SOLAR INPUT UNIT

High side current, voltage and power measurement

Power Supply Voltage = 3.3V
Bus supply voltage = 5–20V
Average Current = 450mA
Overcurrent Fault Threshold = 1A
Maximum Current Monitored (Imax) = 2A
ADC RANGE (VSENSE_MAX=81.92mV)
Rshunt < 40.96m

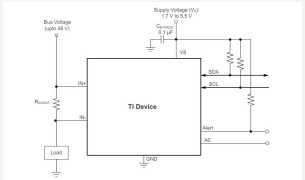


Figure 8-2. Typical High-Side Sensing Circuit Configuration, INA232

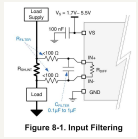
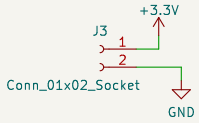
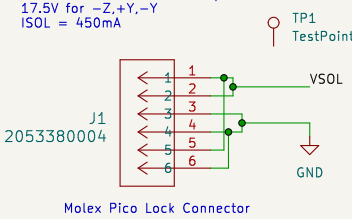


Figure 8-1. Input Filtering

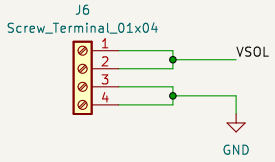
Power Supply for INA232



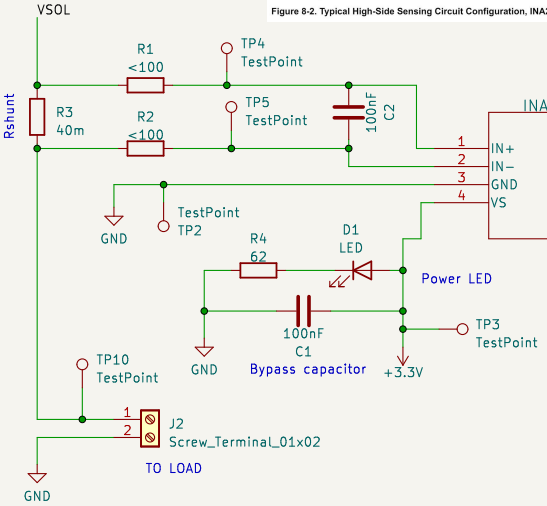
VSOL around 5V for +X,−X panel
17.5V for −Z,+Y,−Y
ISOL = 450mA

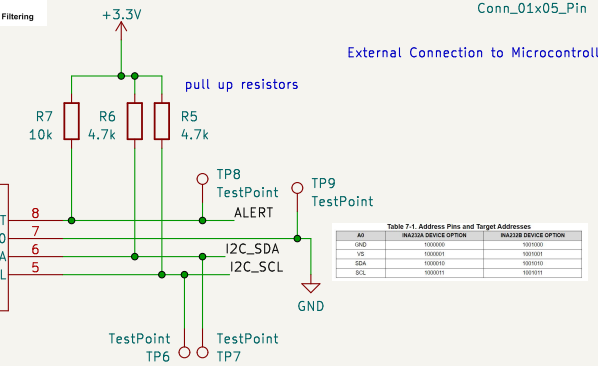


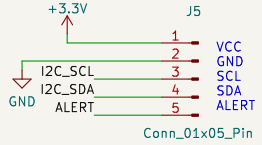
Molex Pico Lock Connector



Screw Terminals for
Solar Power Input backup







External Connection to Microcontroller

Table 7-1. Address Pins and Target Addresses

A0	INA232A DEVICE OPTION	INA232B DEVICE OPTION
GND	1000000	1001000
VS	1000001	1001001
SDA	1000010	1001010
SCL	1000011	1001011

PIN		TYPE	DESCRIPTION
NAME	DDF (SOT23-8)		
A0	7	Digital input	Address pin. Connect to GND, SCL, SDA, or VS. Table 7-1 lists the pin settings and corresponding addresses.
ALERT	8	Digital output	Multifunctional alert, open-drain output. This pin alerts to report fault conditions or can be configured to notify host when a conversion is complete.
GND	3	Ground	Ground for both analog and digital.
IN–	2	Analog input	Current sensing negative input. For high-side applications, connect to load side of sense resistor. For low-side applications, connect to ground side of sense resistor. Bus voltage measurements are made with respect to this pin.
IN+	1	Analog input	Current sensing positive input. For high-side applications, connect to bus voltage side of sense resistor. For low-side applications, connect to load side of sense resistor.
SCL	5	Digital input	Serial bus clock line, open-drain input.
SDA	6	Digital input/output	Serial bus data line, open-drain input/output
VS	4	Power Supply	Power supply, 1.7 V to 5.5 V

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File: EPS_SolarInput.kicad_sch

Title: EPS Solar Input

Size: A4	Date: 2024–06–20	**Rev: v01**
KiCad E.D.A. kicad 7.0.2		Id: 1/1