Inverting Programmable Gain Amplifier example project 1.2

Features

- Gain : 01
- Power : Medium Power

General Description

This example project demonstrates the working of the Inverting PGA component with Gain 1 and Power mode set to Medium Power.

Development kit configuration

1. Used CY8CKIT-001 DVK1 kit.
2. Build the project and program the hex file on to the target device using MiniProg3.
3. Connect pins as described below and power cycle the device.
4. Observe the results on a multi meter on the pin specified in the design

Project configuration

This project consists of an Inverting PGA component with analog input and output pins along with a VDAC8 as the reference input. The input pin is connected to I/O port P0[2] of CY8CKIT-001 which is used to provide input to the Inverting PGA and output pin which is connected to I/O port P0[3] of CYC8KIT-001 is used to observe the output of the Inverting PGA. Character LCD is used to display the test name and Gain configuration.

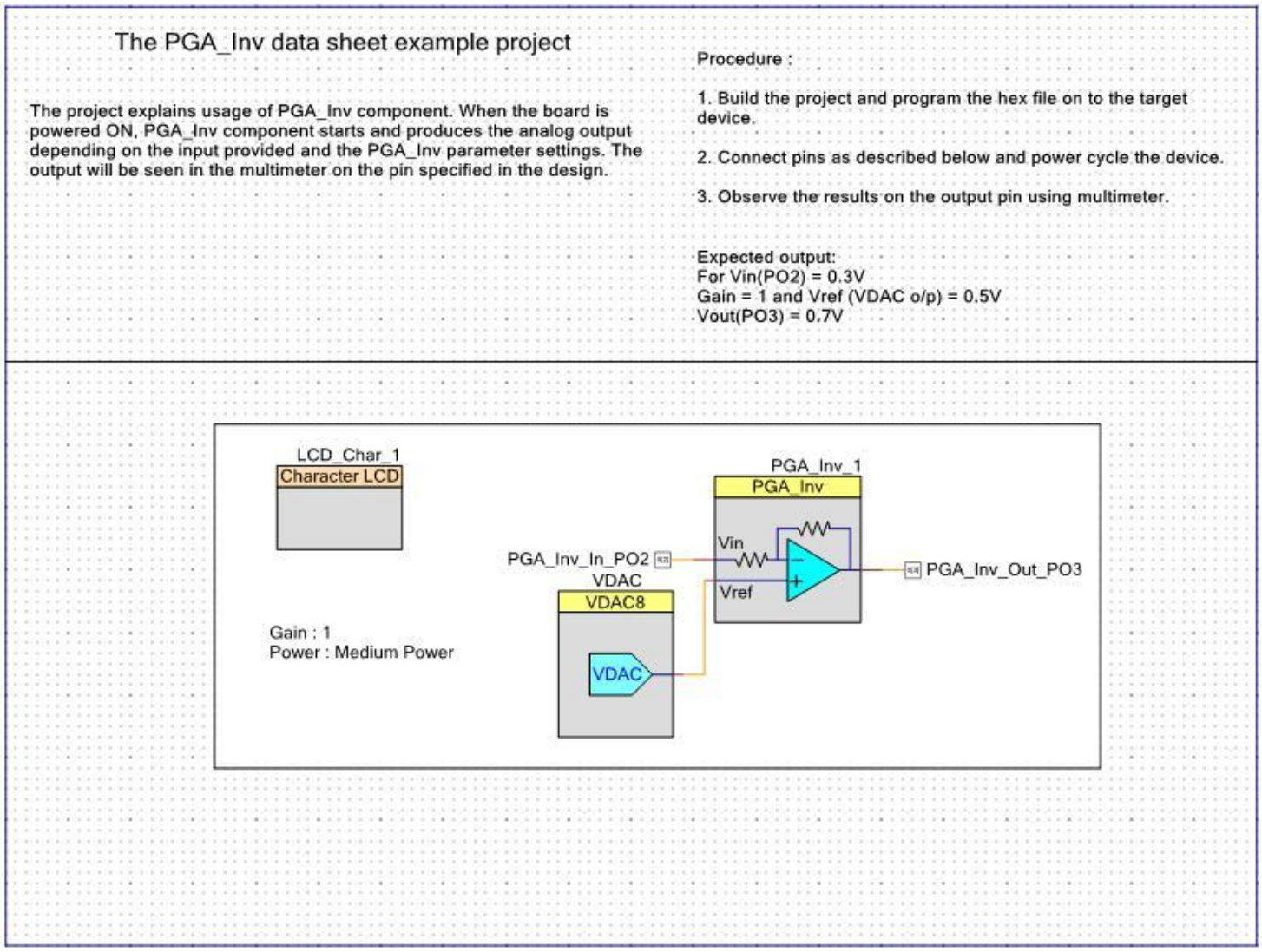

Figure 1. Top design schematic.

Project description

In main function PGA_Inv and VDAC8 component is started. PGA_Inv gain is set to 1 and power is set to Medium. VDAC8 is configured with Hex value = 0x64 and Voltage Range = 1V in the customizer. VDAC8 is connected to Vref input of the PGA_Inv , input is connected to pin P02

and output can be seen in P03 as it is shown in Figure 1(Top design schematic). Multimeter is used to see the output.

Expected Results

Character LCD displays the following:
PGA Inv DEMO
Gain = 1

The PGA_Inv output should be equal to the voltage value which is calculated using the formula Vout = Vref+(Vin - Vref)* G, where G is -Ve.

For Gain = 1, Vref = 0.5V
Vin = 0.3V
Vout = 0.7V

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