

WM7331

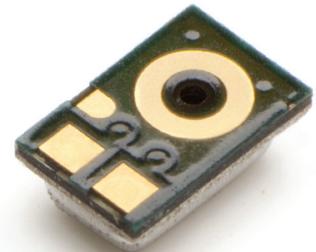
Compact, Low Profile, Bottom Port Analog Microphone



Featuring 63 dB SNR, ± 1 dB Sensitivity Tolerance, 55 μ A Power Consumption

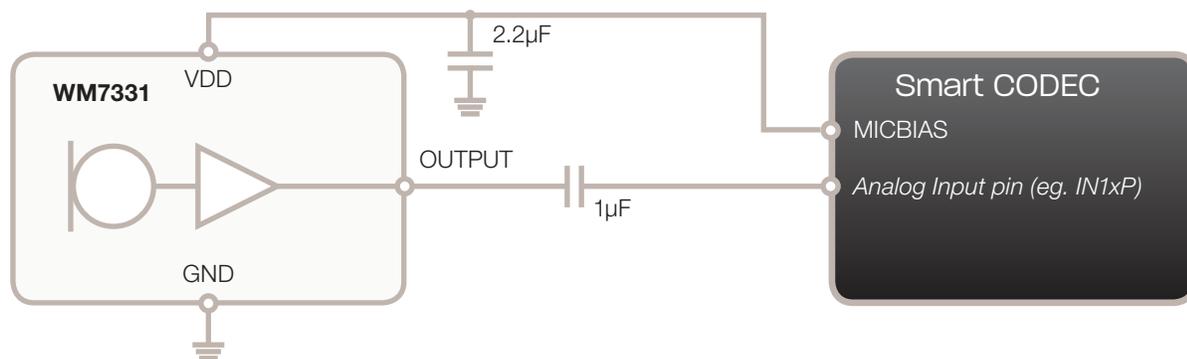
Product Overview

The Cirrus Logic WM7331 is an ultra small, high performance MEMS microphone targeted at mobile audio applications. The WM7331 utilizes the company's proprietary CMOS/MEMS membrane technology to facilitate the integration of a transducer and ASIC into a single die. This integration of the silicon eliminates wire bonds between the MEMS and ASIC and allows the die to be housed in a miniature package with a footprint of just 4 mm². In addition to its very small size, Cirrus Logic's rugged MEMS technology protects against membrane breakage during manufacture and customer use.

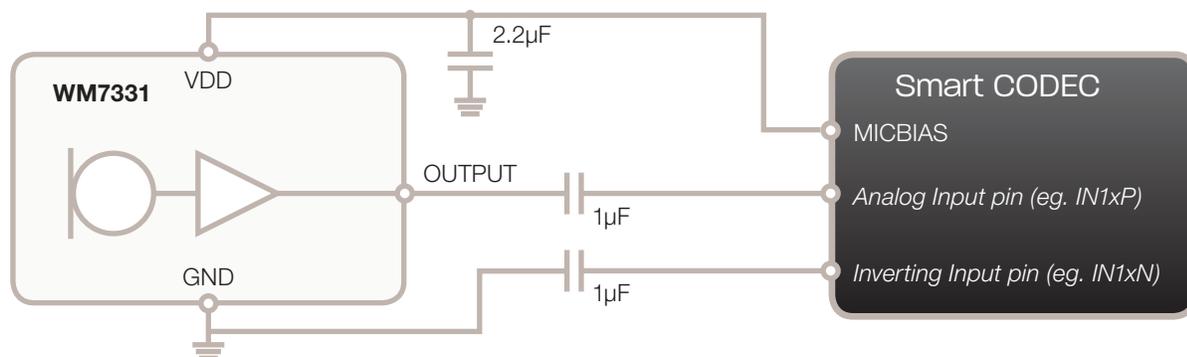


The WM7331 operates at a very low current of 55 μ A while delivering distortion free (<1% THD) audio capture through the dynamic range to 120 dB SPL, as well as a low noise floor of 31 dB SPL. The microphone's frequency response is flat between 85 Hz and 14 kHz and supports ultrasonic frequency capture to above 80 kHz. The WM7331 also features tight tolerance on the microphone sensitivity and phase, giving reduced variation between parts. This makes it ideal for applications using algorithms to process the captured audio and those requiring multiple microphones, and it removes the need for in-line, part-to-part production calibration to resolve microphone variations.

Block Diagram Schematic



WM7331 Analog Microphone, Single-Ended Connection with Smart Codec



WM7331 Analog Microphone, Pseudo-Differential Connection with Smart Codec

Target Applications

The WM7331 is targeted at mobile audio applications, including wearables and headsets where its extremely small size, low power consumption and high performance make it an ideal microphone solution. The WM7331 can be paired with Cirrus Logic smart codec products that feature SoundClear® software. This combination takes advantage of Cirrus Logic's advanced A/D converter IP to deliver a world-class audio input path.

System Features

High quality audio capture	<ul style="list-style-type: none">• High 63 dB SNR• <1% THD to 120 dB SPL (distortion higher than 1% THD is generally audible)• <10% THD to 124 dB SPL• Low frequency roll-off -3 dB point 85 Hz• High frequency +3 dB point 14 kHz
Audio system optimized	<ul style="list-style-type: none">• Power consumption 55 µA maximizes battery life• Consistent part-to-part performance• ±1 dB sensitivity tolerance is standard• ±2° phase matching
Smallest, bottom port LGA package	<ul style="list-style-type: none">• Tiny form factor measures 1.6 mm X 2.5 mm X 0.9 mm• Rugged MEMS technology
Ultrasonic ready	<ul style="list-style-type: none">• Captures audio to >80 kHz



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