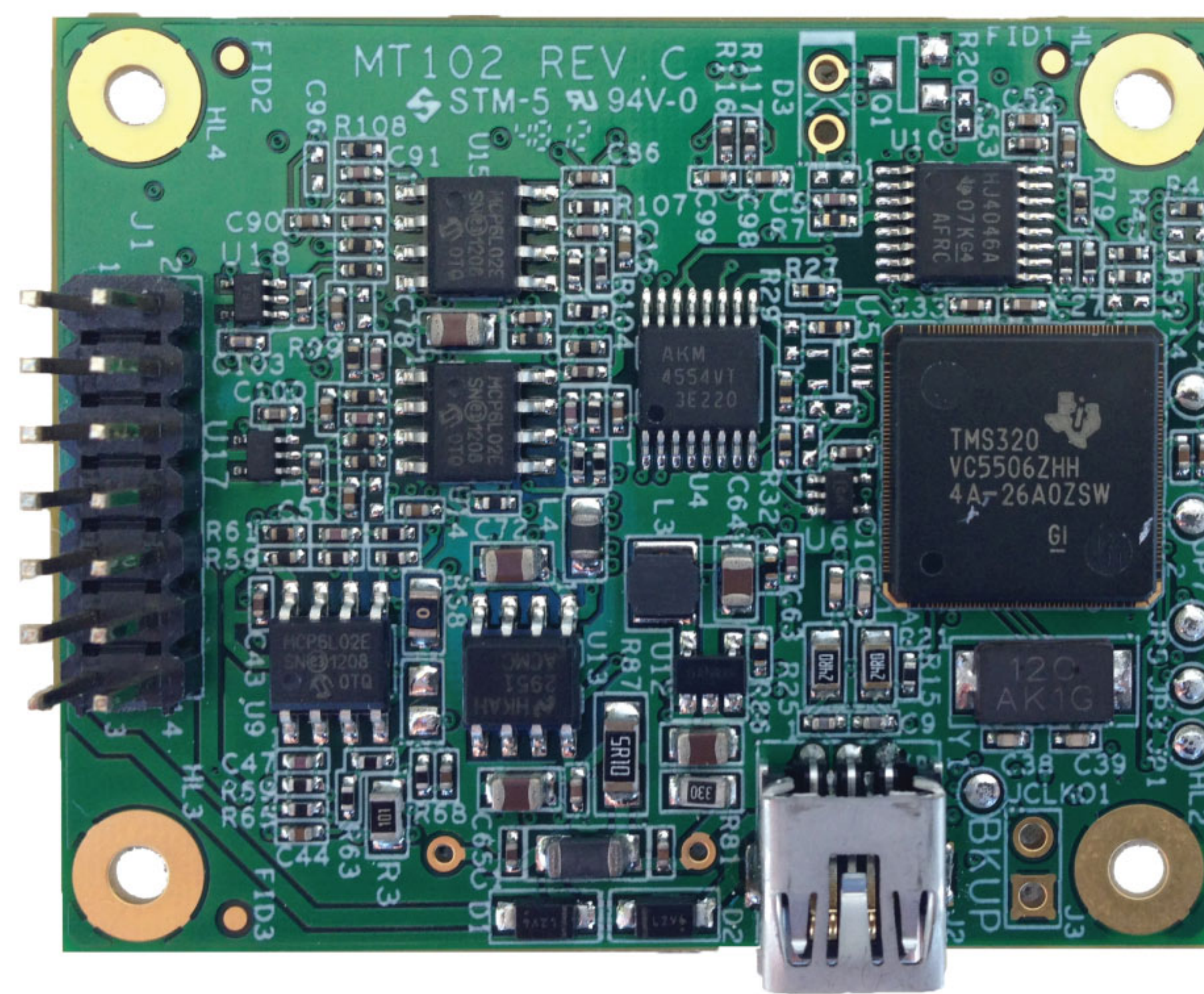


mt102

Signal Processing Daughter Board



Audio Signal Processing Solutions, *simplified.*

The MT102 is a small DSP board that is available with the latest audio software applications from Phoenix Audio Technologies. The board can be delivered with Phoenix's Acoustic Echo Canceller, Phoenix's Noise Suppression (one or two channels), or other customized application that can be custom tailored from the portfolio of algorithms available by Phoenix Audio Technologies.

The board comes with a USB connector, and a 14 pin analog header. The user can use the analog header to power the board, provide the required input signals, and obtain the output signals. Four, out of the fourteen pins, can be assigned as I/O control pins that the user can utilize to either control software parameters or receive various indications from the DSP. Alternatively, the user can use the USB port to power the board, receive the far end signal, and transmit the output signal to a computer platform.

