VE880 Series
VoicePort™ Device
Le88311/331

APPLICATIONS

- **Voice enabled Cable and DSL Modems**
- **Voice over IP/ATM - Integrated Access Devices (IAD)**
- **Smart Residential Gateways (SRG) and Routers**
- **Media Terminal Adapters (MTA) Standalone & Embedded**
- **Fiber to the User/Premise/Home (FTTH/P/H), Fiber in the Loop (FITL) Optical Network Terminals (ONT)**
- **Wireless Local Loop (WLL), PBX, ISDN NT1/TA**
- **Set-Top Box, Home Side Box**

FEATURES

FXS Channel 1:

- **Complete BORSCHT function in a single VoicePort™ device**
  - **B**attery Feed, **O**ver-voltage support, integrated **R**inging, line **S**upervision, **C**odec, **H**ybrid (2W/4W), **T**est
- **Integrated Power Management**
  - Integrated high voltage switching regulator controller
    - Wide input voltage range (VSW =+3.3V to +35 V)
  - Low power Idle and On-hook transmission states
- **Worldwide Programmability**
  - Two-wire AC impedance, Balance Impedance, Gain
  - DC feed voltage and current limit
  - Ringing frequency, voltage and current limit
  - 12-kHz and 16-kHz Metering
  - Programmable loop closure and ring trip thresholds
- **Ringing**
  - 5 REN with pin for pin compatible 100-V (Le88311) and 150-V (Le88331) devices
  - Up to 140-Vpk internal balanced sinusoidal or trapezoidal ringing with programmable DC offset
  - Unbalanced ringing for PBX trunk compatibility (Le88331 device only)
- **Powerful signal generator**
  - Universal Caller ID generation
  - Up to four simultaneous tones
  - Automatic cadencing feature
- **Subscriber Loop Test/Self Test support**
  - Comprehensive line sensing
  - Integrated self test capabilities
  - Line fault detection and reporting
  - Test load switch (Le88331 device only)

Digital Interfaces:

- **Pin-selectable PCM/MPI or GCI interface**
- **G.711 μ-law, A-law, or 16-bit linear coding**
- **Integrated 150 mW 3-V or 5-V Relay Driver**
  - Supports lifeline POTS in DSL IAD applications

ORDERING INFORMATION

Device	Package
Le88311DLC	80-pin eLQFP (Green package)*
Le88331DLC	80-pin eLQFP (Green package)*

*Green Package. meets RoHS Directive 2002/95/EC of the European Council to minimize the environmental impact of electrical equipment.
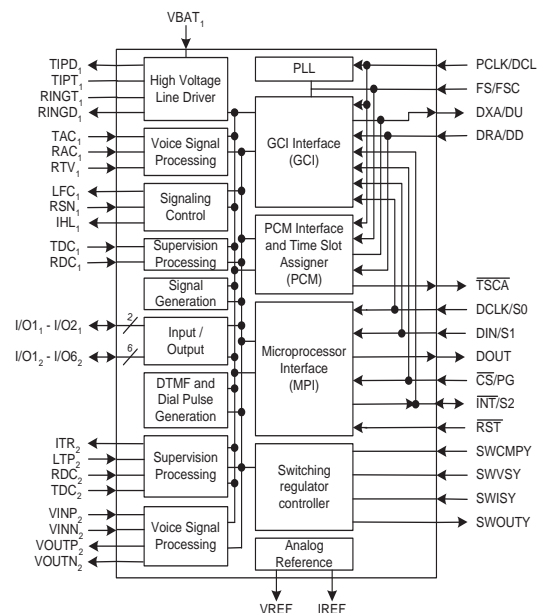
FXO Channel 2:

- **In combination with a Data Access Arrangement (DAA), provides a complete phone line termination to digital interface solution**
  - Ringing signal, Disconnect, Line in use and Line polarity detection
  - On hook transmission
  - Caller ID pass through
- **Compatible with solid state or transformer DAA's**
- **Programmability**
  - Two-wire AC impedance, Balance Impedance, Gain
  - Disconnect, Line in use and Line polarity thresholds
  - Ringing frequency discrimination
  - DTMF tone generators
  - Dial Pulse and DTMF timing / cadence control
  - 6 General purpose Input/Output pins

Additional Features:

- **Small footprint package - Exposed pad 80-pin LQFP**
- **Minimal external discrete components required**

BLOCK DIAGRAM

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FEATURES	BENEFITS
• Highest level of integration	• Reduces system BOM and discrete component count
• Smallest footprint	• Saves board space
• Pin-compatible options	• Provides design flexibility to develop one design and populate the voice socket with the right features for a given market—100 V or 150 V, internal balanced (sinusoidal or trapezoidal) or unbalanced ringing
• Lowest power solution across all operating modes	• Provides best solution for battery-backed and power-sensitive applications
• Highly programmable	• Offers design flexibility to develop one application for worldwide markets • Enables designer complete control over transmission and signalling features
• Integrated ring cadencing and system state control	• Reduces real-time software overhead
• Comprehensive line sensing	• Enables high performance 909 diagnostics and subscriber loop test and self test support
• Integrated switching regulator	• Enables lowest component count and highest efficiency in all states of operation
• Seamless and compatible interface with solid state or transformer DAA	• Provides complete design flexibility to choose optimal DAA solution for target market
• Highest level of integration	• Reduces system level cost and board space
• Comprehensive line monitoring	• Enables supervision functions such as disconnect, ringing signal detection, line-in-use, line polarity detection, and parallel phone off hook
• Dial pulse generation with cadence and DTMF tones	• Reduces real-time software overhead

Related Literature and Supporting Collateral

■ **081309-Le88311/331 Dual-Channel VoicePort™ Device Data Sheet***

■ **Le71HR0825 - VE880 Series Line Module supporting 1FXS/1FXO Up to 100-V ringing with a 12-V Buck Boost Tracking Power Supply**

■ **Le71HK002 - Universal VoicePath™ Development / Demo Platform**

■ **Le71SK002 - VoicePath™ API-II Software System**

*Contact your Legerity Sales Representative to obtain the data sheet.

Packaging and Availability

See *Ordering Information* on first page.

For More Information

To find the Legerity Sales Office nearest you, visit our website at: www.legerity.com/contact/

To download or order data sheets, application notes, or evaluation tools, go to: www.legerity.com/literature/

For all other technical inquiries, please contact Legerity Tech Support at: techsupport@Legerity.com

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