Freescale Semiconductor
Product Brief

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SGTL5000 Product Brief

Low-Power Stereo CODEC with Headphone Amplifier

The Low Power Stereo Codec with Headphone Amp from Freescale is designed to provide a complete audio solution for portable products needing line-in, mic-in, line-out, headphone-out, and digital I/O. Deriving it's architecture from best in class Freescale integrated products that are currently on the market, the SGTL5000 is able to achieve ultra low power with very high performance and functionality, all in one of the smallest footprints available. Target markets include portable media players, GPS units and smart phones. Features such as capless headphone design and USB clocking mode (12MHz MCLK) help lower overall system cost.

Contents

1 Benefits and Advantages

- High performance at low power
  - 100dB SNR @ < 9mW
- Extremely low power modes
  - 98dB SNR @ < 4mW
- Small PCB Footprint

  - 3mmx3mm QFN
- Audio Processing
  - Allows for no cost system customization

2 Features

2.1 Analog Inputs

- Stereo Line In
  - Support for external analog input
  - Codec bypass for low power
- MIC
  - MIC bias provided
  - Programmable MIC gain
- ADC
  - 85dB SNR and -75dB THD+N at all voltages

2.2 Analog Outputs

- DAC/Line Out
  - 100dB SNR and -88dB THD+N @ 3.3V
- HP Output/Line Output
  - 45mW max into 16 ohm load @ 3.3V
  - Capless design

2.3 Digital I/O

- I2S port to allow routing to Application Processor

2.4 Integrated Digital Processing

- SGTL Surround, SGTL Bass, tone control/ parametric equalizer/graphic equalizer

2.5 Clocking/Control

- PLL allows input of 6.144MHz to 27Mhz
- Standard audio clocks derived from PLL

2.6 Power Supplies

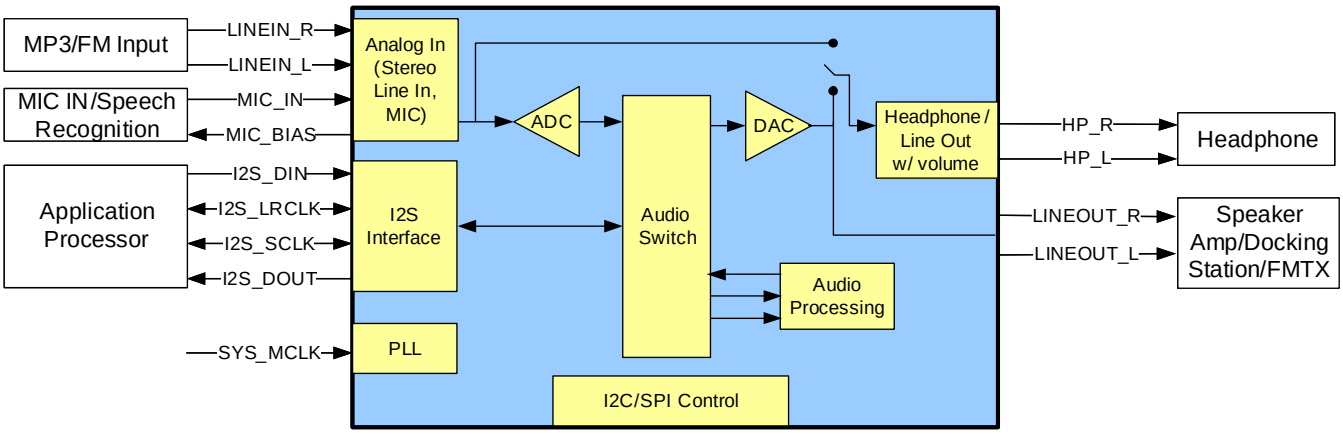
- Operates from 1.62 to 3.6 volts to maximize performance while minimizing power consumption

2.7 Package

— 3mm x 3mm 20 pin QFN

— 5mm x 5mm 32 pin QFN

Figure 1. SGTL5000 Block Diagram



Note: Only I^2C is supported in the 3 mm x 3 mm 20-pin QFN package option.

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