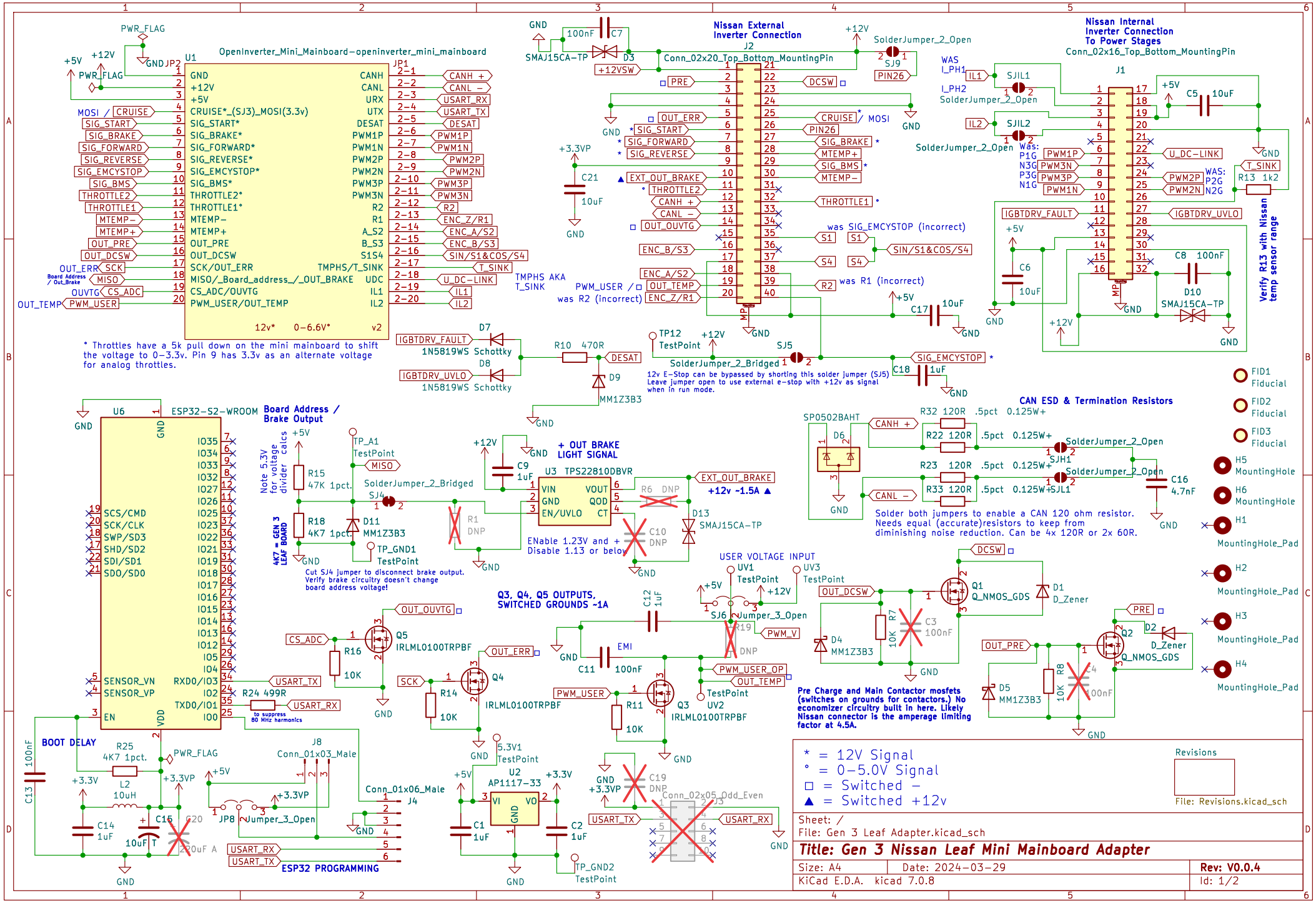
OpenInverter_Mini_Mainboard-openinverter_mini_mainboard
Nissan External Inverter Connection
Nissan Internal Inverter Connection To Power Stages
Conn_02x20_Top_Bottom_MountingPin
Conn_02x16_Top_Bottom_MountingPin
ESP32-S2-WROOM
Board Address / Brake Output
+ OUT BRAKE LIGHT SIGNAL
TPS22810DBVR
CAN ESD & Termination Resistors
SP0502BAHT
Q1 Q_NMOS_GDS
Q2 Q_NMOS_GDS
Q3 IRLML0100TRPBF
Q4 IRLML0100TRPBF
Q5 IRLML0100TRPBF
Q3, Q4, Q5 OUTPUTS, SWITCHED GROUNDS ~1A
USER VOLTAGE INPUT
BOOT DELAY
ESP32 PROGRAMMING
AP1117-33
SMAJ15CA-TP
1N5819WS Schottky
MM1Z3B3
D_Zener
SolderJumper_2_Open
SolderJumper_2_Bridged
Jumper_3_Open
Conn_01x03_Male
Conn_01x06_Male
Conn_02x05_Odd_Even
TestPoint
MountingHole
MountingHole_Pad
Fiducial
Pre Charge and Main Contactor mosfets (switches on grounds for contactors.) No economizer circuitry built in here. Likely Nissan connector is the amperage limiting factor at 4.5A.
12v E-Stop can be bypassed by shorting this solder jumper (SJ5) Leave jumper open to use external e-stop with +12v as signal when in run mode.
Solder both jumpers to enable a CAN 120 ohm resistor. Needs equal (accurate)resistors to keep from diminishing noise reduction. Can be 4x 120R or 2x 60R.
Cut SJ4 jumper to disconnect brake output. Verify brake circuitry doesn't change board address voltage!
Verify R13 with Nissan temp sensor range
* = 12V Signal
° = 0-5.0V Signal
□ = Switched -
▲ = Switched +12v
Revisions
File: Revisions.kicad_sch
Sheet: /
File: Gen 3 Leaf Adapter.kicad_sch
Title: Gen 3 Nissan Leaf Mini Mainboard Adapter
Size: A4
Date: 2024-03-29
Rev: V0.0.4
KiCad E.D.A. kicad 7.0.8
Id: 1/2

