

AIS240A SpectroMic

MEMS Microphone with Spectrogram Feature Extractor

General description

The AIS240A SpectroMic device is a MEMS microphone with digital spectrum output, acoustic activity detection and adjustable signal gain. An interrupt line can notify or wake up a host controller whenever the acoustic activity exceeds a selectable threshold.

The spectrum data can be retrieved through an SPI interface. Each second 62.5 new spectra are generated from the acoustic stimulus input, and together are forming a spectrogram that can be used to analyze the acoustic events.

This makes the device particularly suitable as sensor frontend for automated acoustic monitoring systems which need to be permanently listening, supporting the requirement to save power by reducing the average up-time of controlling units further down the signal chain, and offering the flexibility to dynamically adapt to changes in environmental acoustic conditions.

Features

- Spectrum update rate: 62.5Hz (16ms)
- 32 bins in each spectrum with adjustable center frequencies
- Acoustic activity detection with adjustable threshold level and frequency characteristic
- Wide gain adjustment range
- SPI interface and interrupt line
- Current consumption 300µA when always-on
- Single 1.8V supply
- Package 5.4x5.4mm with acoustic bottom port

Applications

- Always-listening monitoring and surveillance for maintenance, safety or entertainment
- First level detection stage in acoustic event recognition systems
- Automatic gain control (AGC) audio systems
- Keyword spotting applications

Diagram

