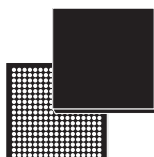



DAB/DAB+/DMB-A multi-standard digital radio decoder



TFBGA289

Features

- AEC-Q100 qualified 
- DAB/DAB+/DMB-A digital radio channel decoding
- Multi-standard digital radio source decoding
- Simultaneous reception of two DAB channels
- Two LVDS/I2S interfaces for receiving DAB baseband signals
- SDRAM interface (16 bit data bus)
- I²S input/output digital audio interfaces
- SPI interface
- UART interface
- 1.2 V core supply, 3.3 V I/O
- TFBGA289 package

Description

STA660 is an ARM-based and DSP-based system-on-chip able to receive and decode DAB baseband digital signals and with embedded application SW making it suitable for several different radio application use-cases.

The digital radio standards supported by STA660 are: DAB (ETSI EN 300 401), DAB+ (ETSI TS 102 563) and DMB (ETSI TS 102 428).

Product status link		
STA660		
Product summary		
Order code	Package	Packing
STA660	TFBGA289	Tray
STA660TR		Tape & Reel

1 Function description

The STA660 can demodulate and decode two digital radio streams in parallel thus allowing to implement a DAB foreground plus DAB background application.

1.1 DAB/DAB+/DMB-A signal processing

The STA660 detects, acquires, and demodulates DAB/DAB+/DMB-A signal. Such functions are primarily implemented by dedicated hardware accelerators. The demodulated signal is then processed for audio decoding and service decoding by the ARM9 processor or Xp70 DSP.

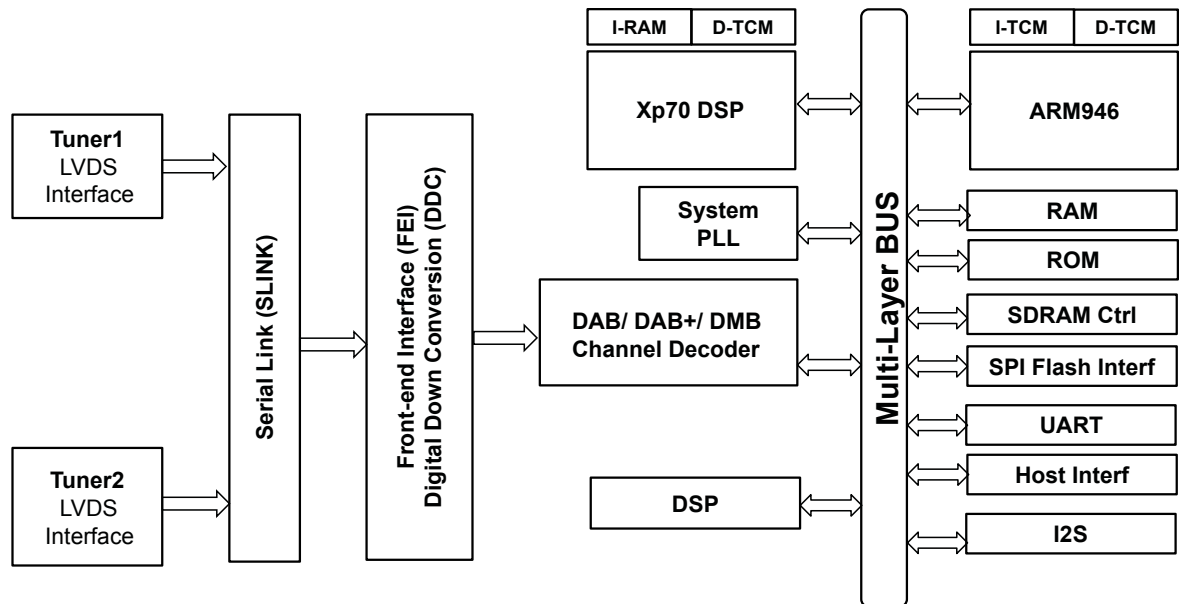
The STA660 is able to simultaneously demodulate two different DAB/DAB+/DMB-A signals radio streams. This feature allows the device to decode one digital radio audio/data stream in parallel with the reception of a data service broadcasted on a different radio channel.

In the single channel implementation (single RF tuner) the STA660 demodulates at the same time both the audio and the data carried inside a single ensemble. This means that the user can both listen to audio and receive traffic information or data broadcasted on that specific single ensemble.

In the dual channel implementation the STA660 can simultaneously demodulate audio and data associated to different ensembles. This means that it is possible to receive traffic information broadcasted on ensemble A while listening to audio program broadcasted on ensemble B.

1.2 Overview of main functional blocks

Figure 1. Functional block diagram



2 Electrical specifications

2.1 Absolute maximum ratings

Table 1. Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
VDDE	I/O logic supply voltage	− 0.3	3.7	V
VDD	Core logic supply voltage	− 0.3	1.4	V
VDDS	Core logic supply voltage	− 0.3	1.4	V
AVDD_SYSPLL	SYS PLL analog supply voltage	− 0.3	2.8	V
AVDD_AUDPLL	AUD PLL analog supply voltage	− 0.3	2.8	V
AVDD2V5_OSCI	OSCI analog supply voltage	− 0.3	2.8	V
DVDD_SYSPLL	SYS PLL digital supply voltage	− 0.3	1.4	V
DVDD_AUDPLL	AUD PLL digital supply voltage	− 0.3	1.4	V
AVDD1V2_OSCI	OSCI digital supply voltage	− 0.3	1.4	V
VESD-HBM	Electrostatic discharge HBM (leakage<μA)	-	±2000	V
VESD-CDM	Electrostatic discharge CDM (leakage<μA)	-	±500	V

Caution: Stresses above those listed under "[Absolute maximum ratings](#)" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Note: All voltages are referred to the relative GND.

