MR-MINI-12BIT-DAC™ Mini 12-BIT Digital-to-Analog Converter User Manual

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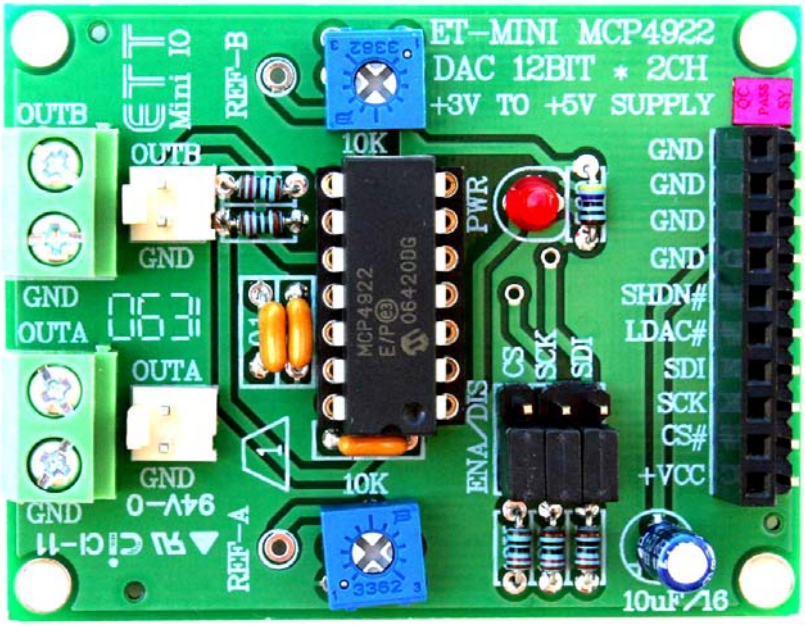

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Description

The MR-MINI-12BIT-DAC is a dual channel 12-Bit Digital-to-Analog Converters with optional 2x buffered output and SPI interface. There are no external components required. This makes it perfect for embedded systems that require digital-to-analog converter.

This board features innovations that set it apart from other digital-to-analog converter module. Innovations feature like on-board variable resistors for setup reference voltages, enable/disable jumpers, pull-up resistors, output terminal block and power LED. The module can be quickly connected discrete wires or header pins. The board is small and compact in size 2.20 x 1.70 inches.

The MR-MINI-12BIT-DAC is designed base on MCP4922 IC. They are DACs that provide high accuracy and low noise performance for industrial applications where calibration or compensation of signal (such as temperature, pressure and humidity) is required.

The devices utilize resistive string architecture, with its inherent advantages of low DNL error, low ratio metric temperature coefficient and fast settling time. These devices are specified over the extended temperature range. Also, include double buffered inputs, allowing simultaneous updates using the LDAC pin. These devices also incorporate a Power-On Reset (POR) circuit to ensure reliable power-up.

Please take a look at MCP4922 datasheet for more detail.

Features

- 12-Bit resolution
- Dual channel output and selectable output gain 1x or 2x
- Rail-to-rail output
- Fast settling time of 4.5uS
- Reference voltages VrefA and VrefB can be adjust from 0 to VCC via on-board potentiometer
- 2.7V to 5.5V single-supply operation
- SPI™ interface with 20MHz clock support
- Small and compact in size
- Four mounting holes on each corner
- Female and male header connector.

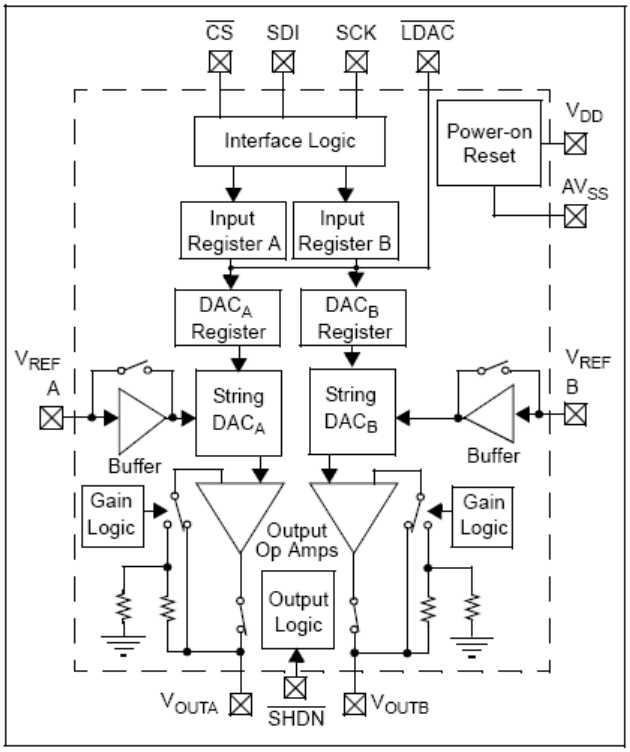

FIG 1: MCP4922 block diagram

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Pin out:

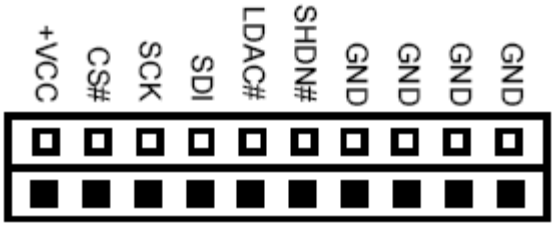

FIG 1: **Bottom view pin out**

Name	Type	Description
+VCC	PWR	Supply power (2.7V to 5.5V)
CS#	Input	Chip select input (active low)
SCK	Input	Serial clock input
SDI	Input	Serial data input
LDAC#	Input	Synchronization input used to transfer DAC setting from serial latches to the output latches
SHDN#	Input	Hardware shutdown input
GND	PWR	Supply ground

