



**THE DATASHEET OF
SI32281-A-FMR**



Si3228x Data Short

The Si3228x Dual ProSLIC[®] devices, in a single package, implement two complete foreign exchange station (FXS) telephony interfaces. The Si3228x devices operate from a 3.3 V supply and have standard PCM/SPI or 3-wire ISI digital interfaces. A pair of built-in dc-dc converter controllers can be used to automatically generate the optimal battery voltage required for each line-state, optimizing efficiency and minimizing heat generation. The Si3228x devices are designed to operate with capacitive boost tracking battery supply for lower power, cost, and footprint vs. other tracking or shared battery supplies in the industry. Self-testing and metallic loop testing (MLT) is facilitated by the built-in DSP, monitor ADC, and test load. The devices are available with wideband audio for better than PSTN voice quality, DTMF detection, and Smart Ringing. Smart Ringing reduces the peak current with 2-channel ringing for lower-cost ac-dc adapters. The Si3228x devices are available in a 7 x 7 mm 48-pin QFN or 8 x 8 mm 56-pin QFN package.

Applications:

- VoIP gateways and routers
- xDSL IADs
- Optical Network Terminals/Units (ONT/U)
- Analog Terminal Adapters (ATA)
- Cable eMTA
- Wireless Fixed Terminals (WFT)
- Wireless Local Loop (WLL)
- WiMAX CPE
- Private Branch Exchange (PBX)
- VoIP MDU gateways



KEY FEATURES

- Two complete FXS channels in a single 7x7 or 8x8 mm package
- Performs all BORSCHT functions
- Ideal for short- or medium-loop applications
- Ultra-low power consumption
- Patented low-power ringing
- Patent-pending Smart Ringing
 - Reduces peak current with 2-channel ringing
- Adaptive ringing
- Simplified configuration and diagnostics
 - Supported by ProSLIC API
 - Audio diagnostics with loopback
 - Integrated test load
- Wideband voice support
- On-hook transmission
- Loop or ground start operation
- Smooth polarity reversal
- Programmable interrupts
- Software-programmable parameters:
 - Ringing frequency, amplitude, cadence, and waveshape
 - Two-wire ac impedance
 - Transhybrid balance
 - DC current loop feed (10–45 mA)
 - Loop closure and ring trip thresholds
 - Ground key detect threshold
- Flexible integrated tracking DC-DC controller supporting patent-pending low-cost capacitive boost configuration
- DTMF Generation
- DTMF Detection (Si32281/3/5/7)
- 3-wire Integrated Serial Interface (ISI) or PCM interface
- A-Law/ μ -Law companding, linear PCM
- Pulse metering
- 3.3 V operation
- Pb-free/RoHS-compliant packaging

Table 1.1. Si3228x Ordering Guide

P/N	Description	Package Type	Max V _{BAT}	Temperature
Si32280-A-FM	Wideband Dual FXS, ISI interface	QFN48 ²	–106 V	0 to 70 °C
Si32280-A-GM	Wideband Dual FXS, ISI interface	QFN48 ²	–106 V	–40 to 85 °C
Si32281-A-FM	Wideband Dual FXS, ISI interface, DTMF detection	QFN48 ²	–106 V	0 to 70 °C
Si32281-A-GM	Wideband Dual FXS, ISI interface, DTMF detection	QFN48 ²	–106 V	–40 to 85 °C
Si32282-A-FM	Wideband Dual FXS, PCM interface, daisy-chain mode	QFN56 ²	–106 V	0 to 70 °C
Si32282-A-GM	Wideband Dual FXS, PCM interface, daisy-chain mode	QFN56 ²	–106 V	–40 to 85 °C
Si32283-A-FM	Wideband Dual FXS, PCM interface, DTMF detection, daisy-chain mode	QFN56 ²	–106 V	0 to 70 °C
Si32283-A-GM	Wideband Dual FXS, PCM interface, DTMF detection, daisy-chain mode	QFN56 ²	–106 V	–40 to 85 °C
Si32284-A-FM	Wideband Dual FXS, ISI interface, Smart Ringing	QFN48 ²	–106 V	0 to 70 °C
Si32284-A-GM	Wideband Dual FXS, ISI interface, Smart Ringing	QFN48 ²	–106 V	–40 to 85 °C
Si32285-A-FM	Wideband Dual FXS, ISI interface, DTMF detection, Smart Ringing	QFN48 ²	–106 V	0 to 70 °C
Si32285-A-GM	Wideband Dual FXS, ISI interface, DTMF detection, Smart Ringing	QFN48 ²	–106 V	–40 to 85 °C
Si32286-A-FM	Wideband Dual FXS, PCM interface, daisy-chain mode, Smart Ringing	QFN56 ²	–106 V	0 to 70 °C
Si32286-A-GM	Wideband Dual FXS, PCM interface, daisy-chain mode, Smart Ringing	QFN56 ²	–106 V	–40 to 85 °C
Si32287-A-FM	Wideband Dual FXS, PCM interface, DTMF detection, daisy-chain mode, Smart Ringing	QFN56 ²	–106 V	0 to 70 °C
Si32287-A-GM	Wideband Dual FXS, PCM interface, DTMF detection, daisy-chain mode, Smart Ringing	QFN56 ²	–106 V	–40 to 85 °C

Note:

1. Adding the suffix "R" to the part number (e.g., Si32282-C-FMR) denotes tape and reel.
2. QFN - Quad-Flat No-leads

Copyright © 2021 Skyworks Solutions, Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions, Inc. ("Skyworks") products or services. These materials, including the information contained herein, are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials or the information contained herein. Skyworks may change its documentation, products, services, specifications or product descriptions at any time, without notice. Skyworks makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

No license, whether express, implied, by estoppel or otherwise, is granted to any intellectual property rights by this document. Skyworks assumes no liability for any materials, products or information provided hereunder, including the sale, distribution, reproduction or use of Skyworks products, information or materials, except as may be provided in Skyworks' Terms and Conditions of Sale.

THE MATERIALS, PRODUCTS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SKYWORKS DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO ANY SPECIAL, INDIRECT, INCIDENTAL, STATUTORY, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION, WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.


Skyworks products are not intended for use in medical, lifesaving or life-sustaining applications, or other equipment in which the failure of the Skyworks products could lead to personal injury, death, physical or environmental damage. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

Customers are responsible for their products and applications using Skyworks products, which may deviate from published specifications as a result of design defects, errors, or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance, customer product design, or damage to any equipment resulting from the use of Skyworks products outside of Skyworks' published specifications or parameters.

Skyworks, the Skyworks symbol, Sky5®, SkyOne®, SkyBlue™, Skyworks Green™, Clockbuilder®, DSPLL®, ISOModem®, ProSLIC®, and SiPHY® are trademarks or registered trademarks of Skyworks Solutions, Inc. or its subsidiaries in the United States and other countries. Third-party brands and names are for identification purposes only and are the property of their respective owners. Additional information, including relevant terms and conditions, posted at www.skyworksinc.com, are incorporated by reference.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View SI32281-A-FMR on WIN SOURCE](#)
-  [Skyworks Solutions Inc. Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management