2.2 Thermal data

Table 2. Thermal data

Symbol	Parameter	Value	Unit
R _{THj-amb}	Thermal resistance junction-to-ambient ⁽¹⁾	33	°C/W

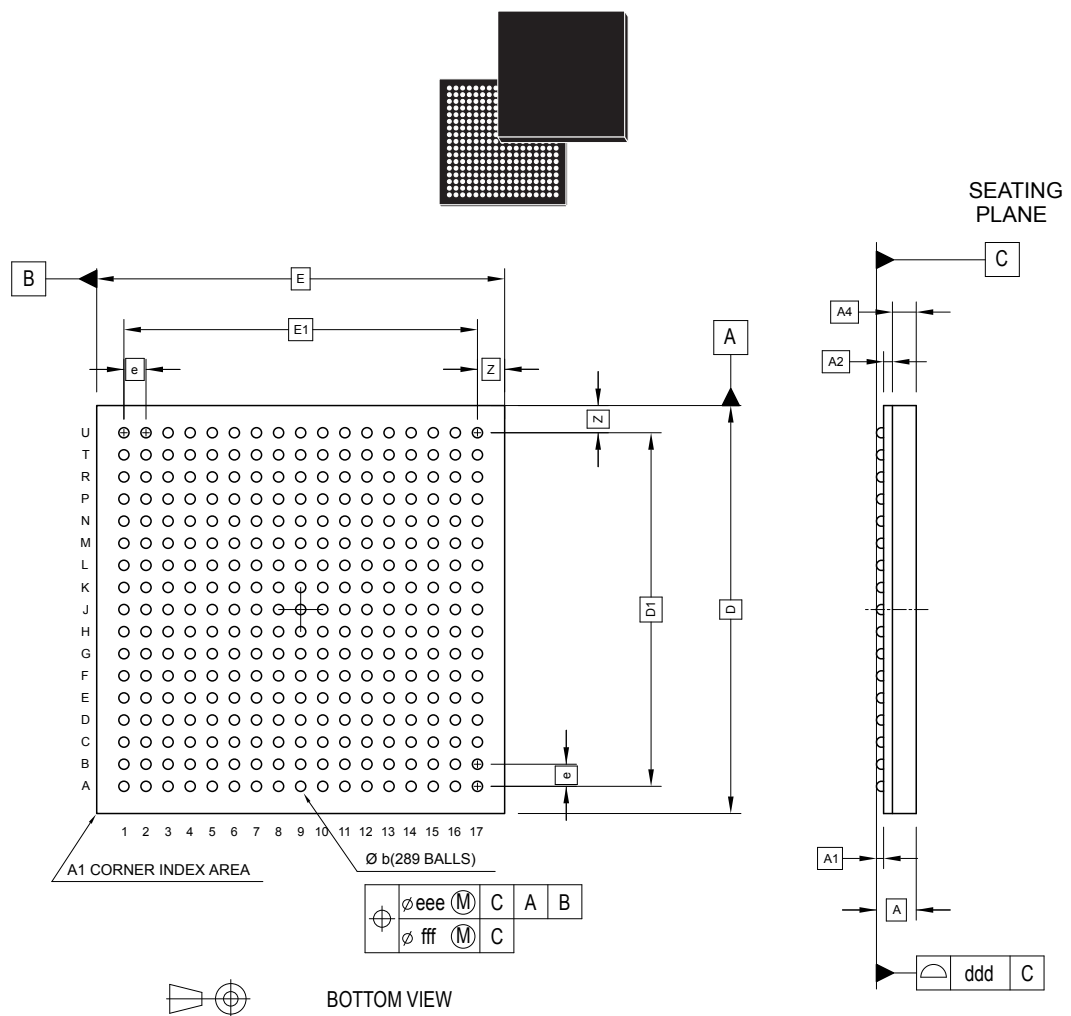
1. According to JEDEC specification on a 2s2p std board.

3 Package information

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK®** packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

3.1 TFBGA289 (15x15x1.2 mm) package information

Figure 2. TFBGA289 (15x15x1.2 mm) package outline



8177030_C_(7)

GAPGPS03454

Table 3. TFBGA289 (15x15x1.2 mm) mechanical data

Symbol	Dimensions (mm)		
	Min	Typ	Max
A	–	–	1.20
A1	0.21	–	–
A2	–	0.20	–
A4	–	–	0.62
b	0.35	0.40	0.48
D	14.85	15.00	15.15
D1	–	12.80	–
E	14.85	15.00	15.15
E1	–	12.80	–
e	–	0.80	–
Z	–	1.10	–
ddd	–	–	0.10
eee	–	–	0.15
fff	–	–	0.08

Revision history

Table 4. Document revision history

Date	Version	Changes
22-Feb-2019	1	Initial release.

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