



# U.S./International Modem DAA Line Codec Chipset

## AD1803/AD1804

### FEATURES

**Low Power Modem Codec AD1803 and Silicon DAA AD1804**

**AD1803 Can Be Used as a Stand-Alone Modem/Voice/Telephony Codec Independent of the AD1804**

**Intel AC'97 Rev 2.1-Compliant Modem Codec Implementation**

**AC'97 or DSP Style Serial Interface**

**Supports all Modem/Fax Standards Including V.90**

**Software Programmable DAA and Compliant with U.S. and International PTT Standards**

**FCC and CTR21 Approved**

**Capacitively Coupled Clock and Data Interface Across Isolation Barrier**

**Multiple Crystal/Clock Rates Supported**

**Programmable Gain, Attenuation and Mute**

**On-Chip Signal Filters**

**Digital Interpolation and Decimation Filters**

**Analog Output Low Pass**

**Programmable Sample Rates**

**From 6.4 kHz to 16 kHz**

**With 1 Hz, 8/7 Hz and 10/7 Hz Resolution**

**Digital Monitor Speaker Output**

**Integrated Ring Detector and Support for Soft Caller-ID Decode**

**24-Lead TSSOP Package**

**0.6  $\mu$ m CMOS Technology**

**Operation from 3.3 V or 5 V Supply**

**Advanced Power Management**

**Supports Wake-Up on Ring from D3-Cold System State**

### APPLICATIONS

**Modems (PC and Embedded)**

**Voice and Telephony**

**Fax Machines, Answering Machines, Speakerphones**

**PBX Systems**

**Smart Appliances**

### REFERENCE DESIGN

**Available**

### PRODUCT OVERVIEW

The AD1803/AD1804 chipset allows the implementation of a low-cost full Modem DAA Line Interface and codec with minimal external components. The AD1803 can also be used as a stand-alone codec for voice/handset/telephony applications, or as a cellular telephone interface.

The AD1803 is an Intel AC'97 Rev 2.1-compliant modem codec (refer to Intel's AC'97 specifications at [www.intel.com](http://www.intel.com)) with selectable AC'97 or a DSP-style serial interface.

The AD1803 codec uses high-performance sigma-delta ADC and DACs with programmable gain/attenuation. It has a digital monitor output with selectable mix from ADC and DAC channels for call progress monitoring. The AD1803 supports ring validation and wake-up interrupt output signalling. The AD1803 has programmable filters dedicated to impedance synthesis and when used with the AD1804, it provides a complete digital line termination impedance synthesis control loop.

The AD1804 is a solid-state line-side analog phone interface device that replaces a conventional discrete DAA. The AD1804 eliminates the need for transformer, relays, opto-isolators and a 2-to-4-wire hybrid. The AD1804 uses high-performance sigma-delta ADC and DACs with programmable gain/attenuation. It has digitally selectable line termination impedances.

The AD1804 features a Ring Detect comparator making the chipset capable of ring and line reversal detection and validation. The Ring/CID Buffer allows any line signal, whether ring, line reversal, or even Caller ID data, to be sampled and driven directly into the codec's main ADC channel for processing independent of the AD1803.

The AD1804's dc line-hold current DAC, dc line voltage sense ADC and the hold current regulator supports off-hook and pulse dialing functions in addition to meeting the dc hold requirements of a given country. The AD1804 CTR21 circuit allows the implementation of a high power dc shunt path without the need for costly external high-power transistors to ensure compliance to CTR21 DC hold current limit requirements.

The AD1804 hybrid provides 2-to-4-wire conversion, local echo cancellation and correctly terminates the transmission line.

The AD1803/AD1804 chipset features Analog Device's proprietary isolation barrier techniques using low-cost high-voltage capacitors to meet US and international isolation requirements.

The AD1803/AD1804 supports several advanced power management features with several power-saving modes. The chipset also supports wake-up on ring from D3-Cold system state.

# AD1803/AD1804

## ORDERING GUIDE

Model	Temperature Range	Package Description	Package Option
AD1803JRU	0°C to 70°C	24-Lead Thin Shrink Small Outline Package	RU-24
AD1804JRU	0°C to 70°C	24-Lead Thin Shrink Small Outline Package	RU-24

## OUTLINE DIMENSIONS

Dimensions shown in inches and (mm).

### 24-Lead TSSOP (RU-24)

