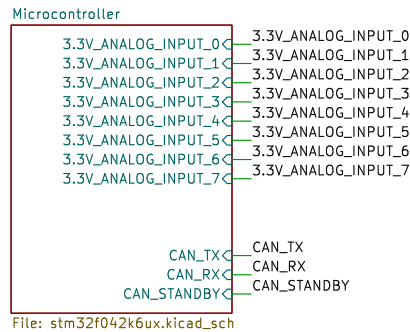
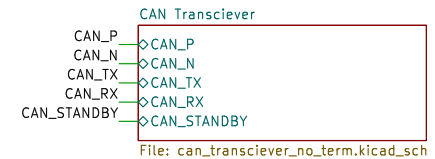


- Requirements:
- 8 to 10 Analog Signal inputs
 - 10 mV resolution from 3.3V to 16V
 - Handle automotive voltage spikes on power and input
 - Single CAN bus no termination
 - Automotive environment

Microcontroller



CAN Bus



Power Supplies

5V Switching Regulator



File: switching_regulator_5V_500ma_28V_input.kicad_sch

3.3V Linear Regulator



File: power_supply_3v3_400ma_40V_protected.kicad_sch

Connector

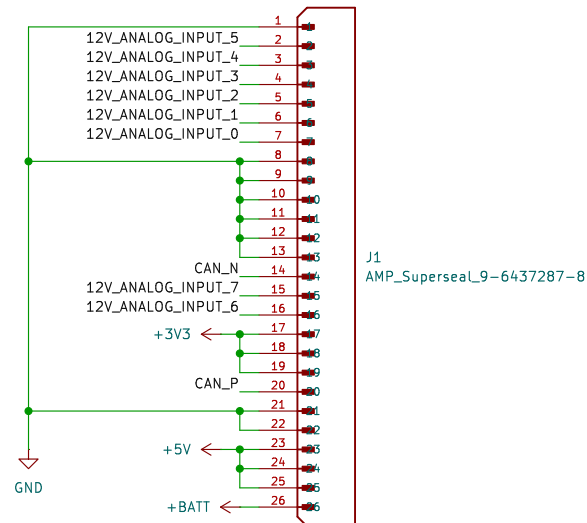
PCB Header: 9-6437287-8

- 26 pin, 4 row
- keying type: 1
- locking type: upper

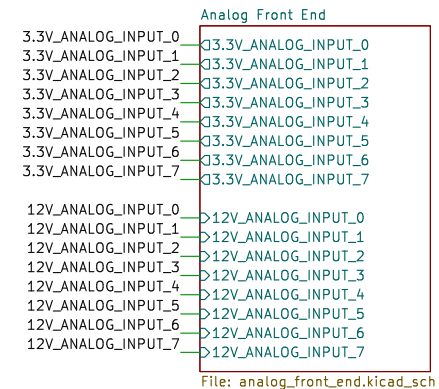
Mating Part: 3-1437290-7

Mating Part terminals: 3-1447221-3 (18-22 awg)

Cavity Plug: 4-1437284-3



Analog Front End



Brian Glen

Sheet: /

File: signal-to-can.kicad_sch

Title: Signal to CAN Device

Size: A4

Date: 2025-07-21

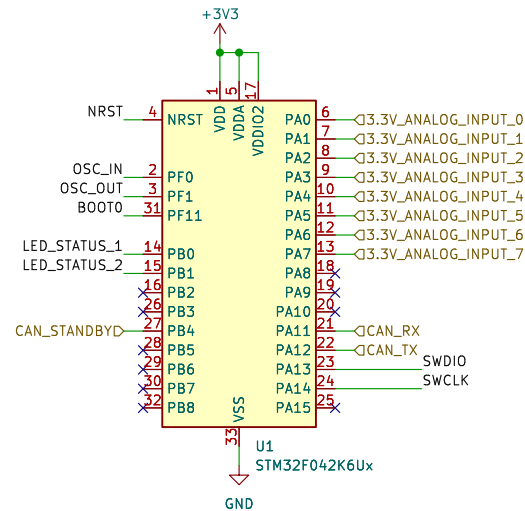
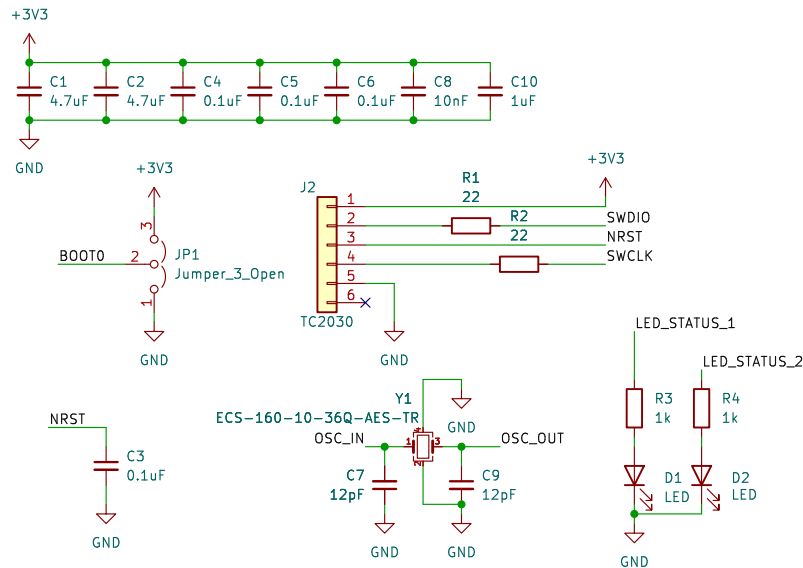
Rev: 1