The design of the board implements Low Noise Design features enabling use with High-End audio applications. The board is the perfect solution for OEMs that want to utilize Phoenix's technologies in their products. It is small, simple and easy to use, and runs on efficient power consumption.

SMALL

40 x 50 mm; 1.57" x 1.97"

EASY

Easy access 14 header for power supply, inputs, outputs and controls

FLEXIBLE

Available with Acoustic Echo Canceller
Single and Dual Channel Noise Suppression
Used as pure analog or a USB device
Single Channel advanced Noise Reduction Algorithms

CONTROLLABLE

Available I/O pins to control software parameters and / or return software indications

SPECIFICATIONS

Size

- 40mm x 50mm (1.57" x 1.97")

Power

- 4.5V - 6V
- 50mA

Audio Inputs / Outputs

- 2 Analog inputs - available at Line level or Mic level
- 2 Analog outputs - available at Line level or Mic level
- Digital I/O through the USB port

Other Available I/O pins

- External Reset
- Four programmable I/O pins

Acoustic Echo Canceller

Features

- 100% Full Duplex Performance - No Attenuation
- Acoustic Echo Cancellation > 40dB
- High - end Performance: Conforms to ITU-T G.167
- Noise Cancellation > 10dB
- Residual Echo is suppressed to the environment noise level to prevent artificial ducking of signal
- Voice Level Equalization
- Fast convergence speed - 40 dB/sec
- convergence during full duplex (no recovery time after full duplex)
- Very low latency (10msec) 16KHz sampling rate
- Advanced AGC algorithm

Available control options

- Set NR level
- Control residual suppression aggressiveness
- Control the level of the Voice Level Compensation
- Disable NR, VLC, AGC



Two Channel Noise Reduction

Features

- Process two independent channels
- Very low latency - 10 ms
- No Musical, no artifact
- Voice Level Compensation

Available control options

- Set the NR On/Off
- Set the NR level 12/20dB

MT102 - Pin Definition

PIN	Function	Direction	Description
1	Reset	In	Active Low
2	Output Flag	Out	Ready Flag
3	Not used	-	
4	Control Pin	In	Noise reduction - to disable connect V+
5	Control Pin	In	Acoustic Echo Cancellation - to disable connect V+
6	Control Pin	In	AGC - to disable connect to V+
7	5V Input	In	Supply
8	DGND		Supply GND
9	Ref Out	Out	Line level – max 2Vpp
10	3.3 OUT	Out	Via 1K ohm resistor
11	Audio In	In	Mic Level (0.15Vpp or Line level (max 2Vpp)
12	Ref IN	In	Line level – max 2Vpp
13	Audio Out	Out	Line level - max 2Vpp
14	AGND		Signal GND

The actual functionality of pins 2, 4, 5, and 6 depends on the specific implementation and will change one customer to another.

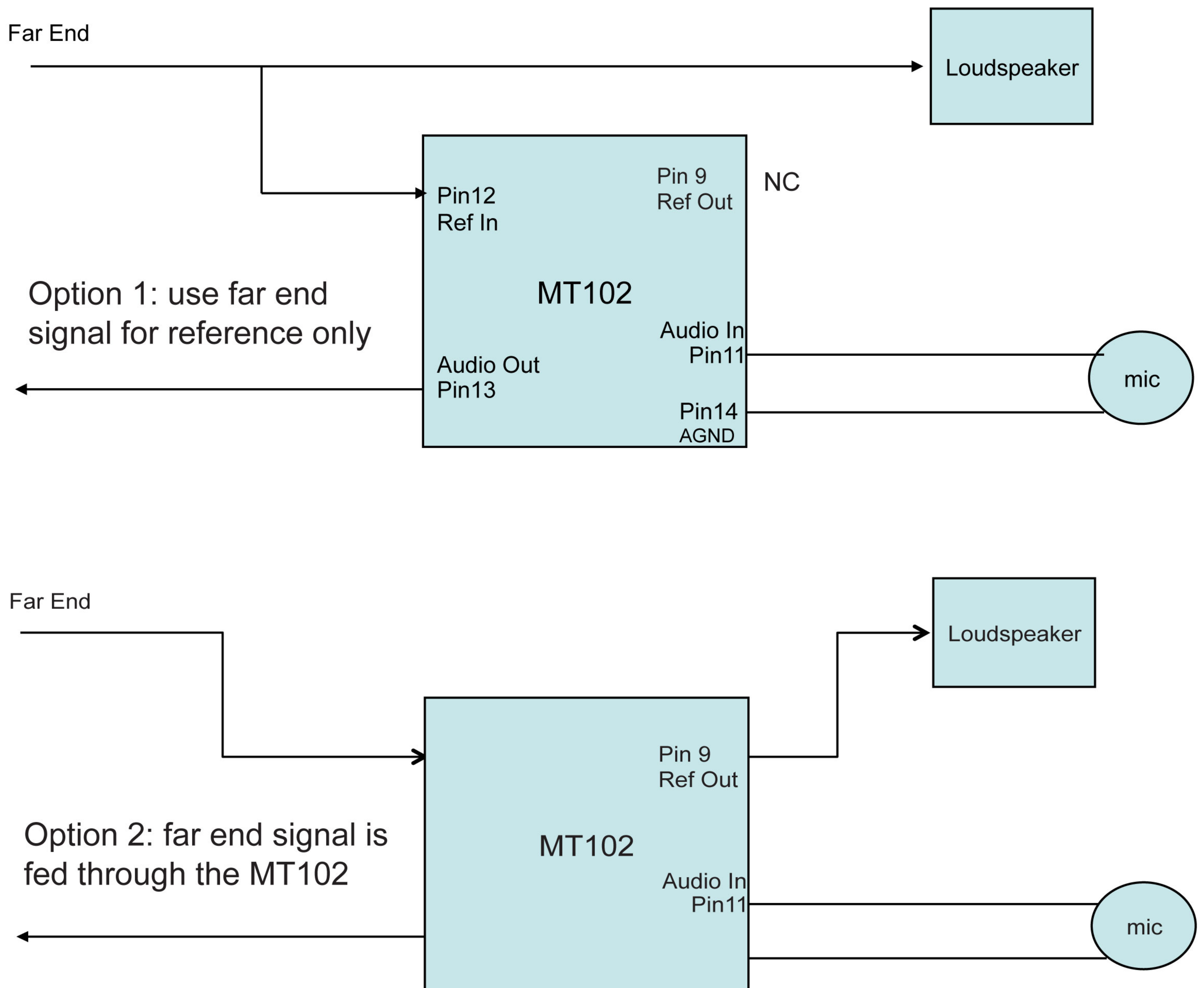
MT102 – Typical Pin Assignment for Acoustic Echo Canceling Implementation

