Product Brief QN8027

High Performance Digital FM Transmitter for Portable Devices

General Description

The QN8027 is a high performance, low power, full-featured single-chip stereo FM transmitter designed for portable audio/video players, automotive accessories, cell phones, and GPS personal navigation devices. The QN8027 covers frequencies from 76 MHz to 108 MHz in 50/100/200 kHz step sizes for worldwide FM band support. The QN8027 also supports RDS/RBDS data transmit.

The QN8027 integrates a complete transmitter function, from stereo audio input to RF antenna port, for worldwide FM band personal area broadcasting. It includes variable input gain programming, selectable pre-emphasis, precision low-spur MPX stereo encoding and 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.

An integrated crystal oscillator and on-chip digital calibration circuits eliminate external tuning components and enable tuning-free manufacturing. Support for 12/24MHz reference clocks allow the chip to use readily available system clocks. Integrated saturation detection and a programmable audio interface eliminate distortion, optimize audio fidelity, and support a wide range of input audio levels. A low power IDLE mode extends battery life. An integrated LDO enables direct connection to the battery and provides high PSRR for superior noise suppression, in particular TDMA noise from GSM/GPRS phones.

The QN8027's small footprint, high integration with minimum external component count, and support for 12/24MHz clock frequencies make it easy to integrate into a variety of small form-factor low-power portable applications. Integrated low-phase noise digital synthesizers and extensive on-chip auto calibration ensures robust consistent performance over temperature and process variations. An integrated voltage regulator enables direct connection to a battery and provides high PSRR for superior noise suppression. A low-power IDLE mode extends battery life.

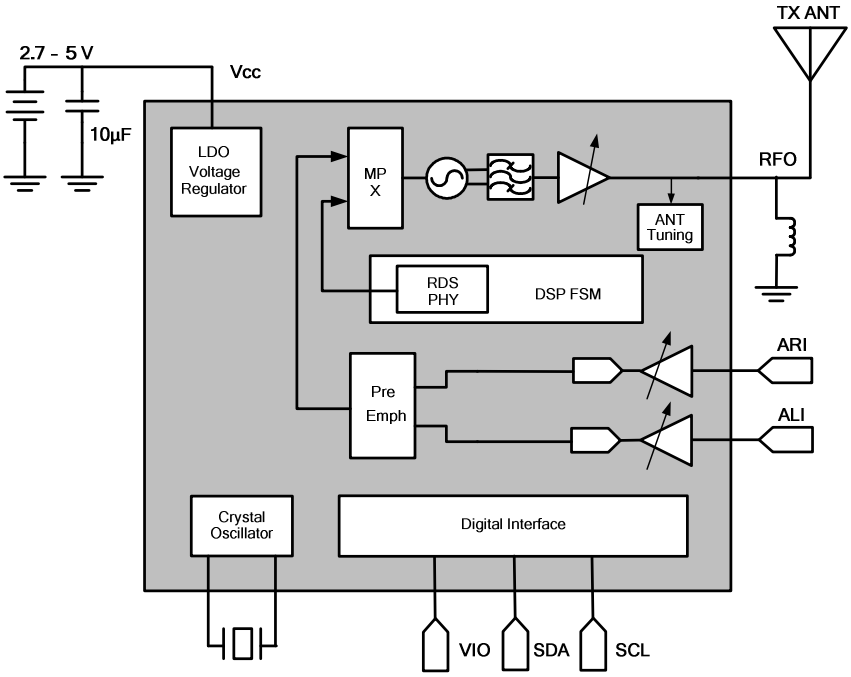
ESD protection is on all pins. The QN8027 is fabricated in highly reliable CMOS technology.

Key Features

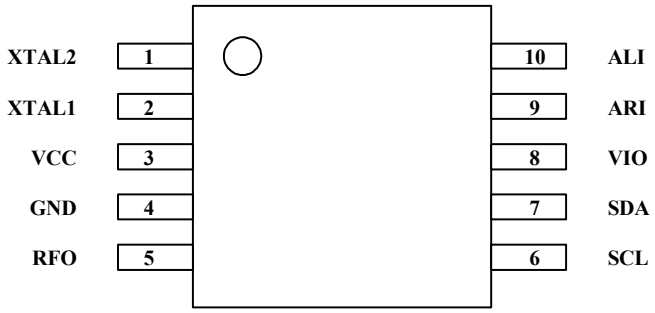
- **Worldwide FM Band Transmit**
  - *76 MHz to 108 MHz full band tuning in 50/100/200 kHz step sizes*
  - *50/75μs pre-emphasis*
- **Ease of Integration**
  - *Small footprint, 3 x 3 x 0.95mm MSOP10*
  - *Only 2 external passive components required*
  - *Adaptive antenna tuning*
  - *Low cellular and GPS band spurs*
  - *High Immunity to TDMA (GSM/GPRS) burst noise*
  - *Multiple crystal frequencies supported*
  - *I^2C interface*
- **Low Power Consumption**
  - *7.0 mA of FCC output level*
  - *Integrated voltage regulator, direct connect to battery*
  - *Power saving IDLE-mode*
- **High Performance FM Transmitter (FMT)**
  - *65dB Stereo SNR, 0.04% THD*
  - *Maximum 119 dBμVp RF output level with 34dB adjustable range*
- **Automatic Input Audio Sensing**
  - *RF power automatically turned off if no input audio signal for 60s*
- **RDS/RBDS Transmit**
  - *Supports US and European data service, including TMC (Traffic Messaging Channel)*
- **Robust Operation**
  - *-25^0C to $+85^0C$ operation*
  - *ESD protection on all input and output pads*

Typical Applications

- Cell Phones / PDAs / Smart Phones
- Portable Audio & Media Players
- GPS Personal Navigation Devices
- Automotive and Accessories



QN8027-SANC Block Diagram



QN8027-SANC Pin out MSOP10

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