KiCad E.D.A. 9.0.1

Id: 1/6

Microcontroller

- power supply de-coupling
- TC2030 programing
- boot select switch
- 16 Mhz HSE oscillator
- status LEDs



Sheet: /Microcontroller/
File: stm32f042k6ux.kicad_sch

Title:

Size: A4

Date:

KiCad E.D.A. 9.0.1

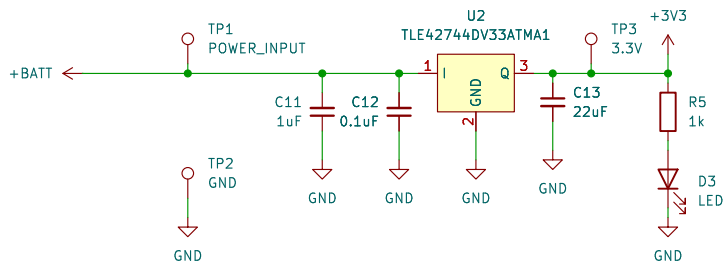
Rev:

Id: 2/6

Power Supplies

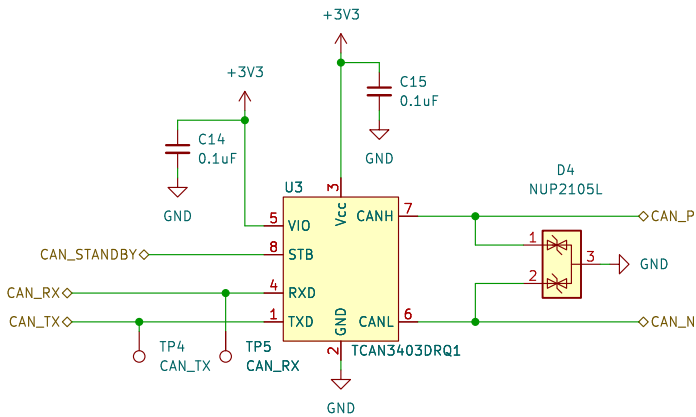
3.3V Regulator 400mA max,
4.5-40V input

- reverse-polarity protection
- over temperature protection
- over current protection
- short circuit protection



CAN Bus Tranciever

- no termination
- non-isolated
- TCAN3403 is pin compatible with other TI transievers
- TVS Diode Protection



Sheet: /CAN Transciever/
File: can_transciever_no_term.kicad_sch

Title:

