Nuvoton W684386

Quad Programmable Extended CODEC/SLCC

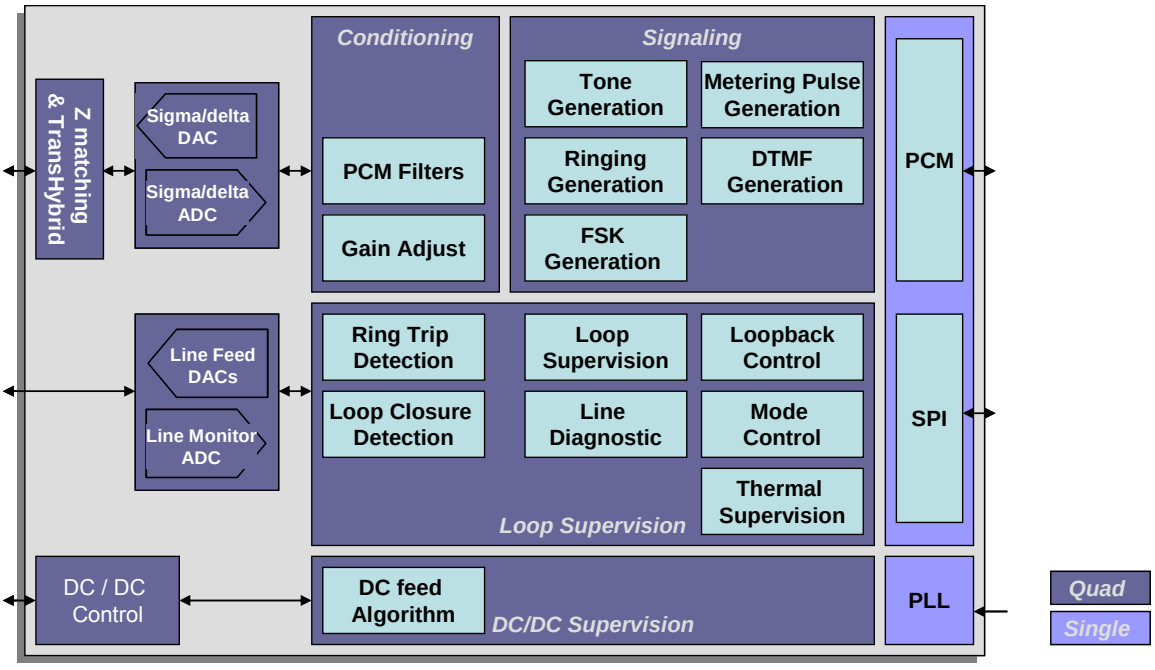
The W684386, implements a quad channel FXS telephone line interface optimized for short loop applications. It integrates SLCC (Subscriber Line Control Circuit) functionality with a quad programmable CODEC and a quad DC-to-DC controllers. The SLCC supports internal ringing up to 90 V_{PK} (5 REN at 4k ft) ideal for Customer Premise Equipment (CPE). The CODEC can be configured for µ-law, A-law or 16-bit linear PCM encoding. It also supports a comprehensive set of signaling capabilities required to supervise and control the telephone lines. These include tone generation, ring tones, DTMF generation as well as FSK and metering pulse generation. An on-chip Pulse Width Modulation (PWM) driver allows control of a per channel DC-to-DC converter or a centralized transformer-based DC-to-DC converter. Programmable impedance and trans-hybrid balancing allow for worldwide deployment.

APPLICATIONS

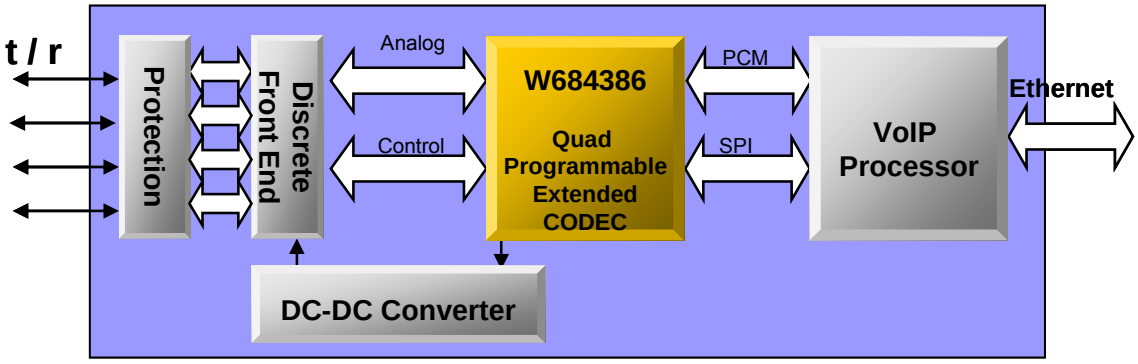
- Residential VoIP Gateways / Routers
- IP-PBX
- Fiber to the Premise/Home (FTTP/H)
- Wireless Local Loop
- Optical Network Terminals (ONT)
- Fiber to the Premise/Home (FTTP/H)
- Analog Telephone Adapter (ATA)
- Voice enabled DSL Modems
- Voice enabled Cable Modems
- Integrated Access Devices

