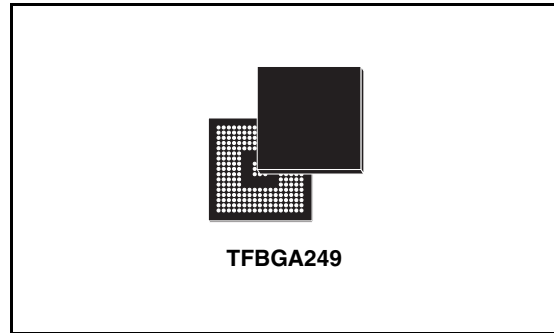


## Sirius overlay decoder

Data Brief

### Features

- De-multiplexes the incoming overlay data stream from the G3 Baseband processor
- Maximal Ratio Combines the signals from the three streams of data (TDM1, TDM2, COFDM)
- Performs diversity combining two demodulated soft symbol streams
- Utilizes internal TDM demodulators for diversity combining cost sensitive applications
- Performs error correction on the overlay data
- Closes the processing loop to control the Diversity Combiner or accepts second L2 input for internal combining
- Presents data to external application processors
- Channels I2S data from Baseband to Application Processors
  - Data can be uncompressed audio
  - Data can be "Data"
- Receives SSPv2 Commands
  - UART
  - Parse data for Overlay and Legacy tune commands
  - Navigation



- Controls the Baseband Processor and DSP via UART ports
  - Required so the Application Processor can interface to a single client
- Provides commands to the Application Processor
- Memory Interfaces
  - SDR SDRAM to support the four second buffer and de-interleaving
  - FLASH for the storage of Firmware

### Description

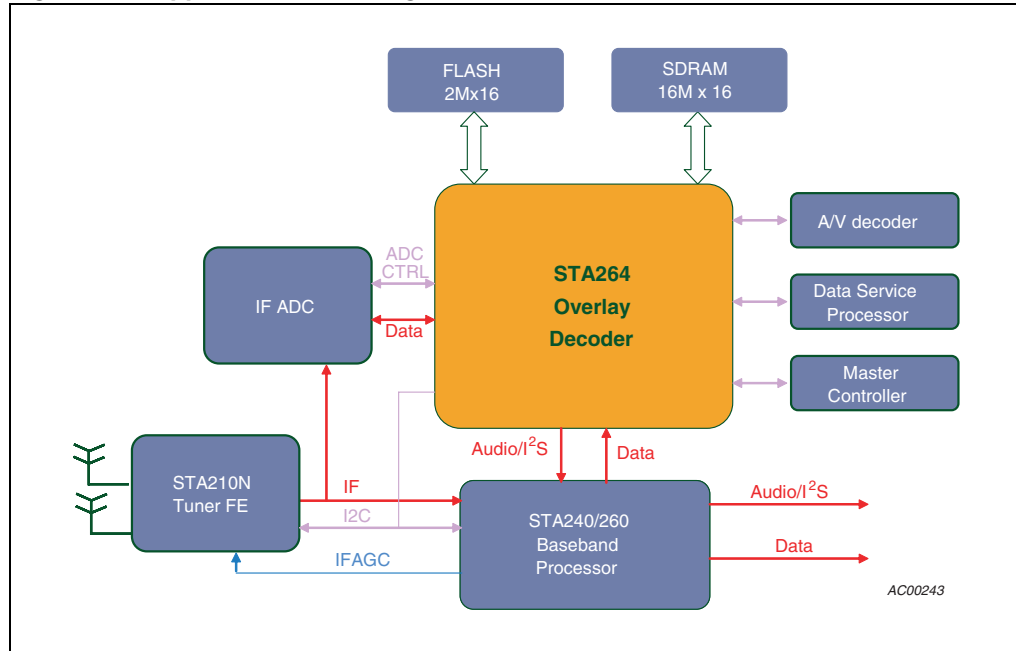
The STA264 ASIC is a fully integrated processor for Sirius Satellite Digital Radio Service (SDARS) that allows for decoding of Layer 2 hierarchical data.