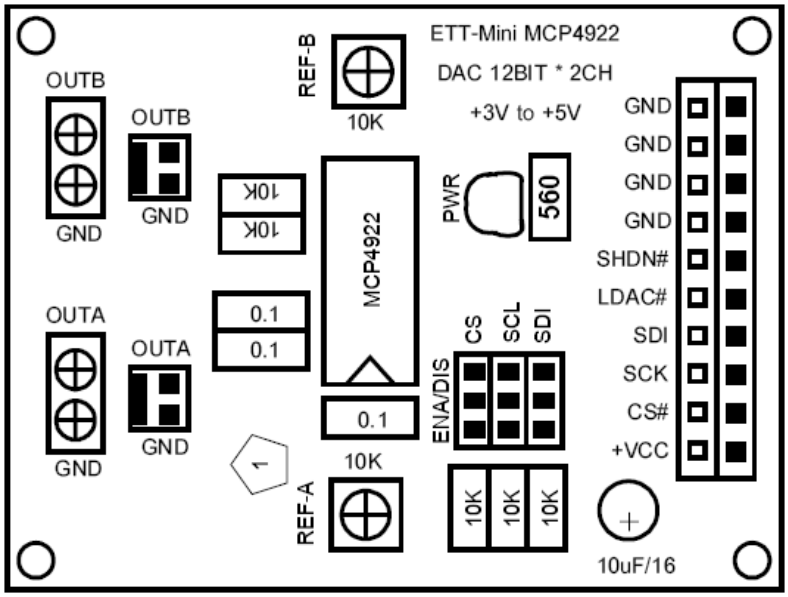

FIG 2: MR-MINI-12BIT-DAC Board Layout

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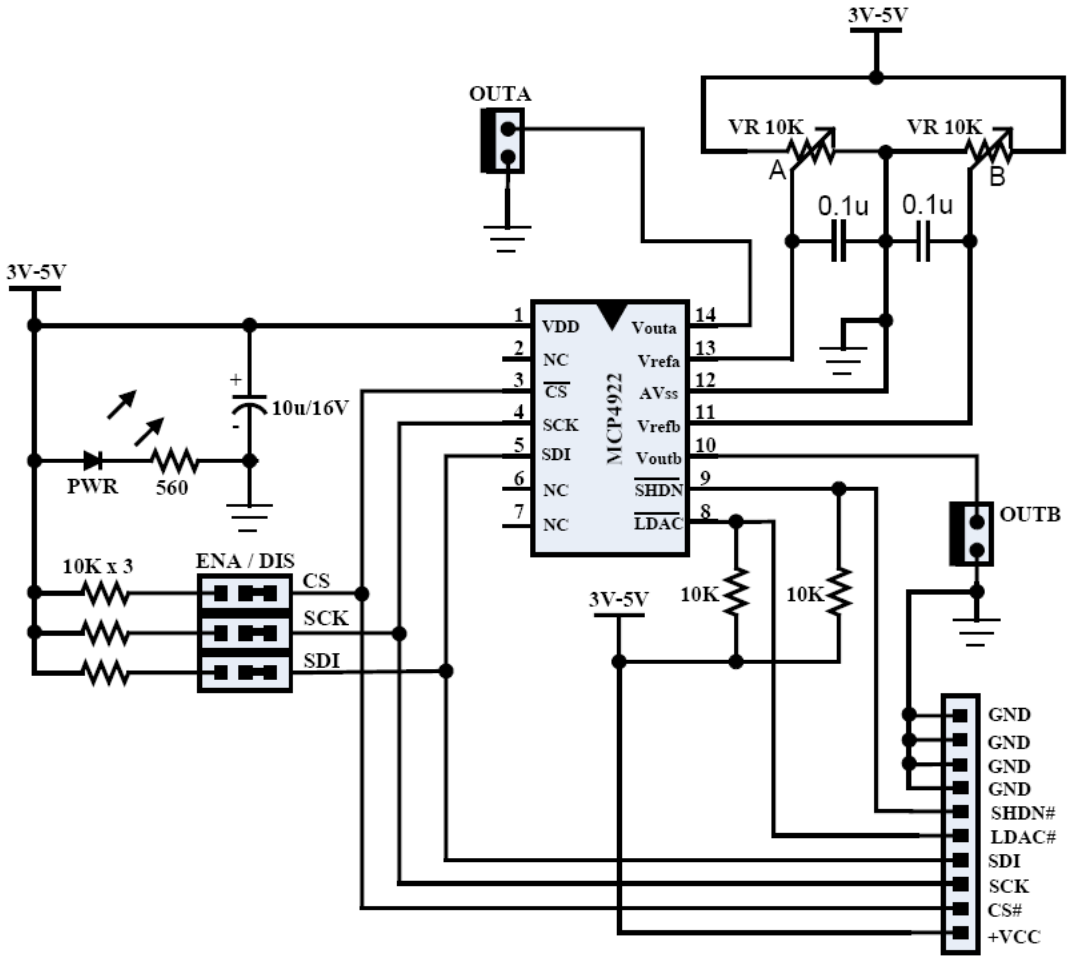

FIG 3: MR-MINI-12BIT-DAC Schematic

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