

Sirius SDARS channel, service & source decoder

Data Brief

Features

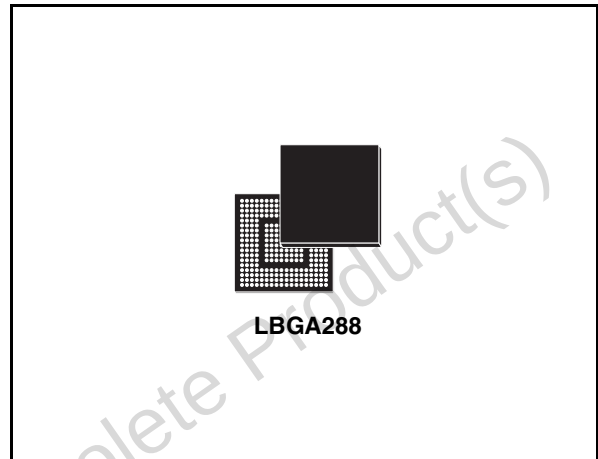
- 2 Satellite and 1 terrestrial signal demodulators and decoders
- Advanced DSP processor to implement PAC audio decoder
- Requires a single 17MHz clock reference; all high-speed clock signals are derived using on-chip PLL
- Programmable I²S to support 32K/48K/44.1K audio sample rate (32K/48K Sample rates use internal clocks, 44.1K Sample rate uses external clock)
- I²C master interface to control tuner and audio DAC
- External control through uart interface using sirius standard protocol (SSP) over RS-232

Analog to digital converters

- Three internal 10 BIT A/D converters for 76.5MHZ if signals conversion

Low power technology

- 1.2V, 0.13 μ m technology
- 3.3V capable I/OS



Description

STA240 is a fully integrated 3rd generation Baseband signal processor for Sirius Satellite Digital Radio Service (SDARS). It is implemented using ST Micro's advanced 0.13 μ m HCMOS9 technology.

It allows a highly efficient implementation of a Sirius "SDARS Satellite Digital Audio Radio Service" receiver when used with its companion STA210 tuner ASIC.

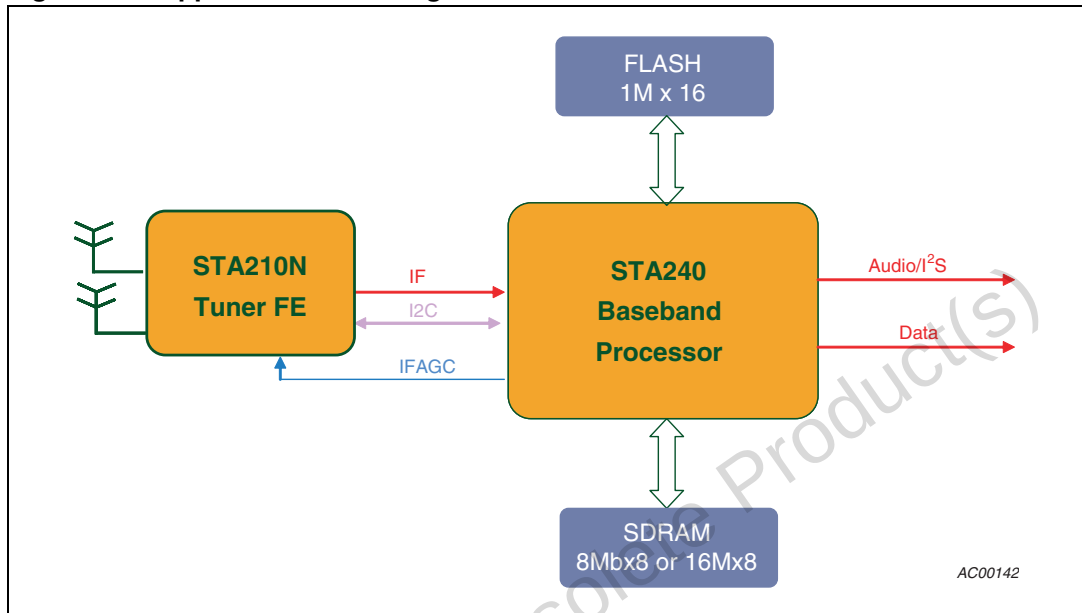
STA240 is packaged in a low profile BGA (LBGA 19x19)

Table 1. Device summary

Part Number	Package	Packing
STA240	LBGA288	Tray

1 Application block diagram

Figure 1. Application block diagram



2 Electrical specifications

2.1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{DD}	1.2V Power supply voltage	-0.5 to 2	V
V_{DDIO}	3.3V Power supply voltage	-0.5 to 4	V
A_{D_VDD}	1.2V Power supply voltage	-0.5 to 2	V
A_{D_VDD3}	3.3V Power supply voltage	-0.5 to 4	V
A_{PLL_VDD}	1.2V Power supply voltage	-0.5 to 2	V
V_i	Voltage on input pin	-0.5 to ($V_{DDIO} + 0.5$)	V
V_o	Voltage on output pin	-0.5 to ($V_{DDIO} + 0.5$)	V
T_{stg}	Storage temperature	-55 to +150	°C
T_{op}	Operative ambient temperature	-40 to +85	°C
T_j	Operative junction temperature	-40 to +125	°C