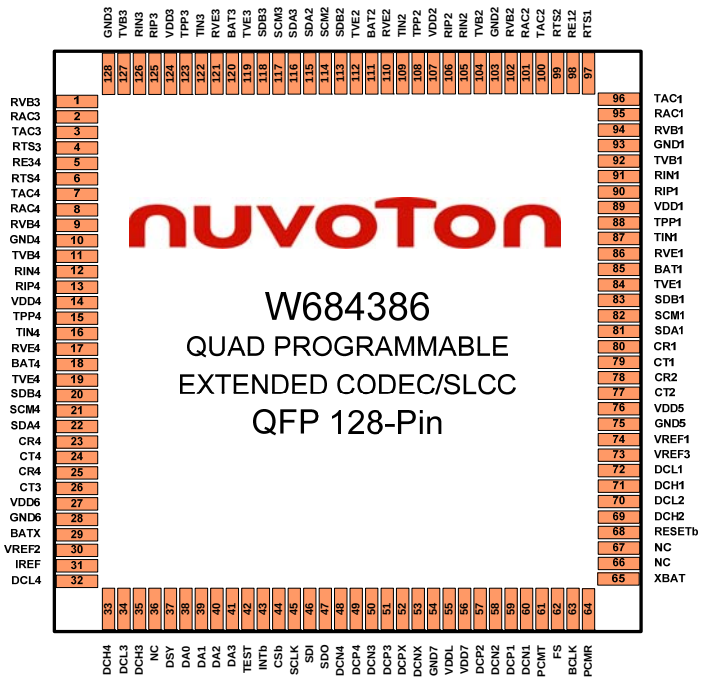
FEATURES

- Performs complete BORSCHT functions for four channels in a single device
- Internal balanced and unbalanced ringing up to 90 V_{PK} (5 REN up to 4k ft)
- Integrated Power Management Options
  - o Integrated per channel DC-to-DC controller
  - o Centralized transformer DC-to-DC controller
  - o Programmable external battery switching
- Programmable linefeed characteristics
  - o Ringing Frequency, Amplitude, and Cadence
  - o Two-wire AC impedance, and trans-hybrid balance
  - o Constant Current feed (20 to 41) mA
  - o Ring Trip and Loop Closure Thresholds
  - o Ground Key Detection
  - o External Ringing Relay and ring trip support
  - o Soft Polarity Reversal
- Programmable signal generation
  - o DTMF, Metering Pulse 12/16 kHz, Enhanced Caller ID generation (Type I and Type II), Tone generation
  - o CODEC G.711 µ-Law, A-Law and 16-bit linear PCM audio
  - o Programmable audio path gains
- Loop test and diagnostics support
  - o On-chip temperature sensor
- Digital interfaces: PCM, GCI and SPI
- Both PCM Master and Slave modes supported
- On-chip PLL for flexible clocking options including 1.0 MHz and 2.0 MHz BCLK operation
- Operating voltage: 3.3V
- QFP-128 Package



Application Example: Analog Telephone Adapter (ATA) supporting 4 voice ports





BENEFITS

- High integration reduces overall system BOM and footprint
- Low power consumption for battery-backup and other power sensitive applications
- High programmability reduces real-time software overhead
- Extensive line sensing enables diagnostics support

W684386 ORDERING INFORMATION

Part Number	Package	Notes
W684386FG	QFP-128	RoHS

Note: For more details on the W684386, please refer to Nuvoton America's web site at: http://www.nuvoton-usa.com

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