

# Winbond W681388

## Single Programmable Extended CODEC/SLIC

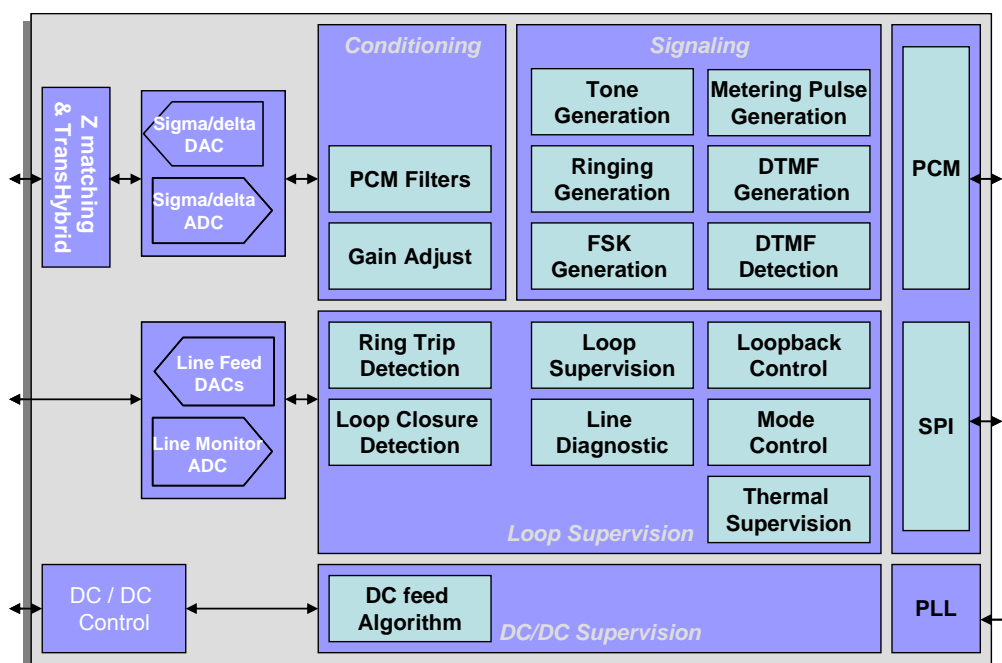
The W681388 implements a single channel FXS telephone line interface optimized for short loop applications. It integrates SLIC (Subscriber Line Interface Circuit) functionality with a programmable CODEC and a DC-to-DC controller. The SLIC supports internal ringing up to 90 V<sub>PK</sub> (5 REN at 4 kft), ideal for customer premise equipment (CPE). The CODEC can be configured for  $\mu$ -law/A-law or 16-bit linear PCM encoding and supports a comprehensive set of signaling capabilities required to supervise and control both telephone lines. These include tone generation (including ring tones), DTMF generation and detection as well as FSK and metering pulse generation. An on-chip pulse width modulation (PWM) driver allows the control of DC-to-DC conversion for the line. Programmable impedance and transhybrid balancing allow for worldwide deployment.

