Product Overview

AYRE SA3291: Preconfigured Wireless DSP System for Hearing Aids, with up to 8 WDRC channels

For complete documentation, see the data sheet.

Ayre™ SA3291 is a preconfigured wireless DSP system utilizing Near-Field Magnetic Induction (NFMI) technology.

Ayre SA3291 enables hearing aids to wirelessly synchronize program modes and volume control and stream telecoil signals from one hearing aid to the other. When coupled with a relay device, Ayre SA3291 enables features such as stereo audio streaming via Bluetooth® in addition to remote control functionality.

With iSceneDetect environmental classification, adaptive noise reduction, superior feedback cancellation, fully automated and adaptive microphone directionality, and up to 8-channel WDRC, Ayre SA3291 is ideal for high-end, full-featured wireless products.

Software Support
ARK is a set of software building blocks that can help reduce the time it takes to develop hearing aid fitting software. ARKonline is an efficient web-based tool for creating product libraries and keeping them organized. To access ARKonline, please go to <a href='http://ark.onsemi.com/' target='_blank'>www.onsemi.com/arkonline.

Features

- Binaural Synchronization: The binaural synchronization feature allows two hearing aids to wirelessly synchronize adjustments such as program modes or volume control. By working together as one system, user control is simplified.
- Binaural Telecoil: The binaural telecoil wirelessly streams telecoil audio signals from one hearing aid to the other. This enables hearing aid users to hear phone calls in both ears, improving speech intelligibility.
- Stereo Audio Streaming: Stereo audio signals can be streamed wirelessly from a relay device to hearing aids equipped with Ayre SA3291. A relay device can use Bluetooth or other far-field wireless technology to wirelessly connect with TVs, music players, mobile phones or other audio sources.
- iSceneDetect Environment Classification: The environmental classification algorithm automatically optimizes the hearing aid to maximize comfort and audibility by analyzing the hearing aid wearers acoustic environment.
- Adaptive Noise Reduction: The adaptive noise reduction algorithm monitors noise levels independently in 128 individual bands and employs advanced psychoacoustic models to provide user comfort.
- Tinnitus Masking: Comes equipped with internal noise generation for tinnitus treatment. The noise can be shaped and attenuated and then summed into the audio path either before or after the volume control.
- Adaptive Feedback Cancellation: Automatically reduces acoustic feedback and allows for an increase in the stable gain while minimizing artifacts for music and tonal input signals.
- Automatic Adaptive Directionality: The automatic Adaptive Directional Microphone (ADM) algorithm automatically reduces the level of sound from sources originating behind or to the side of the hearing aid wearer, without affecting sounds from the front. The algorithm also reduces current consumption by gathering input from the acoustic environment and automatically selecting whether directionality is needed or not.

