

SPECIAL NOTE

The specifications herein still includes target specifications, which might be altered without any prior information.

GENERAL DESCRIPTION

The ML7036-001 is an IC device consisted with built-in line/acoustic-selectable echo canceller and two channels of PCM codec's for simple interfaces to a speaker and from a microphone (acoustic side) and for handset analogue voice interface (line side).

For the line interface, additionally μ -law PCM or 16-bit linear PCM digital interface is reserved for cellular phones with digital audio interface.

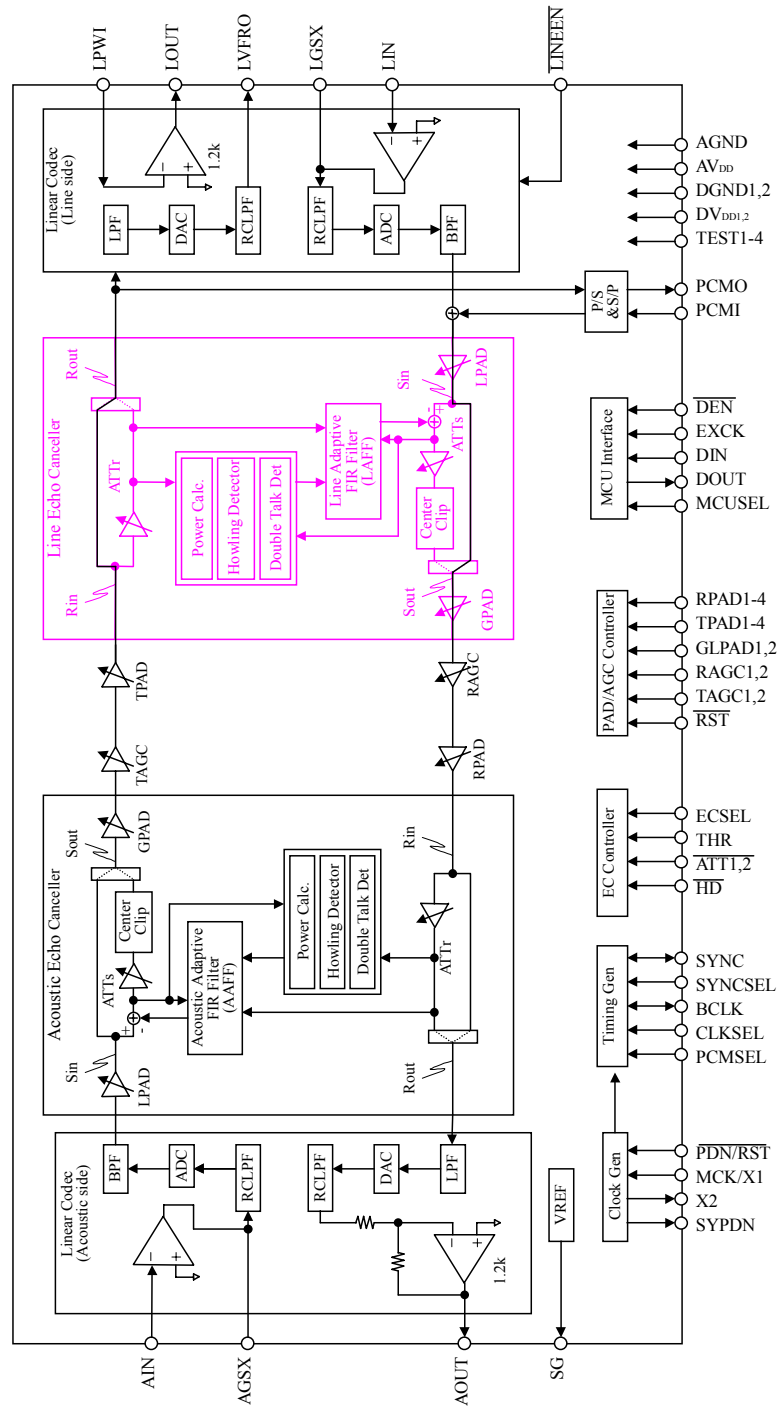
Equipped with gain and mute controls for data transmission and reception as well as an Auto Gain Control function which simplify your level diagram design, and transfer clock and sync clock generators for digital communication, ideally suited for a hands-free.