### APPLICATIONS

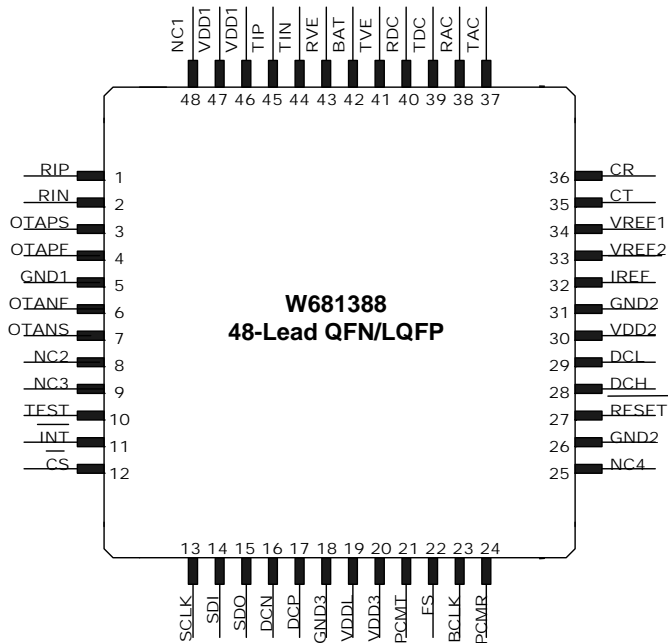
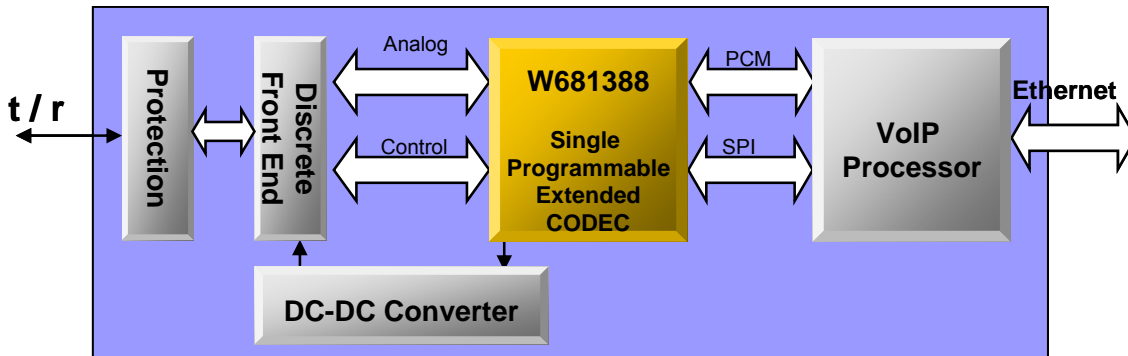
- Analog Telephone Adapter
- Voice enabled DSL Modems
- Voice enabled Cable Modems
- Residential VoIP Gateways / Routers
- Integrated Access Devices
- Fiber to the Premise/Home (FTTP/H)
- Optical Network Terminals (ONT)
- Set Top Boxes
- Wireless Local Loop
- PBX

### FEATURES

- Performs complete BORSCHT functions for a single channel with a single device
- Internal balanced ringing up to 90V<sub>PK</sub> (5REN up to 4kft)
- Integrated Power Management
  - Integrated DC-DC controller regulates battery voltage to minimize power dissipation in all operating modes
- Programmable linefeed characteristics
  - Ringing frequency, amplitude, cadence
  - Trapezoidal and Sinusoidal waveforms
  - Two-wire AC impedance, transhybrid balance
  - Constant Current feed (20 to 41mA)
  - Ring trip and loop closure thresholds
- Programmable signal generation
  - DTMF generation and detection
  - Metering pulse generation (12/16kHz)
  - Enhanced Caller ID (FSK) generation (Type I and Type II)
  - Tone generation (up to four simultaneous)
  - G.711  $\mu$ -Law/A-Law / 16-bit linear PCM audio
- Loop test and diagnostics support
  - Integrated loopback modes
  - Realtime linefeed monitoring
  - On-chip temperature sensor
- PCM and SPI bus digital interfaces
  - PCM Master and Slave modes supported
- On-chip PLL for flexible clocking options including 1MHz / 2MHz
- 3.3V operation
- Small Footprint Packages: LQFP-48, QFN-48



## Application Example: Analog Telephone Adapter (ATA) supporting 1 voice port



## 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

## W681388 ORDERING INFORMATION

Part Number	Package	Notes
W681388DG	LQFP-48	Pb-Free
W681388YG	QFN-48	Pb-Free

**Note:** For more details on the W681388, please refer to Winbond America's web site at: <http://www.winbond-usa.com>



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### Winbond Electronics Corporation America

2727 North First Street  
San Jose, CA 95134, U.S.A.  
TEL: 1-408-474-1612 (Americas)  
TEL: 1-408-474-1671 (Europe)  
FAX: 1-408-544-1787

### Winbond Electronics (Shanghai) Ltd./Shenzhen

15F, New World Commercial Center  
6009 Yi Tian Road  
Fu Tian District, Shenzhen, P.R. China  
TEL: 86-755-83515350  
FAX: 86-755-83515348

### Winbond Electronics Japan

No. 2 Ueno-Bldg., 7-18, 3-chome  
Shinyokohama Kouhoku-ku  
Yokohama-shi, 222-0033 Japan  
TEL: 81-45-4781881  
FAX: 81-45-4781800

### Winbond Electronics (H.K.) Ltd.

Unit 9-15, 22F, Millennium City 2,  
378 Kwung Tong Rd.  
Kowloon, Hong Kong  
TEL: 852-27513100  
FAX: 852-27552064

### Winbond Electronics (Taipei)

9F, No. 480, Rueiguang Rd.  
Neihu Chiu  
Taipei, 114, Taiwan  
TEL: 886-2-81777168  
FAX: 886-2-87153579

### Winbond Electronics Ltd.

27F, 2299 Yan An Road (West)  
Shanghai, P.R. China 200336  
TEL: 86-21-62365999  
FAX: 86-21-62365998