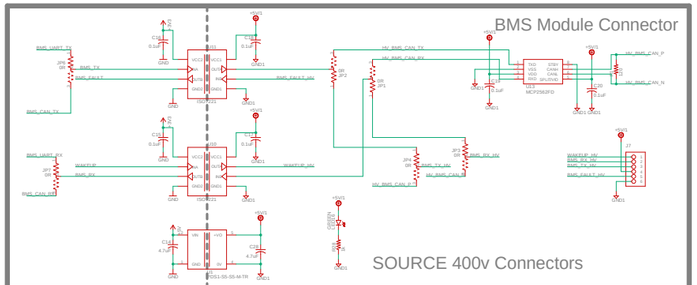
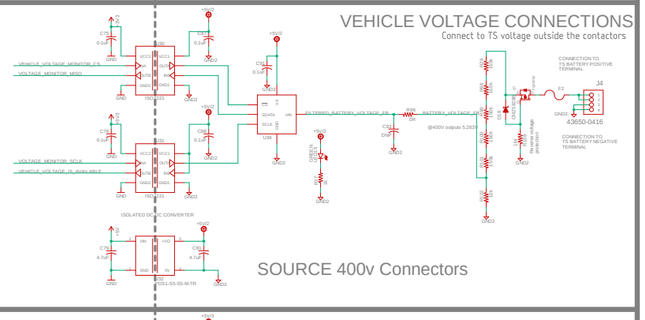
ISOLATED COMPONENTS

BMS Module Connector



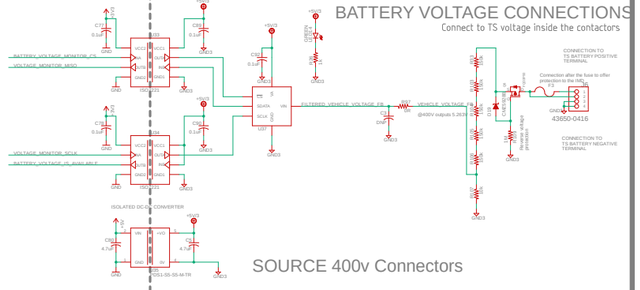
VEHICLE VOLTAGE CONNECTIONS

Connect to TS voltage outside the contactors

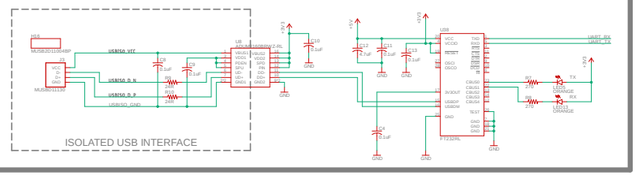


BATTERY VOLTAGE CONNECTIONS

Connect to TS voltage inside the contactors

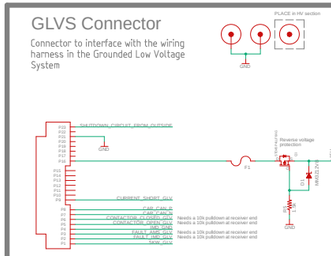


USB to Serial Converter

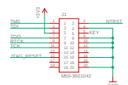


GLVS Connector

Connector to interface with the wiring harness in the Grounded Low Voltage System