2.2 Thermal data

Table 3. Thermal Data

Symbol	Parameter	Value	Unit
$R_{th\ j-case}$	Thermal resistance junction to case	10	°C/W
$R_{th\ j-amb}$	Thermal resistance junction to ambient ⁽¹⁾	31	°C/W

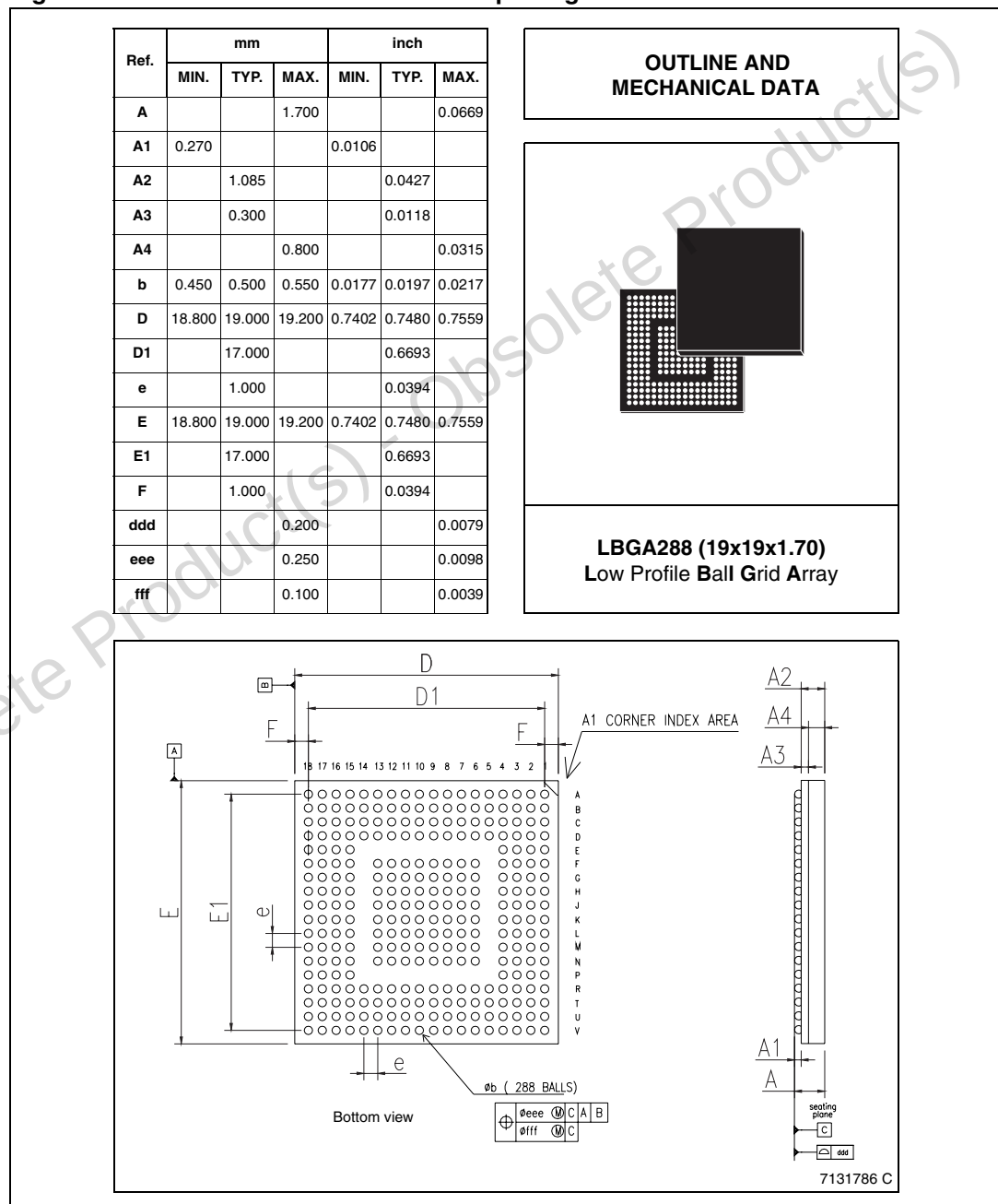
1. According to JEDEC specification on a 4 layers board

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: www.st.com.

Figure 2. LBGA 288 mechanical data & package dimensions



4 Revision history

Table 4. Document revision history

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

Obsolete Product(s) - Obsolete Product(s)

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2007 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com