

Single-Chip Low-Power FM Transmitter for Portable Devices

General Description

Features

The QN8000 is a high performance single-chip stereo FM transmitter designed for low-power portable audio, multimedia, cellphone, and GPS applications.

The QN8000 integrates complete transmitter function, from stereo audio input to RF antenna port, for worldwide FM band personal area broadcast. It includes variable input gain programming, selectable pre-emphasis, precision low-spur MPX stereo encoding & pilot tone generation, low-noise PLL-based modulation, and an on-chip power amplifier with variable output level and RF band-pass filtering to ensure optimum transmit spectrum purity.

Integrated crystal oscillator and on-chip digital calibration circuits eliminate external tuning components and enable tuning-free manufacturing. Support for 7.6 MHz reference clock ensures high audio performance. Integrated saturation detection and programmable audio interface eliminate distortion, optimize audio fidelity, and support wide range of input audio levels. Low power idle mode extends battery life.

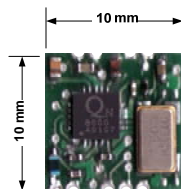
The QN8000 can be operated continuously from 76MHz to 108MHz, supporting North America, Europe, Asia, and Japan FM broadcast bands.

2 and 3-wire serial interfaces provide simple access to all programmable functions. A parallel (static GPIO) control interface is also available for simplified operation without an MCU.

Designed for the portable multimedia devices, the QN8000 is fabricated in high reliability CMOS and features very low power operation which extends battery life.

- **Worldwide FM band support (76~108MHz)**
 - Fully Integrated PLL synthesizer
 - No external VCO required
 - Continuous 100kHz channel selection
 - Fast power-up & channel switching
- **High Audio Fidelity**
 - 65dB Stereo SNR, less than 0.2% THD
 - Fully integrated programmable 50 & 75µs pre-emphasis (no external capacitor required)
- **Small footprint (4x4 mm x 0.8 mm QFN20)**
- **Very low power consumption**
 - 12mA Typical (Transmit Mode)
 - 1.2mA (Idle Mode), 0.1µA (Sleep).
- **Integrated Power Amplifier**
 - On-chip BPF for best spectral performance
 - Precision output power control
- **Programmable audio interface**
 - on-chip input buffer amplifiers
 - Integrated Input Saturation Detection
- **Flexible Control Interface**
 - 2 and 3-wire serial, and parallel (static GPIO)
- **Robust Operation**
 - -25^oC to +85^oC operation
 - ESD protection on all Input Output pads
- **ROHS Compliant, Pb-free**
- **Moisture Sensitivity Level (MSL)-1**

Typical Applications



Reference Module
(footprint less than 10 x 10 mm)

- Portable Audio & Media Players
- Portable GPS Navigators
- PDAs, Cell Phones & Smartphones
- Personal Area Broadcast