**Table 1. Device summary**

Order code	Package	Packing
STA264	TFBGA249	Tray
STA264TR	TFBGA249	Tape and reel

# 1 Application block diagram

Figure 1. Application block diagram



## 2 Electrical characteristics

### 2.1 Absolute maximum ratings

**Table 2. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
VDD_core	Core 1.2V Power supply Voltage	1.32	V
VDD_io	IO Ring 3.3V Power Supply Voltage	3.6	V
VDDD_pll	PLL 1.2V Power supply Voltage	1.32	V
VDDA_pll	PLL 2.5V Power supply Voltage	2.75	V
VDDA_otp	OTP 2.5V Power supply Voltage	2.75	V
VDDA_saf	OTP 2.5V Power supply Voltage	2.75	V
Tstg	Storage Temperature	-50 to +150	°C
Toper	Operative Ambient Temperature	-40 to +85	°C
Tj	Operative Junction Temperature	-40 to +125	°C

### 2.2 Thermal data

**Table 3. Thermal data**

Symbol	Parameter	Value	Unit
Rj-amb	Thermal Resistance junction to ambient <sup>(1)</sup>	35	°C/W

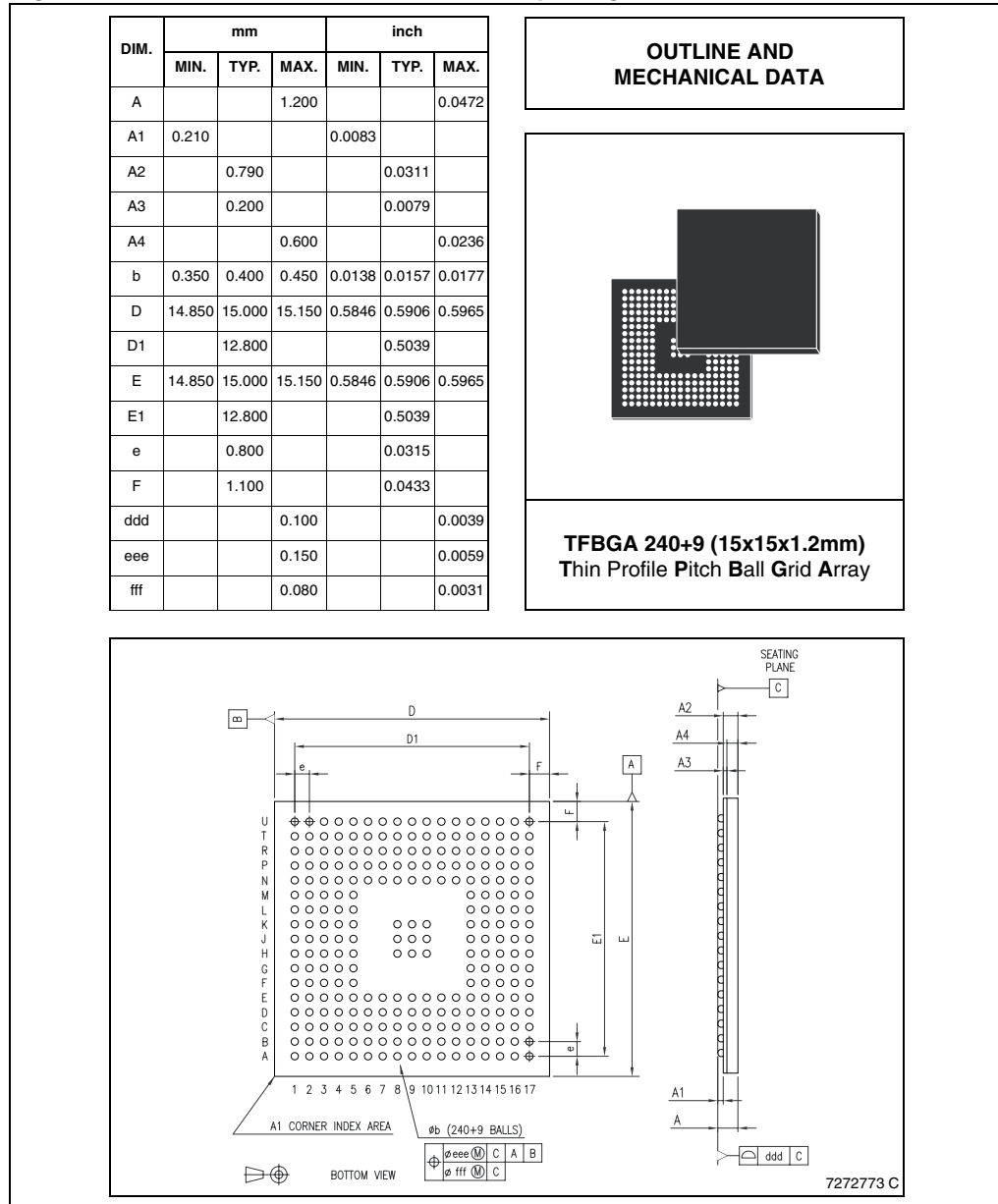
1. According to JEDEC specification on a 4 layers board

### 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](http://www.st.com).

**Figure 2. TFBGA 249 mechanical data and package dimensions**



## 4 Revision history

Table 4. Document revision history

Date	Revision	Changes
18-Jun-2007	1	Initial release.
13-Jul-2007	2	Updated the features section.

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