PIN	Function	Description
7	5V Input	Supply
8	GND	Supply GND
9	Ref Out	Line level – max 2Vpp
11	Audio IN - Line In unit - Mic In unit	Max Input 2Vpp Max Input 0.15Vpp
12	Ref IN (Fe)	Line level – max 2Vpp
13	Out	Line level – max 2Vpp
14	AGND	Signal GND

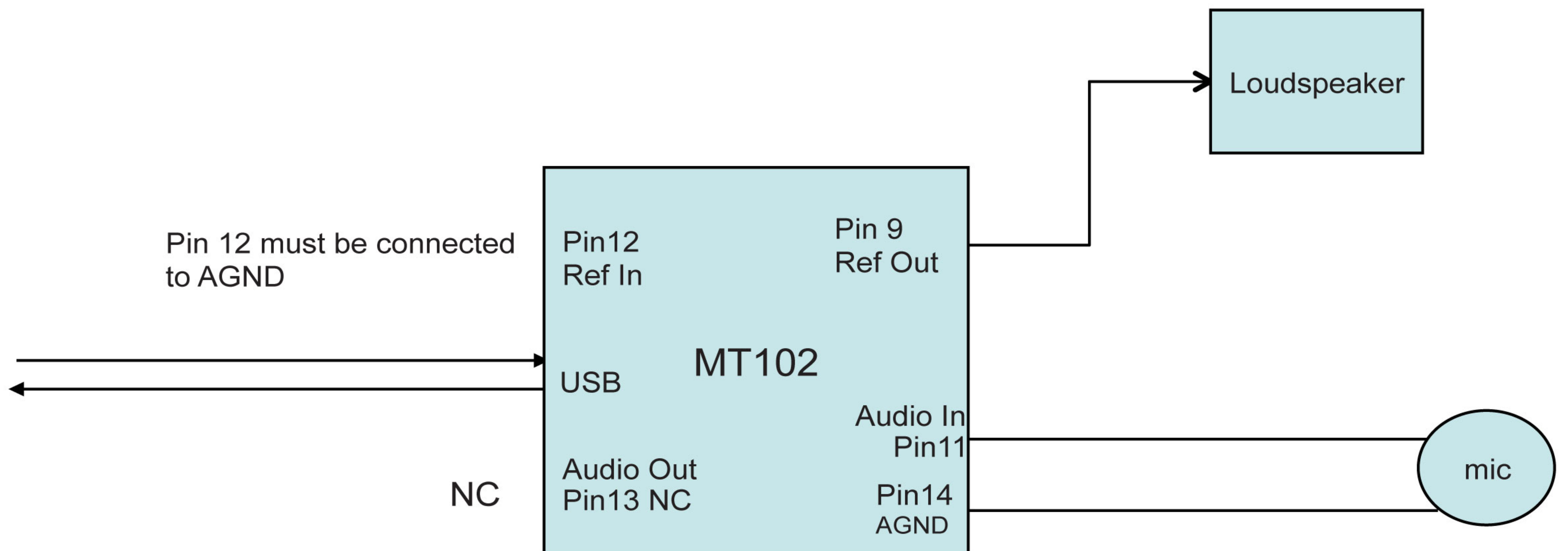
Audio IN definition (Line In or Mic In) varies from one implementation to another per the customer's definition