Size: A4

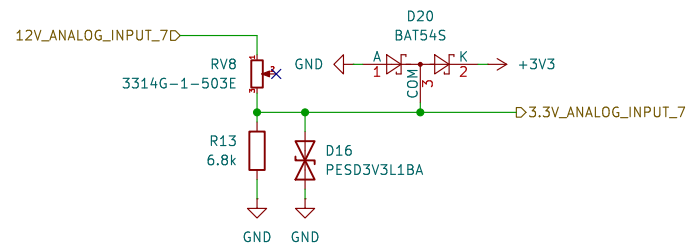
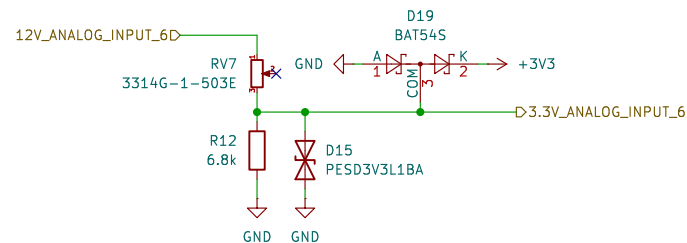
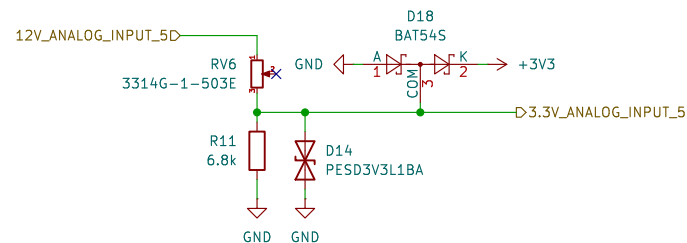
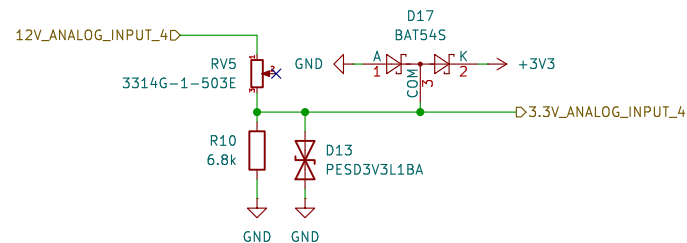
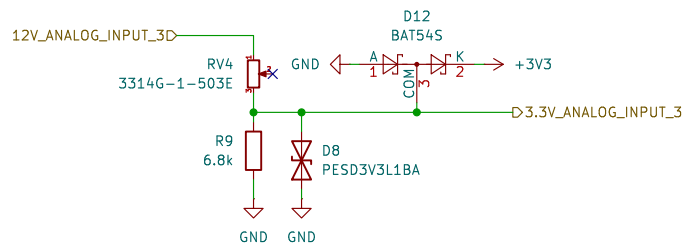
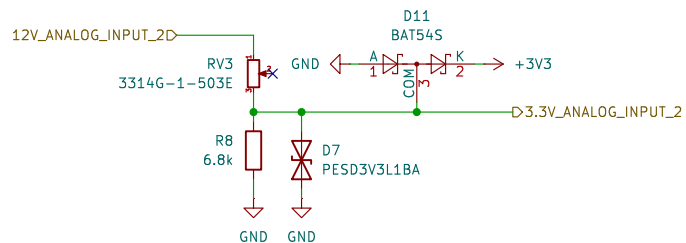
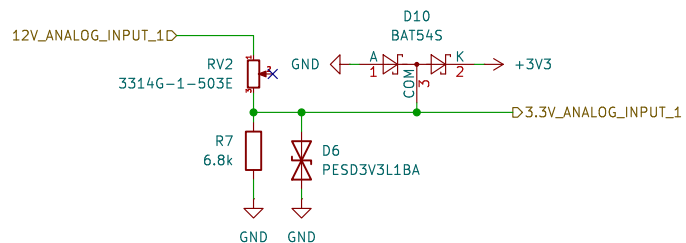
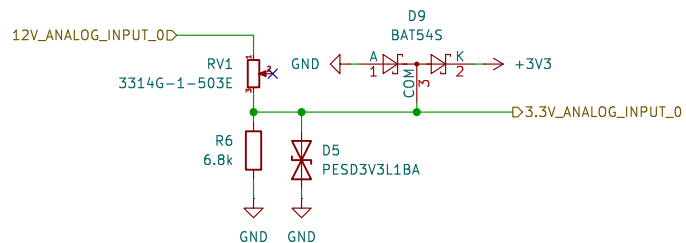
Date:

KiCad E.D.A. 9.0.1

Rev:

Id: 4/6

Requirements:
 - 8 Analog inputs
 - 10 mV resolution at 3.3v to 12V
 - Tolerant of automotive spikes
 - Clamp ADC pin to -0.3 - 4.0V
 - ESD protection for HBM



Sheet: /Analog Front End/
 File: analog_front_end.kicad_sch

Title:

Size: A4

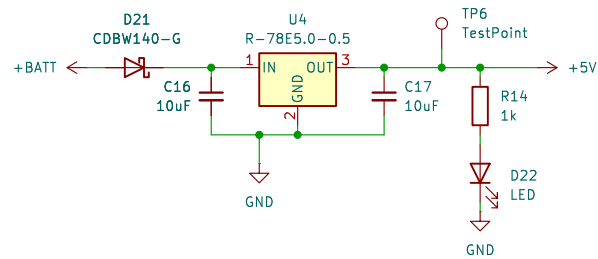
Date:

KiCad E.D.A. 9.0.1

Rev:

Id: 5/6

- Requirements:
- 5V, 500mA output
 - 7 - 28V input
 - switching regulator



Sheet: /5V Switching Regulator/
File: switching_regulator_5V_500ma_28V_input.kicad_sch

Title:

Size: A4

Date:

KiCad E.D.A. 9.0.1

Rev:

Id: 6/6