Winbond's W681512 Single-Channel CODEC

Preliminary Product Bulletin

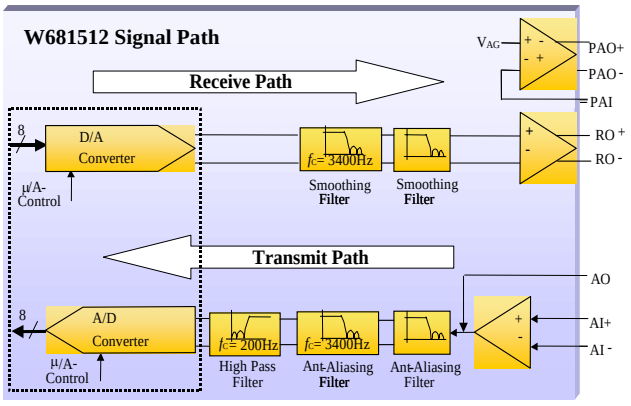
The W681512 single channel voice CODEC is an analog-to-digital and digital-to-analog converter that complies with ITU-T G.712 specifications. The CODEC features complete μ-Law and A-Law companders (pin selectable) that are designed to comply with ITU-T G.711 specifications. The chip also offers a fully differential analog output.

In order to provide the cleanest possible signal, the W681512 CODEC complies with the ITU-T G.712 recommendation for analog-to-digital pre-filters (also known as anti-aliasing filters) and Digital-to-Analog post filter (signal smoothing filter).

The W681512 CODEC contains an additional analog power amplifier that drives higher current output. The power amplifier gain levels can be adjusted via a set of external resistors to drive an output level of up to 6.3V, peak-to-peak, across a 300-Ω load.

The PCM interface for the W681512 produces 8-bit digital data (μ-Law or A-Law) at a sampling rate of 8kHz. It can communicate in four different clock formats; short frame sync, long frame sync, IDL and CGI. The W681512 is available in 20-pin SOP and SSOP packaging.

For evaluation and prototyping purposes, a development kit, the W681512DK, is available to provide the system designer with a flexible method for developing and testing an application on a single, standalone platform.



Features

- Single supply voltage: 4.5 - 5.5V
- Typical power dissipation: 30mW, power-down of 0.5μW
- Fully-differential analog circuit design
- Differential outputs
- On-chip precision reference voltage of 1.575V for a 0dBm TLP @ 600Ω
- Push-pull 300Ω power drivers with external gain adjust
- 8 kHz sample rate
- Master clock rates: 256 kHz, 512 kHz, 1536 kHz, 1544 kHz, 2048 kHz, 2560 kHz and 4096 kHz
- Pin-selectable μ-Law and A-Law companding (full compliance with ITU-T G.711)
- CODEC A/D and D/A filter compliance with ITU-T G.712 specifications
- PCM interface: Short Frame Sync, Long Frame Sync, IDL and GCI timing environments
- Temperature range: Industrial grade (-40^{0}C to 85^{0}C)
- Packaging: 20-pin SOP

Benefits

- Low power competitive solution
- System level customization
- Cross references with the Motorola® MC145480 & MC14LC5480

