Trans-Impedance Amplifier (TIA) Example
1.2

Features

Trans-Impedance Amplifier with Capacitive feedback 3.3pF and Resistive feedback 40k Ohms.

General Description

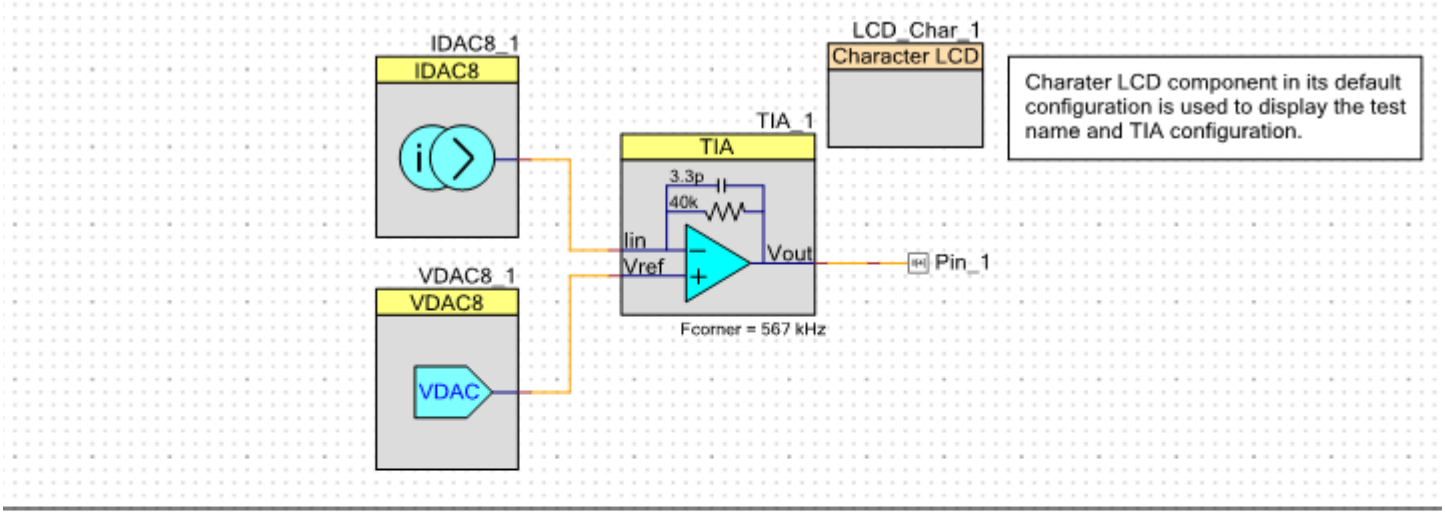
This example project demonstrates the working of TIA with Capacitive feedback = 3.3pF and Resistive feedback = 40k Ohms.

Development kit configuration

1. This project is written for a 2X16 LCD display as the one available in the Cypress kit CY8CKIT-001.
2. Build the project and program the hex file on to target device using MiniProg3.
3. Connect pins as described below and power cycle the device.
4. Observe the results on the LCD.

Project configuration

This project consists of TIA component with analog input and output pins. VDAC8 is used to give reference voltage input “Vref” and IDAC8 is used to give current input “Iin”. Pin_1 pin is used to get the output voltage from TIA and is mapped to P0(4). Character LCD is used to display the test name and TIA configuration.



Test to check TIA.
The current input Iin is given using IDAC8 component. IDAC output is 1.25uA
The voltage input Vref is given using VDAC8 component. VDAC output is 1.60V

Parameter Settings:
Capacitive_Feedback: 3.3 pF
Power: Medium power
Resistive_Feedback: 40k ohms

Pin Mapping :
Pin_1 (P0(4) of CY8CKIT-001) : TIA output (Vout)

Procedure :

1. This project is written for 2X16 display as the one available on CY8CKIT-001. It will need slight modification to run on larger displays.

2. Build the project and program the hex file on to the target device.

3. Use a multimeter in voltage mode to check the output of TIA.
Expected output is 1.55V.

Project description

In the main function all components are started. Resistive feedback is set to 40k ohms and Capacitive feedback is set to 3.3pF. For the proper IDAC8 and VDAC8 components usage please refer to the corresponding datasheet.

Expected Results

Character LCD displays the following:
TIA DEMO
Rf =40k Cf=3.3pF

Expected Vout on P0(4) = 1.55V