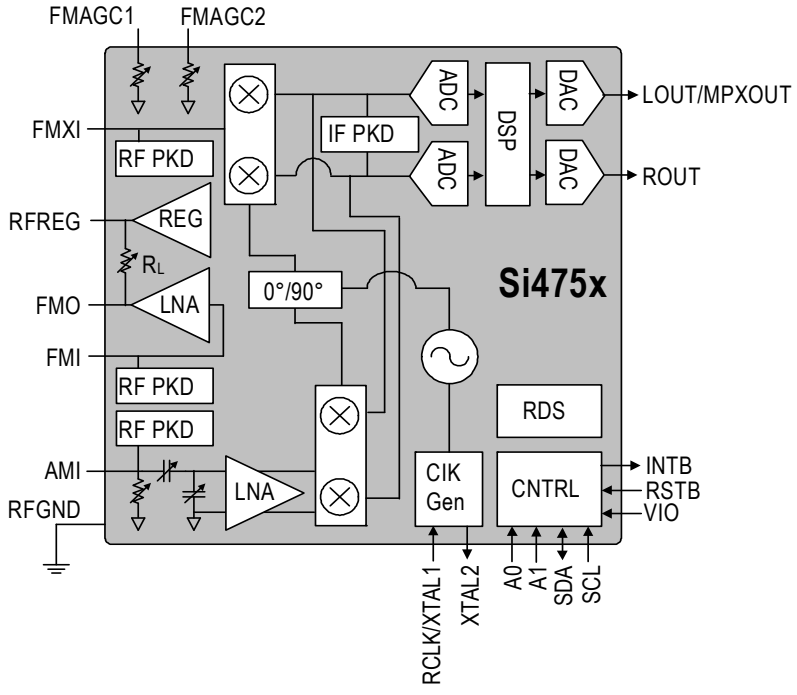
The part provides an integrated clock oscillator or accepts a reference clock and an I^2C-compatible 2-wire control interface.

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 x0.85 mm
  - Pb-free/RoHS compliant
- AEC-Q100 qualified

Applications

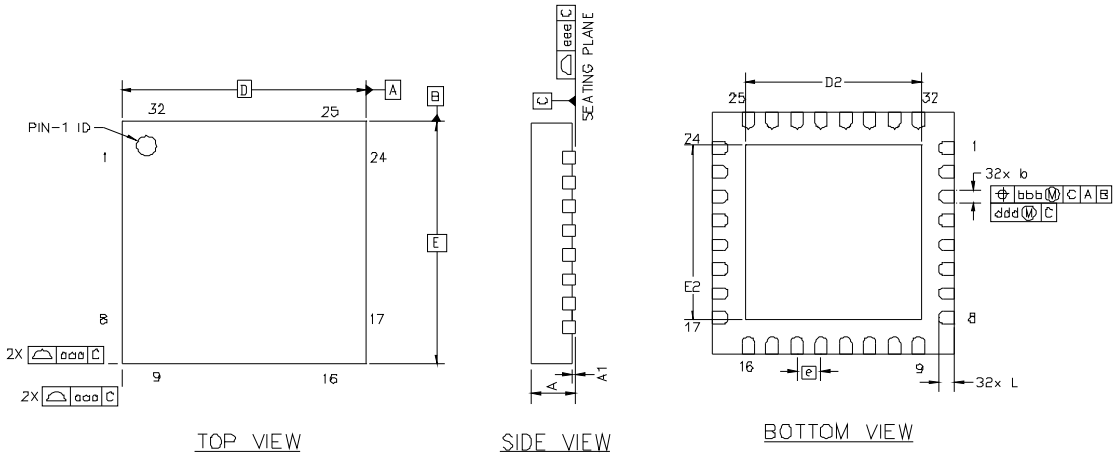
- OEM Car Radio Systems
- Aftermarket Car Radio Systems
- OEM Car PND Docking System



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					

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:

1. All dimensions shown are in millimeters (mm) unless otherwise noted.
2. Dimensioning and Tolerancing per ANSI Y14.5M-1994.
3. 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.
4. Recommended card reflow profile is per the JEDEC/IPC J-STD-020 specification for Small Body Components.

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