STA210N

Sirius Satellite Digital audio radio service Heterodyne tuner

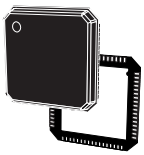
Data Brief

Features

- 2.3 GHz to 76.5 MHz down-converter
- High-performance single signal path for satellite and terrestrial signals
- Operation in the 2320 to 2345 MHz band
- Low-power consumption, 3.3V operation
- On-chip PLL with lock flag
- Fractional synthesizer including integrated VCO
- Direct Xtal connection
- High-Performance Linear RF/IF AGC
- Low cost external components
- IIC-bus slave control interface

Description

The STA210N is an RF IC using STMicroelectronics BiCMOS6G SiGe Technology, for a one chip solution for digital satellite and terrestrial radio receiver.



VFQFPN68

The STA210N is assembled in a VFQFPN68 package. The front-end architecture is a down converter (see *Figure 1*), with one RF down conversion path, with an on chip image frequency suppression, on chip AGC system, and one IF variable gain path.

The IF output is usable for IF sampling architecture.

The front-end processes both satellite and terrestrial signals.

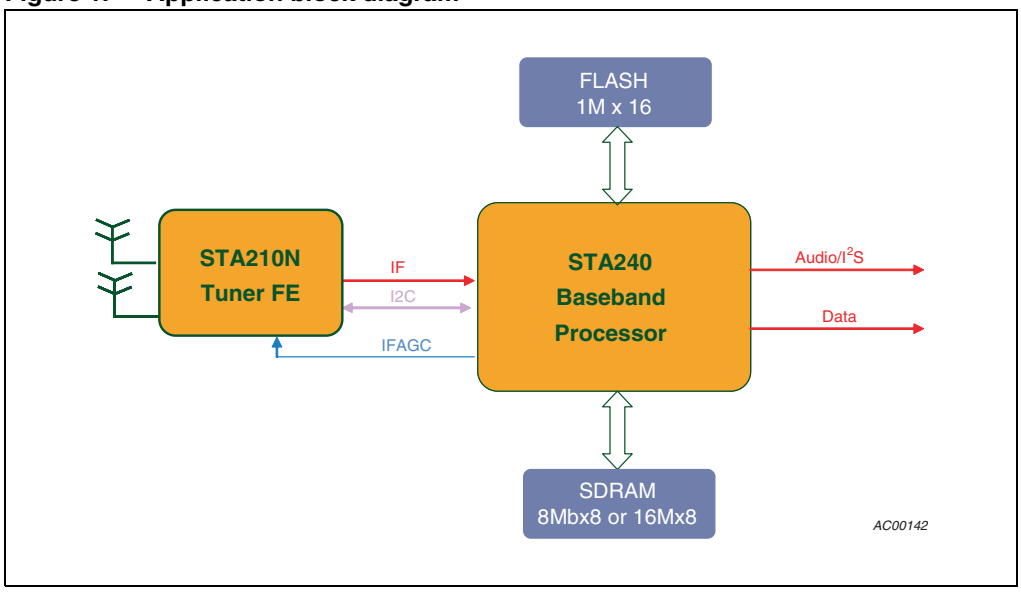
The IC is able to split the three Sirius broadcast component signals into their respective sub-bands via three different SAW filters. The STA210N includes all the RF functions up to IF, and it manages the signals going to and coming from the base-band.

Table 1. Device summary

Part number	Temp range, °C	Package	Packing
STA210N	-40 to +85°C	VFQFPN68	Tray

1 Application block diagram

Figure 1. Application block diagram



2 Electrical specifications

2.1 Thermal data

Table 2. Thermal data

Symbol	Parameter		Value	Unit
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient (1):	Typ. Max.	20 25	°C/W

1. on multi-layer JEDEC test board

2.2 Absolute maximum ratings

Table 3. Absolute maximum ratings

Symbol	Parameter	Min.	Typ.	Max.	Unit
T_{stg}	Storage temperature	-40		125	°C
T_{func}	Functional ambient temperature	-40	25	100	°C
T_{op}	Operating ambient temperature	-40	25	85	°C
$T_{j\text{-}max}$	Maximum junction temperature			125	°C
T_{lead}	Lead temperature (soldering,10s)			260	°C
T_{slope}	Temperature slope	-10		10	°C/min
Humid	Humidity			85	%
V_{Max}	Maximum voltage on each pin			3.6	V
V_{Min}	Minimum voltage on each pin	GND-0.3			V
V_{ESD}	Electrostatic discharge voltage HBM (ESD)			2	kV
P_{RFmax}	Max RF input power		+15		dBm

3 Package information

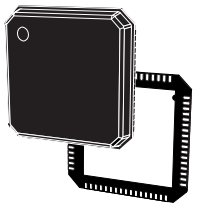
In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark.

ECOPACK specifications are available at: http://www.st.com.

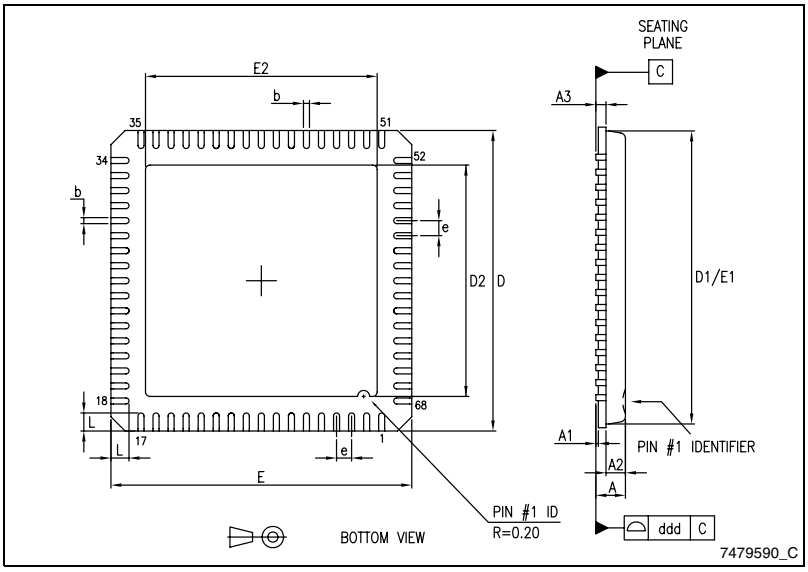
Figure 2. VFQFPN68 mechanical data and package dimensions

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A1		0.02	0.05		0.0008	0.0020
A2		0.65	1.00		0.0256	0.0394
A3		0.20			0.0079	
b	0.18	0.25	0.30	0.0071	0.0098	0.0118
D	9.85	10.00	10.15	0.3878	0.3937	0.3996
D1		9.75			0.3839	
D2	7.55	7.7	7.85	0.2972	0.3031	0.3091
E	9.85	10.00	10.15	0.3878	0.3937	0.3996
E1		9.75			0.3839	
E2	7.55	7.7	7.85	0.2972	0.3031	0.3091
e		0.50			0.0197	
L	0.45	0.55	0.65	0.0177	0.0217	0.0256
P			0.60			0.0236
ddd			0.08			0.0031

OUTLINE AND MECHANICAL DATA



VFQFPN68
(10x10x1.0mm, pitch 0.50)
Very **F**ine **Q**uad **F**lat **P**ackage **N**o lead



4 Revision history

Table 4. Document revision history

Date	Revision	Changes
6-Jun-2007	1	Initial release.

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