

PORTABLE CONSUMER CODEC LOW-POWER, HIGH-FIDELITY INTEGRATED CODEC

TSCS25xx

DESCRIPTION

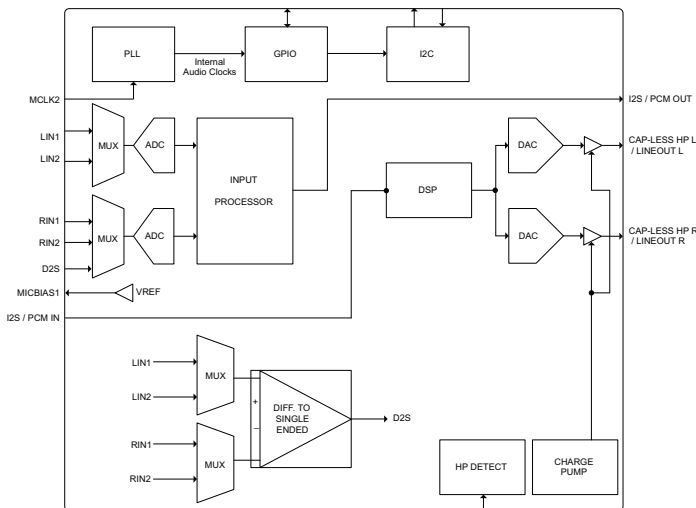
The TSCS25xx is a low-power, high-fidelity integrated CODEC with 32-bit stereo playback stereo record functionality. In addition to a high-fidelity low-power CODEC, the device integrates stereo true cap-less headphone amplifiers.

The digital audio data ports (both input and output) work in both master or slave mode and supports all common digital audio formats for Linear PCM including I2S, Left-Justified, and Right-Justified and as well as direct Bluetooth PCM mode.

Beyond high-fidelity for portable systems, the device offers an enriched "audio presence" through built-in audio output processing (AOP) DSP engine. The AOP supports 12 Bands of EQ, Psychoacoustic Bass and Treble enhancement, 3D stereo enhancement and Wideband Dynamic Range controller to support pro-style Multi-band Compressor / Limiter / Expander capability with independent time and frequency domain parameter adjustability.

APPLICATIONS

- Lightning and USB-C Adapters
- Lightning and USB-C connected Headphones



FEATURES

- **On-chip true cap-less headphone driver**
 - 35 mW output power (16Ω)
 - Charge-pump allows true, ground-centered outputs
 - SNR (A-Weighted, no active signal) -124dB
 - Headphone detection logic
- **High-fidelity CODEC**
 - 32-bit stereo DAC and 32-bit stereo ADC
 - Sample rates from 8 kHz to 96 kHz
- **Audio Output Processing DSP Engine**
 - 3D stereo enhancement
 - 12-band stereo parametric equalizers
 - Wideband Dynamic Range Controller
 - Multiband Pro-style Dynamic Range Compressor / Limiter / Expander
 - Independent attack / release and gain
 - Psychoacoustic Bass and Treble enhancement processing
- **Microphone / line-in interface**
 - Analog microphone or line-in inputs
 - Automatic level control
- **Low power with built-in power management**
 - 1.7 V CODEC supports 1Vrms
 - Very low standby and no-signal power consumption
 - 1.8V digital / 1.7V analog supply for low power
- **2-wire (I²C compatible) control interface**
- **Flexible Digital Audio Data Interface**
 - Supports Bluetooth PCM
 - Adjustable Frame Length
 - Selectable Frame Sync
 - Flexible word lengths (16, 24, 32-bit)
 - Supports Linear PCM
 - Format Support (I2S, Left-Justified, Right-Justified)
 - Flexible word lengths (16, 24, 32-bit)
- **Package**
 - 40-pin, 5x5mm, QFN