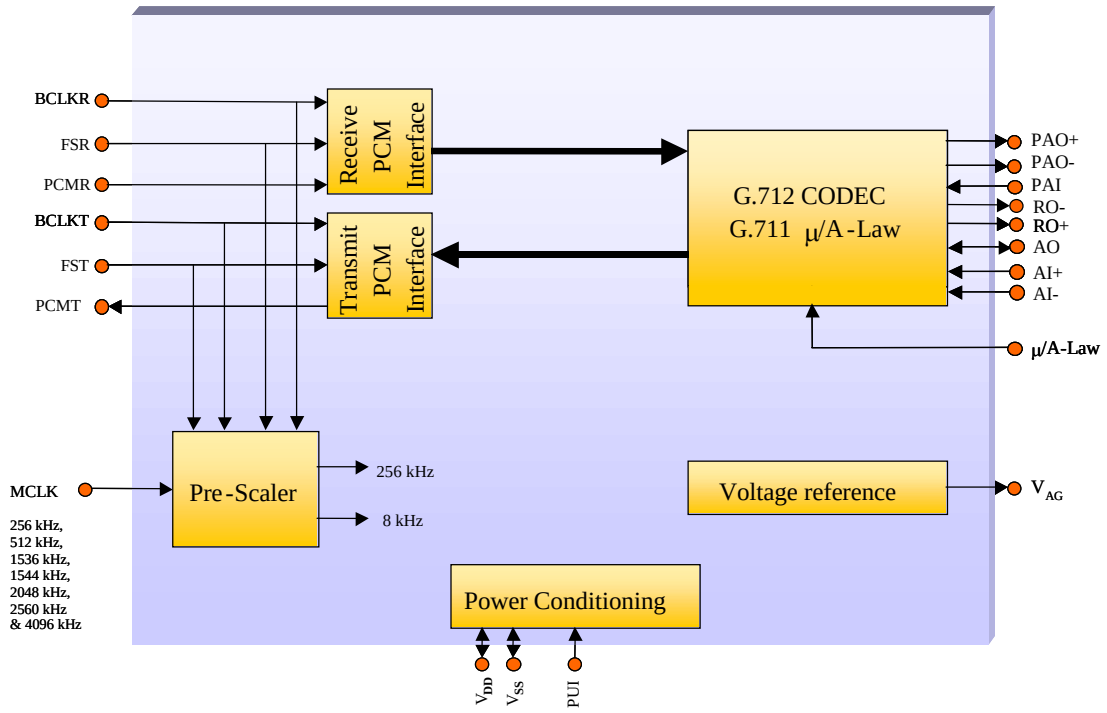
CODEC Applications

- VoIP, Voice over Networks
- PBX systems (gateways, switches)
- PABX/SOHO systems
- Local loop card
- SOHO routers
- Fiber-to-curb equipment
- Enterprise phones
- Digital telephone systems
- ISDN equipment
- Modems/PC cards

Development System

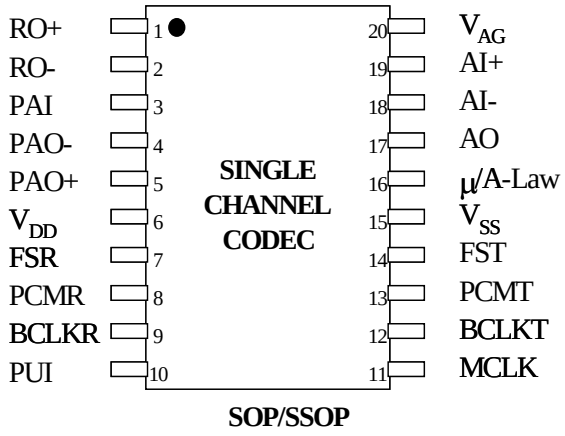
- The W681512DK is a development kit that can be configured in one of the following two modes:
  - **Stand alone** - capable of demo a loop back and prototype a design on a dedicated board space
  - **Back-to-Back** –enables full system test between two platforms

This document contains advance information and is subject to change.



W681512 Block Diagram

Pin #	Pin Name	Functionality
1	RO+	Non-Inverting Receive output
2	RO-	Inverting Receive output
3	PAI	Power amplifier inverted input
4	PAO-	Inverting Power Amplifier output
5	PAO+	Non-Inverting Power Amplifier output
6	V_{DD}	Positive power supply
7	FSR	Receive Frame Sync input
8	PCMR	PCM input data receive
9	BCLKR	Receive bit clock input
10	PUI	Power up indicator
11	MCLK	System master clock input
12	BCLKT	Transmit bit clock input
13	PCMT	PCM output data transmit pin
14	FST	Transmit Frame Sync input
15	V_{SS}	Ground power supply
16	μ/A-Law	μ-Law /A-Law companding select pin
17	AO	Transmit gain output
18	AI-	Inverting Transmit input
19	AI+	Non-Inverting Transmit input
20	V_{AG}	Analog signal reference ground output



SOP/SSOP

To order products or for more information:

Winbond Electronics Corporation America
2727 N. First Street
San Jose, CA 95134
Tel: 1-800-677-0769 (U.S. Only), 408-943-6666
Fax: 408-544-1789
e-mail: info@winbond-usa.com
Web: www.winbond-usa.com

Note: For more details on Winbond's W681512 please refer to the product datasheet.

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