



STMP Product Line

## FM Tuner Solutions

### Overview

Freescall's STMP product line enables companies to bring to market unique flash and hard drive-based portable media players through semiconductor and software solutions. The product line's integration and support are engineered to help customers to develop devices with the longest battery life, smallest form factors, fastest time to market and lowest system design costs in the market.

Developed with an optimized radio architecture, the STFM1000 is a highly integrated, low-power, single-chip FM tuner designed to provide FM radio capabilities when combined with Freescall's portable media player System-on-Chip (SOC) solutions. These powerful combinations can be used to power digital audio players, PDAs, voice recorders, cell phones, portable video players and digital photo wallets.

The optimized radio architecture is designed to offer low power consumption, minimal external components for small form factor and low cost through optimum system partitioning and integrated automatic channel selectivity, demodulation and stereo decoding. In addition, a comprehensive software development environment is available as part of Freescall's world-class software development kit for portable media players.

### Features

- FM companion chip to portable media player SoC
  - Allows for optimum system partitioning, flexibility and reduced cost
  - Modules and tools to place chip directly on PCB are available
  - Uses 24 MHz crystal to generate clock for host SoC to save cost and board space
- U.S./Europe/Japan band capability in 100 kHz steps

- High sensitivity due to integrated low-noise RF amplifier
- RF automatic gain control (AGC)
- Automatic internal channel selectivity
- PII-based synthesizer tuning system
- RDS compatible
- Adjustment-free stereo decoder
- Inter-integrated circuit (I<sup>2</sup>C) communication bus support up to 400 kbps
- 4 mm x 4 mm or 5 mm x 5 mm QFN package
- Host SoC software programmable:
  - Stereo Blend, Hi-Cut, and SoftMute
  - Attack/decay times for signal quality indicators
  - Search/stop function
  - FM record via ADPCM and MP3

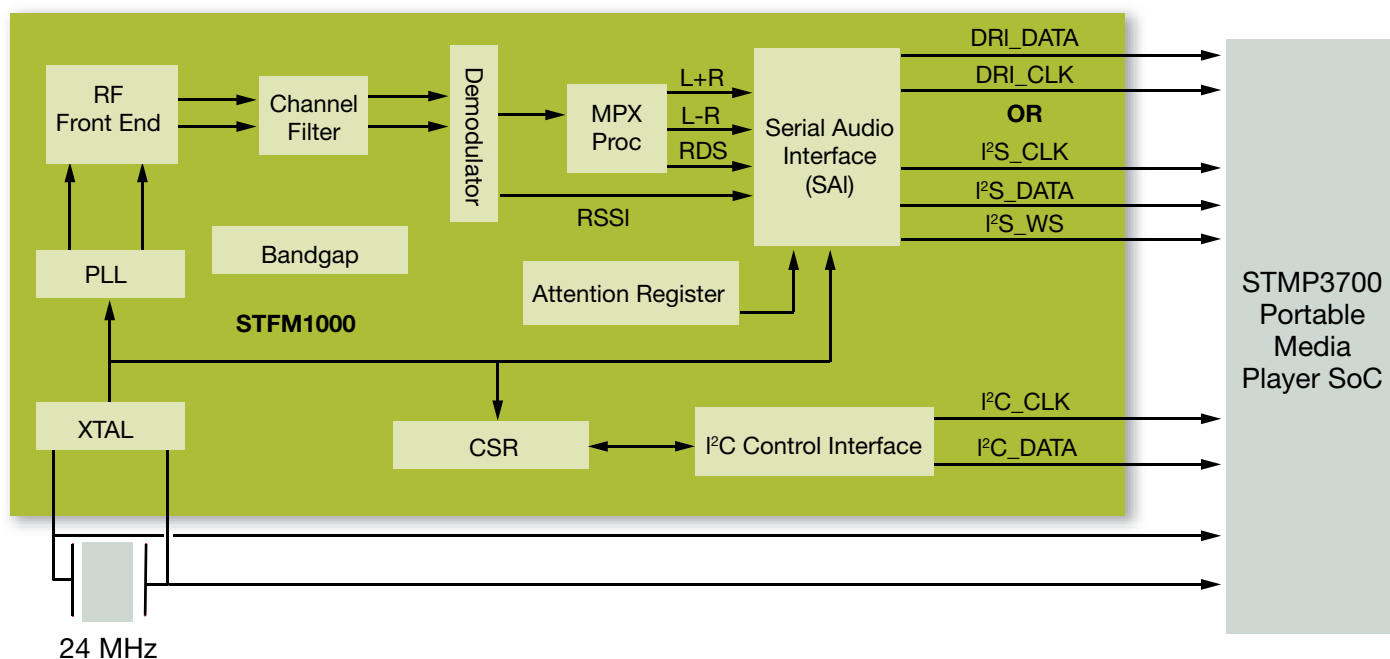
## Benefits

- Delivers a comprehensive solution for adding FM reception to MP3 players and other applications when coupled with the portable media player SoC solution
- Optimal solution partitioning for power consumption, board space and cost
- Delivered as part of comprehensive software development kit (SDK) which allows customization for quick time to market

## STFM1000 Specifications

- Input Sensitivity—1.4  $\mu$ V(EMF)
  - 22.5 kHz freq deviation, 26 dB SNR, de-emphasis = 75  $\mu$ S, faudio = 1k, L = R
  - BW = 300 Hz–15 kHz
- Channel Frequency Range with 100 kHz steps—76 to 108 MHz
- Channel Selectivity 45 dB
  - $\pm$ 200 kHz channel, 22.5 kHz freq deviation, de-emphasis = 75  $\mu$ S, faudio = 1k, L = R
- Maximum Signal to Noise Ratio (SNR)—63 dB
  - 22.5 kHz freq deviation, de-emphasis = 75  $\mu$ S, faudio = 1k, L = R
  - BW = 300 Hz–15 kHz
- Total Harmonic Distortion (THD)—0.04 percent
  - 75 kHz freq deviation, de-emphasis = 75  $\mu$ S, faudio = 1k, L = R
  - BW = 300 Hz–15 kHz
- Stereo Separation—40 dB
  - 75 kHz freq deviation, de-emphasis = 75  $\mu$ S, faudio = 1k, L only, 9 percent pilot
  - BW = 300 Hz–15 kHz
- Power Consumption for STFM1000—35 mW
  - LNA Gain is mid gain, tuned to 92.0 MHz
- Power Supply
  - DVDD1, AVDD1, AVDD2, AVDD4—1.35–1.8V
  - DVDDIO, AVDD3 (3.3V I<sup>2</sup>C I/O and PLL)—3.0V

## STFM1000 Block Diagram



**Learn More:** For current information about Freescale products and documentation, please visit [www.freescale.com](http://www.freescale.com).

You can also find more information about Freescale's STMP products at [www.freescale.com/stmp](http://www.freescale.com/stmp).