Automotive Audio Bus A²B Transceiver

AD2401/AD2402/AD2403/AD2410

A2B BUS FEATURES

- **Line topology**
  - **Single master, multiple slave**
  - **Up to 10 meters between nodes and Up to 40 meters overall cable length**
- **Communication over distance**
  - **Synchronous data**
    - **Multichannel I²S/TDM to I²S/TDM**
    - **Clock synchronous, phase aligned in all nodes**
  - **Control and status Information**
    - **I²C to I²C**
- **Phantom power or local power slave nodes**
- **Configurable with SigmaStudio™ graphical software tool**
- **Qualified for Automotive Applications**

ADDITIONAL TRANSCEIVER FEATURES

- **Configurable as A²B bus master or slave (AD2403/AD2410)**
- **I²C Interface**
- **8-bit to 32-bit multichannel I²S/TDM interface**
- **Up to 32 upstream channels or combination with up to 32 downstream channels**
- **I²S/TDM or PDM Microphone inputs**

APPLICATIONS

- **Automotive audio communication link**
- **Communication network for:**
  - **Microphones/speakers**
  - **Sensor/actuator**
  - **I²C Peripherals**

GENERAL DESCRIPTION

The Automotive Audio Bus (A²B™) provides a multi-channel, I²S/TDM link over distances of up to 10 meters between nodes. It embeds bi-directional synchronous data (for example digital audio), clock and synchronization signals onto a single differential wire pair. A²B supports a direct point-to-point connection and allows multiple, daisy chained nodes at different locations to contribute or consume time division multiplexed channel content. A²B is a single-master, multiple-slave system where the transceiver chip at the host controller is the master. It generates clock, synchronization and framing for all slave nodes. The master A²B chip is programmable over a control bus (I²C) for configuration and read back. An extension of this control bus is embedded in the A²B data stream allowing direct access of registers and status information on slave transceivers as well as I²C-to-I²C communication over distance.

Complete technical specifications are available for the A²B transceiver. Contact your nearest Analog Devices sales office to complete the Non-Disclosure Agreement (NDA) required to receive additional product information

Table 1. Product Comparison Guide

Feature	AD2401	AD2402	AD2403	AD2410
Master Capable	No	No	Yes	Yes
Functional TRX Blocks	A only	A + B	A + B	A + B
I²S/TDM Support	No	No	Yes	Yes
PDM Microphone Inputs	4 Mics	4 Mics	None	4 Mics
Maximum Node-to-Node Cable Length	10 m	10 m	1 m	10 m

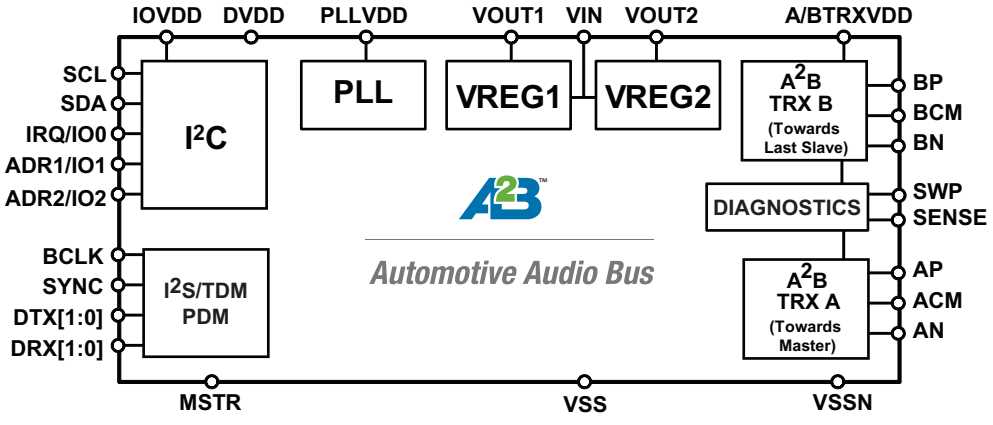

Figure 1. Functional Block Diagram

Rev. SpB Document Feedback

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