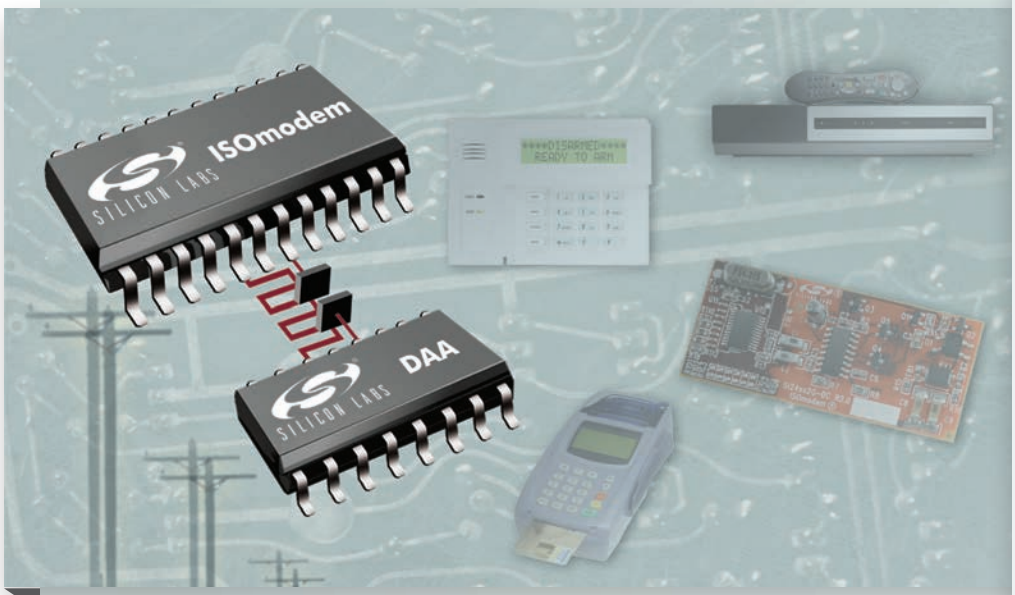
ISOmodem® Solutions

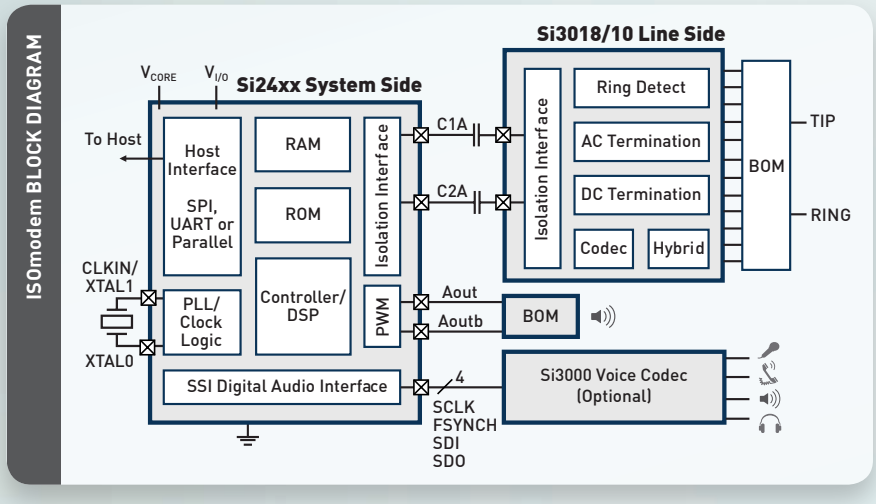
www.silabs.com/ISOmodem



DESCRIPTION

The ISOmodem family of products are complete modems ranging in speed from 2400 bps to 56,000 bps. Offered as a chipset with a 16-pin global line side device, the ISOmodem utilizes Silicon Laboratories' patented direct access arrangement (DAA) technology to provide a programmable telephone line interface with an unparalleled level of integration. The universal design can support all speeds and countries with a single Bill of Materials (BOM). These compact solutions eliminate the need for a separate DSP, modem controller, codec, transformer, relay, opto-isolators, clocking crystal and 2-4 wire hybrid. These devices are ideal for embedded data modem and data/voice modem applications due to their flexibility, small footprint, and minimal external components.

ISOmodem BLOCK DIAGRAM



FEATURES

- AT command set
- ITU-T "V-dot" protocols up to 56 kbps
- Error correction and data compression
- Fast-connect protocols for POS
- Security industry protocols, e.g. "Contact ID" and SIA
- SMS/MMS support including China
- DTMF generation and detection
- General purpose tone detectors
- Global Caller ID type 1 and type 2 decoding
- Integrated DAA
  - Over 6 kV surge immunity
  - On- and off- hook line voltage monitoring
  - Parallel phone (intrusion) detection
  - Over-current detection
- Supports handset, speakerphone and answering machine functionality
- Advanced voice processing
  - Acoustic Echo Cancellation
  - Line Echo Cancellation
  - Limiter for "Soft Clipping"
  - Programmable filtering and pre-emphasis
- UART, SPI or parallel host interface
- Flexible clock options including low-cost 32.768 kHz oscillator
- Low power; single 3.3 V supply
  - 15 mw in wake-on-ring or wake-on-polarity
  - 56 mW in normal operation
- Firmware upgradeable
- EEPROM interface
- Lead-free, RoHS-compliant packages
- Commercial or industrial temperature range