FEATURES

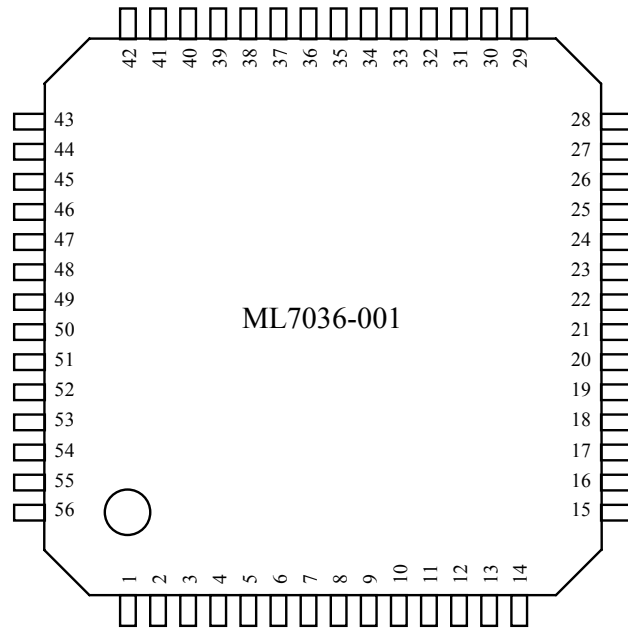
- Single 3 V Power Supply Operation (2.7 ~ 3.6V)
- Built-in line/acoustic-selectable 1-channel echo canceller
 - Echo attenuation : 35 dB (typ.) for white noise
 - Cancelable echo delay time : 27 ms (max.) (= default)
- 2-channels built-in CODEC's
 - Synchronous transmission and reception enables full duplex operation
- AGC's (Auto Gain Controllers) both on transmit and receive
- Built-in analog input gain amp stage (max. gain = 30 dB)
- Analog output configuration : Push-pull drive (can drive a 1.2 k Ω load)
- Digital interface coding formats : μ -law PCM, 16-bit linear (2's complement)
- Digital interface sync formats : Long-frame-sync, short-frame-sync
- Digital interface bit sequence : MSB-first, LSB-first (selectable by a control register)
- Built-in digital transmission clock generators
 - Sync clock (SYNC) : 8 kHz output
 - Transmission clock (BCLK) : 64 kHz output (μ -law PCM)/128 kHz output (16-bit linear)
- Digital transmission rate
 - External input : 64 to 2048 kbps
 - Internal generation : 64 kbps (μ -law PCM)/128 kbps (16-bit linear)
- Fixed digital interface sync clock (SYNC) enables automatic power-down
- Master clock frequency : 19.2 MHz
 - Compatible with crystal oscillator and crystal
- Low power consumption
 - Operating mode : (TBD) mA typ. (when $V_{DD} = 3.0$ V in a silent mode)
 - Power down operation : (TBD) mA typ. (when $V_{DD} = 3.0$ V in a silent mode)
- Transmit/receive mute function, transmit/receive selectable gain setting
- Control by both the serial microcomputer interface and parallel port is possible
- Package : 56-pin plastic QFP (QFP56-P-910-0.65-2K) (Product name: ML7036-001GA)

BLOCK DIAGRAM

Remarks : An acoustic echo canceller and a line echo canceller cannot be simultaneously enabled, and all the functionalities in an unselected echo canceller are disabled.



PIN CONFIGURATION (TOP VIEW) . . . NOT YET FIXED



NOTICE

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.
4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
5. Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of the product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.
6. The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property, or death or injury to humans. Such applications include, but are not limited to, traffic and automotive equipment, safety devices, aerospace equipment, nuclear power control, medical equipment, and life-support systems.
7. Certain products in this document may need government approval before they can be exported to particular countries. The purchaser assumes the responsibility of determining the legality of export of these products and will take appropriate and necessary steps at their own expense for these.
8. No part of the contents contained herein may be reprinted or reproduced without our prior permission.

Copyright 2000 Oki Electric Industry Co., Ltd.