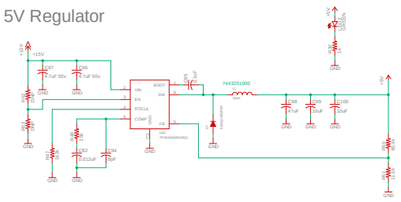


JTAG

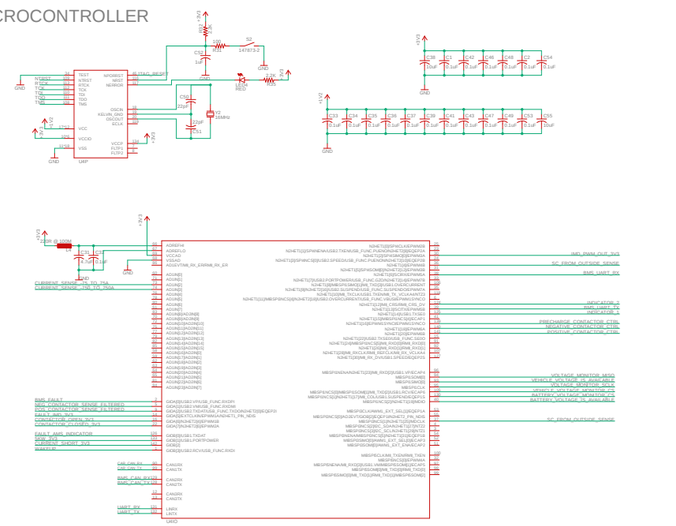


Current Sensor

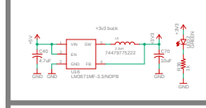
5V Regulator



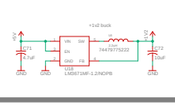
MICROCONTROLLER



3V3 Regulator

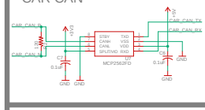


1V2 Regulator



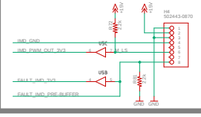
CAN TRANSCEIVER

CAR CAN



IMD CONNECTOR

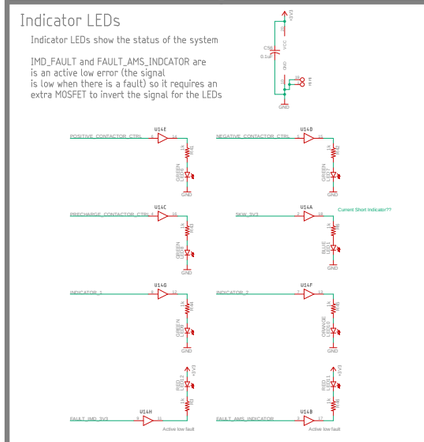
Connects to the low volt side of the IMD



Indicator LEDs

Indicator LEDs show the status of the system

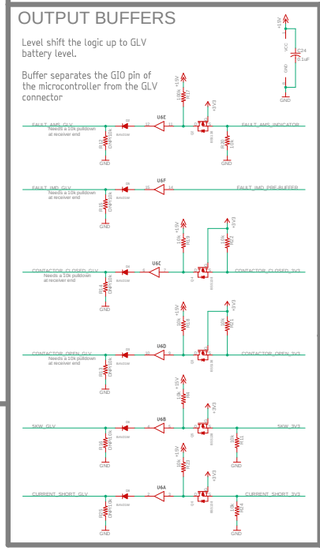
IMD_FAULT and FAULT_AMS_INDCATOR are is an active low error (the signal is low when there is a fault) so it requires an extra MOSFET to invert the signal for the LEDs



OUTPUT BUFFERS

Level shift the logic up to GLV battery level.

Buffer separates the GIO pin of the microcontroller from the GLV connector

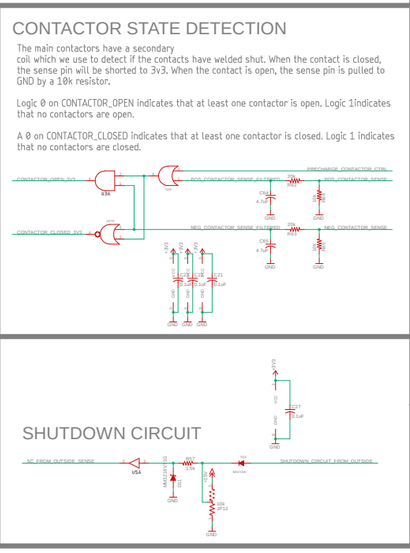


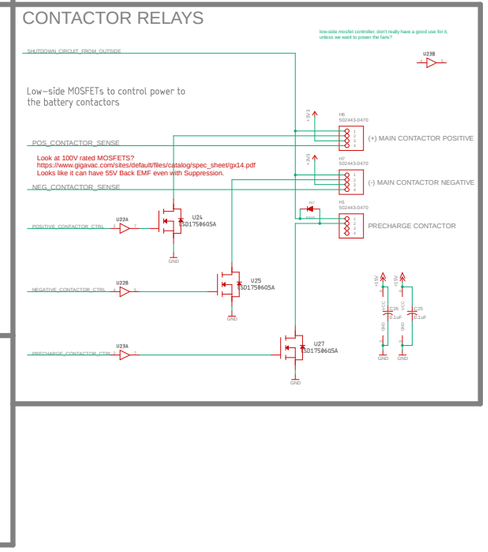
CONTACTOR STATE DETECTION

The main contactors have a secondary coil which we use to detect if the contacts have welded shut. When the contact is closed, the sense pin will be shorted to 3v3. When the contact is open, the sense pin is pulled to GND by a 10k resistor.

Logic 0 on CONTACTOR_OPEN indicates that at least one contactor is open. Logic 1Indicates that no contactors are open.

A 0 on CONTACTOR_CLOSED indicates that at least one contactor is closed. Logic 1 indicates that no contactors are closed.



SHUTDOWN CIRCUIT

CONTACTOR RELAYS