BENEFITS

- Smallest, most compact modem solution
- Lowest external component count and cost
- Minimal software development
- Proven performance and global compliance

APPLICATIONS

- Set-top boxes
- Point-of-sale terminals
- Security systems
- Videophones
- Medical monitoring equipment

EMBEDDED DATA MODEMS AND DATA/VOICE MODEMS WITH INTEGRATED GLOBAL DAA

MORE INFORMATION AND DOCUMENTATION DOWNLOADS AT: silabs.com/ISOmodem

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Highest Level of Integration

By integrating the DSP, modem controller, RAM and ROM, the ISOmodem significantly reduces the software development time and system resources needed to implement a full-featured modem.

Smallest Footprint

The ISOmodem is the smallest complete modem solution on the market (<30 external components). This eases PCB layout, procurement and compliance while the smaller footprint allows for more functions on a given PCB.

Proven, Robust Solution

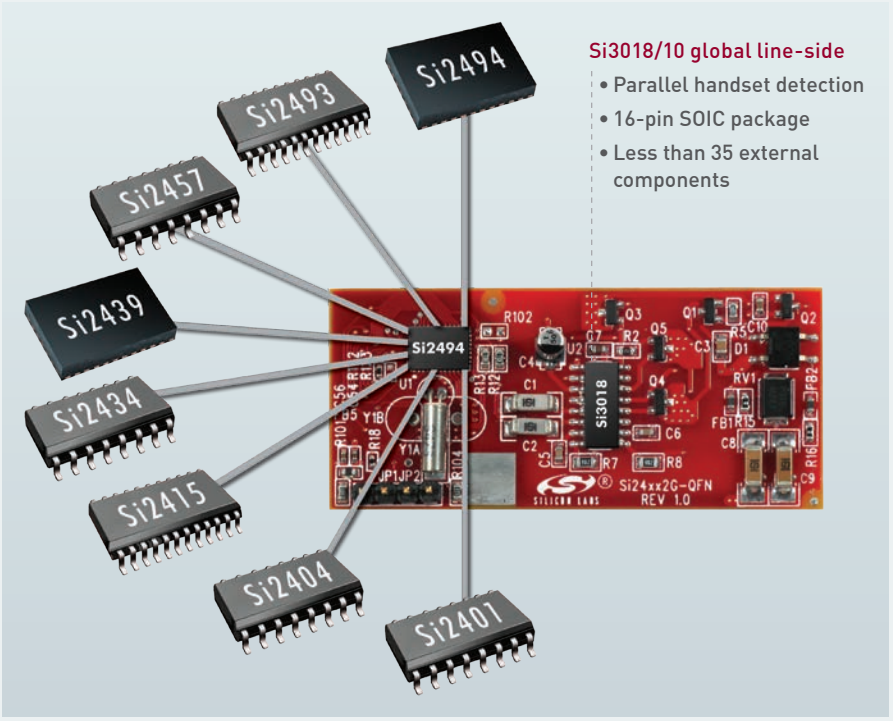
Silicon Labs' proven DAA technology gives the ISOmodem excellent surge immunity and reliable worldwide performance and compliance.

M2M Communications

The full suite of M2M communications capabilities includes general-purpose ITU-T data protocols with error correction and compression as well as application specific functions such as Fast Connect and security industry protocols. DTMF detection and programmable tone detectors/ generators support custom protocols as well as voice menus.

Excellent Voice Fidelity

When combined with the Si3000 voice codec, the Si2494/39 supports half- or full-duplex speaker phone, telephone answering machine, handset, and voice menu functions. Advanced digital signal processing optimizes audio fidelity for an elegant end-user experience. CID Type 1 and 2 and SMS round out the telephony feature set.



Compact Design with Fewest External Components

ISOmodem Embedded Data Modems

PART NUMBER	MAX DATA RATE (bps)	LINE SIDE DEVICE	HOST INTERFACE	HANDSET, TAM AND SPEAKERPHONE	ERROR CORRECTION/ DATA COMPRESION	PACKAGE
Si2401	2400	Si3010	UART			SOIC16
Si2404	2400	Si3010	SPI, UART or parallel		•	TSSOP24 or SOIC16
Si2415	14400	Si3018	SPI, UART or parallel		•	TSSOP24 or SOIC16
Si2434	33600	Si3018	SPI, UART or parallel		•	TSSOP24 or SOIC16
Si2439	33600	Si3018	SPI, UART or parallel	•	•	QFN38
Si2457	56000	Si3018	SPI, UART or parallel		•	TSSOP24 or SOIC16
Si2493	56000	Si3018	SPI, UART or parallel		•	TSSOP24 or SOIC16
Si2494	56000	Si3018	SPI, UART or parallel	•		QFN38

TAM: Telephone Answering Machine

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