V0.0.2 – Removed 10k resistor between SJ5 and SIG_EMCYSTOP. Would have prevented ESTOP signal from going high with mini mainboard resistor divider circuit. Corrected mini mainboard symbol voltage on throttle input to 0–6.6v (V2 bottom right corner,) also corrected in notes.

V0.0.3 – L2 was (C1046) a 10uH 0805 but only 15ma. Changed to a Sunlord 4030 / 4.0mmx4.0mm inductor footprint.

V0.0.4 changes:

- Changed brake output / board address to Johu's tested circuit. Removed D12 & R1 from V0.0.3.
- moved vias away from 5v connector pads to help ease soldering.
- changed r13 from 3k3 to 1k2 to fit voltage range better for temp sensor.
- added a solder jumper on back from pin 26 to +12v for E–STOP if desired.
- R12 is a 4.70hm instead of 4.7K spec'd. Removed it & R5 per conversation w/ johu.
- STM32 boot issue – C13 was 1uF & R25 was 10k, the esp32 recommended boot delay values. Caused boot issues with the STM32. Swapped back to the 4k7 & .1uF boot delay setup used in the tesla V6 & V8 boards.
- Set a bunch of DNP items to DNP so we won't have to deselect components when ordering. C3, C4, etc.
- R3 & R9 were current sensor secondary signal trace resistor jumpers. Changed to solder jumpers for redundant trace enable option.
- Mounting holes corrected to 114mm x 90mm.
- R2 & R4 0R jumpers were removed and connected to ground (verified they are current sensor grounds.)
- J1 pos. 20 was connected to gnd on back of board.
- Added 3.3v to pos9 of the 40 pos. Nissan connector as an alternative throttle voltage if needed.
- Added a jumper to +12v on the back of the board to supply +12v to pin 26 if the jumper is soldered.

Sheet: /Revisions/
File: Revisions.kicad_sch

Title: Gen 3 Nissan Leaf Mini Mainboard Adapter

Size: A4	Date: 2024–03–29	**Rev: V0.0.4**
KiCad E.D.A. kicad 7.0.8		Id: 2/2