If communication is done using the digital (USB) port then pins 12 and 13 become redundant

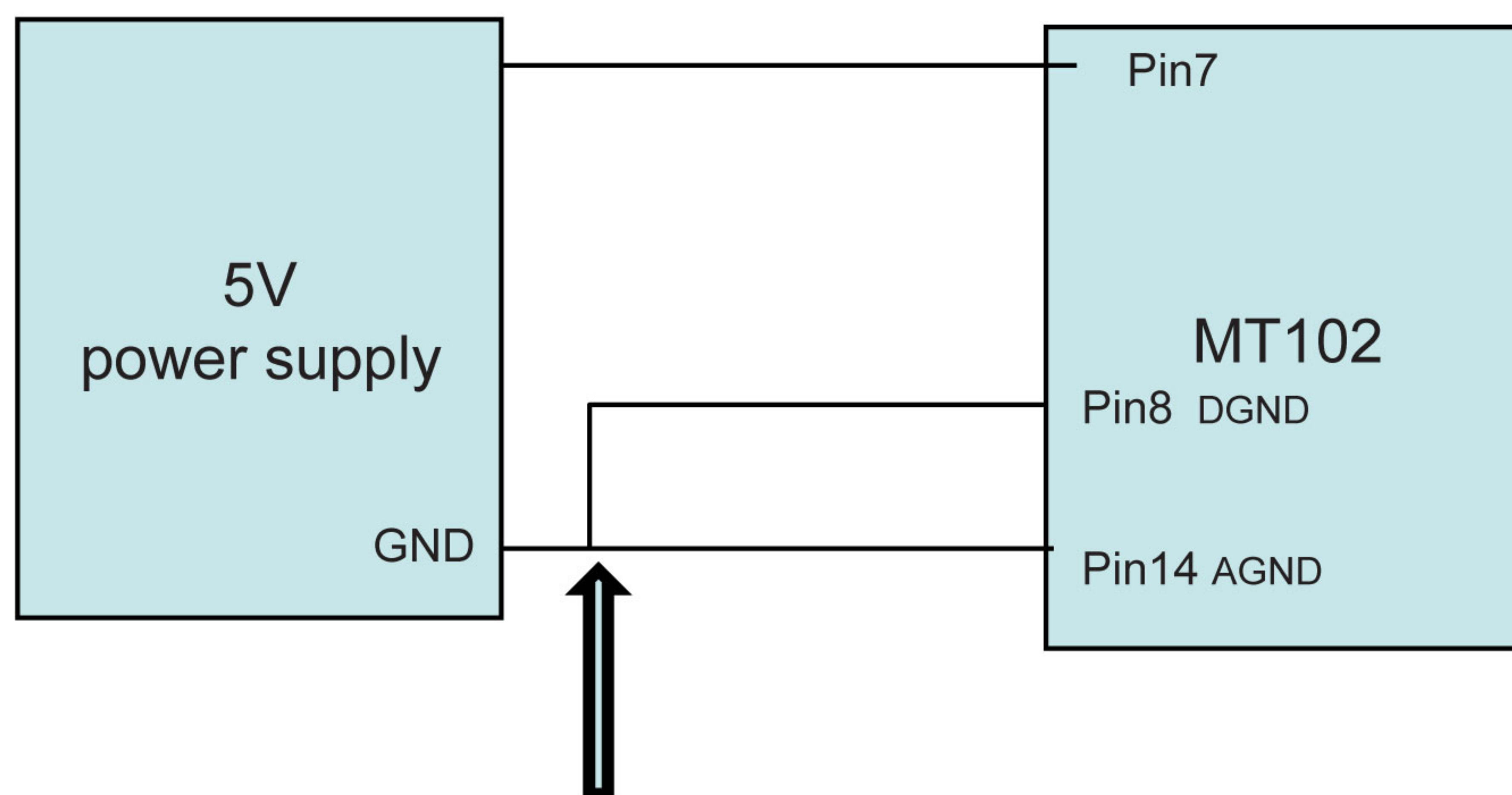
Typical Connections of the MT102 Using Analog I/O



Typical Connections of the MT102 Using Digital I/O



Recommended Power Connections



The ADNG and the DGND should be connected as near as possible to the power supply GND.

Phoenix MT102 Dimensions

