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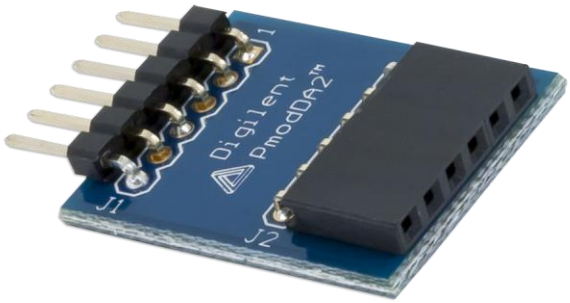
PmodDA2™ Reference Manual

Revised May 24, 2016
This manual applies to the PmodDA2 rev. B

Overview

The PmodDA2 is a 12-bit Digital-to-Analog converter powered by the Texas Instruments DAC121S101. As it is able to simultaneously convert two separate channels of digital information provided over an interface similar to SPI, users can easily compare the two reconstructed signals.



The PmodDA2.

Features include:

- 12-bit digital-to-analog converter
- Two simultaneous conversion channels
- Very low power consumption
- Small PCB size for flexible designs 1.0" × 0.8" (2.5 cm × 2.0 cm)
- 6-pin Pmod connector with GPIO interface
- Library and example code available in resource center

1 Functional Description

The PmodDA2 provides two channels of 12-bit Digital-to-Analog conversion, allowing users to achieve a resolution up to about 1mV.

2 Interfacing with the Pmod

The PmodDA2 communicates with the host board via an SPI-like protocol. By bringing the Chip Select line to a low voltage state, users may send a series of 16 clock pulses on the Serial Clock line (SCLK). The data is sent out with the most significant bit (MSB) first on the last 12 clock pulses. An example data stream of how the data might look is provided from the TI datasheet below:

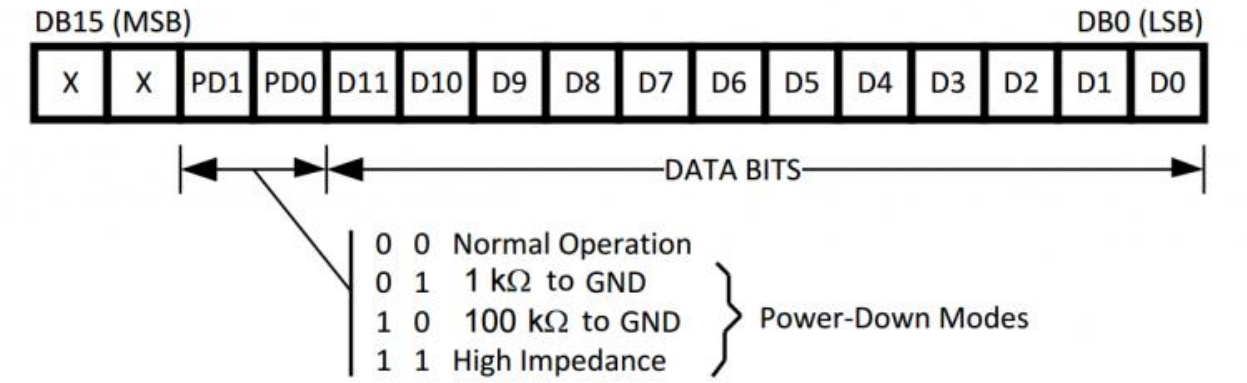


Figure 1. PmodDA2 data stream.

Pin	Signal	Description
1	~SYNC	Chip Select
2	DINA	Data In for Channel A
3	DINB	Data In for Channel B
4	SCLK	Serial Clock
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V/5V)

Table 1. PmodDA2 pinout table.

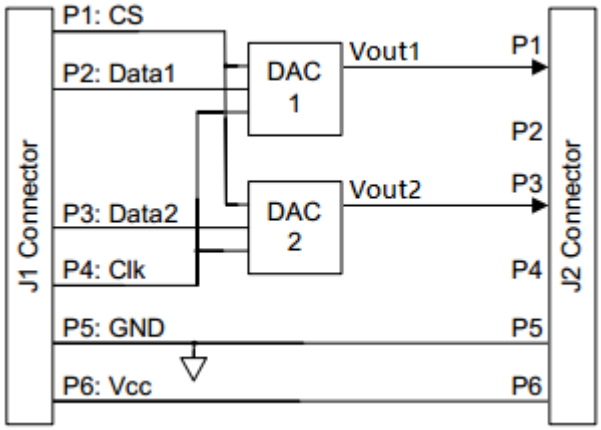


Figure 2. PmodDA2 circuit diagram.

Any external power applied to the PmodDA2 must be within 2.7V and 5.5V; however, it is recommended that Pmod is operated at 3.3V.

3 Physical Dimensions

The pins on the pin header are spaced 100 mil apart. The PCB is 1 inch long on the sides parallel to the pins on the pin header and 0.8 inches long on the sides perpendicular to the pin header.