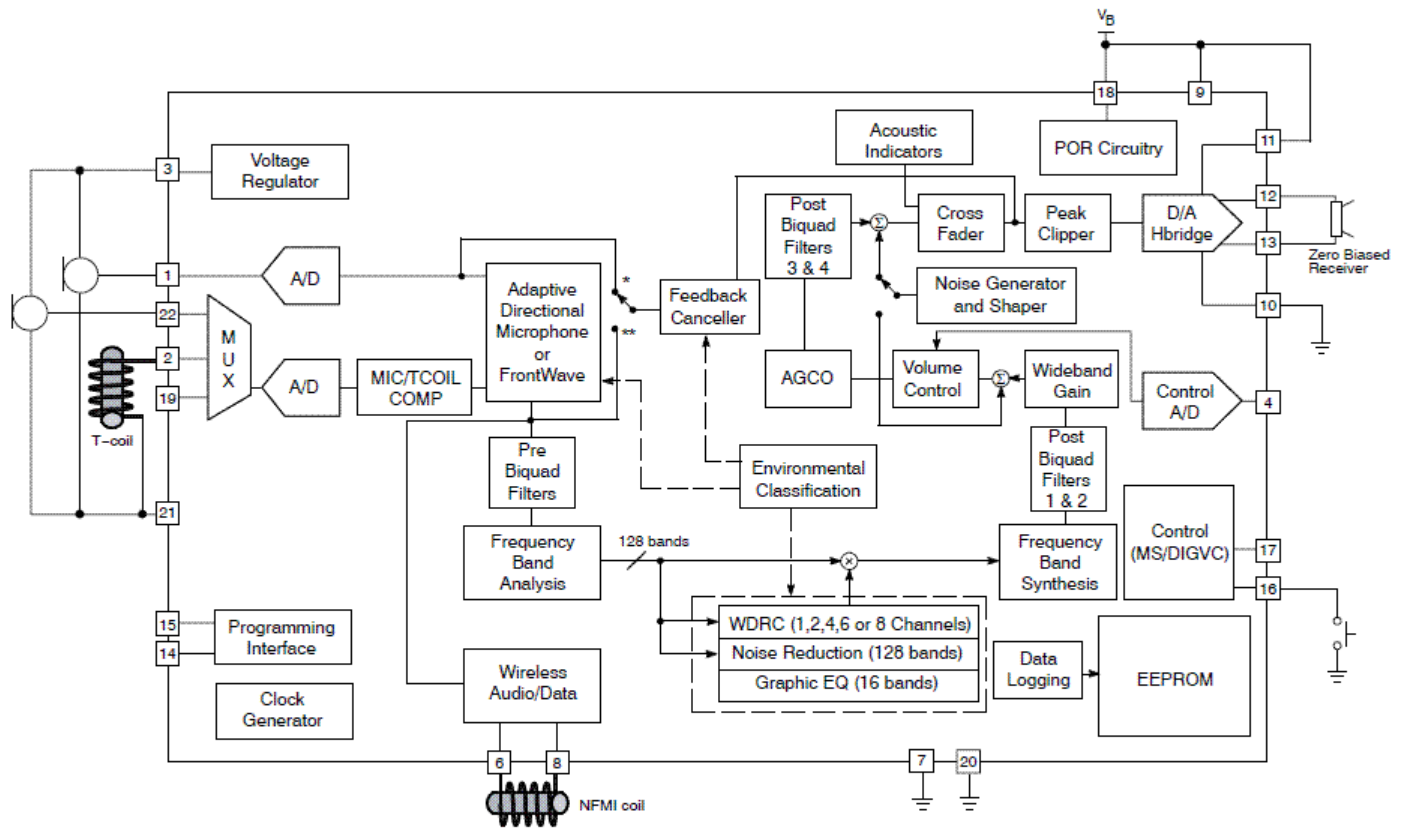## Applications

- Digital Audio Processing

End Products

- Hearing Aids

Part Electrical Specifications

Product	Compliance	Status	WDRC Channels	Graphic EQ Bands	Program Modes	Advanced Algorithms	Acoustic Indicators	Other Features	Wireless Standards	Package Type
SA3291A-E1	Pb-free Halide free	Active	4 8 2 6 1	16	6	Adaptive Feedback Cancellation FrontWave Directional Microphone Adaptive Noise Reduction Static Feedback Management Stereo Audio Streaming Environmental Classification Binaural Telecoil Automatic Adaptive Directionality Binaural Synchronization	EVOKE	Software Configurable Digital Volume Control Datalogging NFMI Wireless Transceiver	NFMI	SIP-32
SA3291A-E1-T	Pb-free Halide free	Active	4 2 8 6 1	16	6	Static Feedback Management Binaural Telecoil Stereo Audio Streaming Environmental Classification Adaptive Noise Reduction Automatic Adaptive Directionality Adaptive Feedback Cancellation FrontWave Directional Microphone Binaural Synchronization	EVOKE	Software Configurable Digital Volume Control Datalogging NFMI Wireless Transceiver	NFMI	SIP-32

Application Diagram

* If Input Mode = 1 mic omni, mic + telecoil, mic + DAI
** If Input Mode = 2 mic omni, rear only, directional
Note: All resistors in ohms and all capacitors in farads, unless otherwise stated.