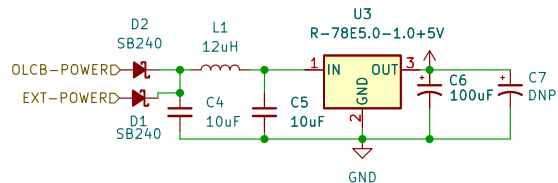
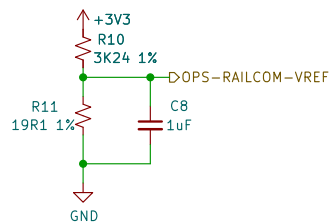


5V 1A voltage regulator

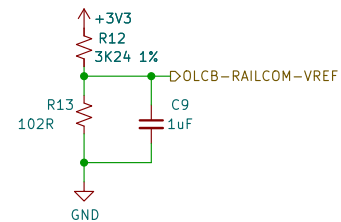


OPS RailCom Reference Voltage



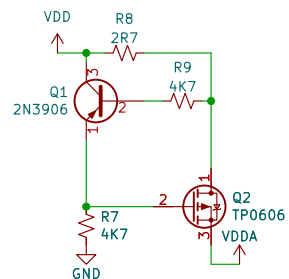
$$\begin{aligned} \text{RAILCOM-VREF} &= (3\text{v3} + \text{R12}) / (\text{R11} + \text{R12}) \\ \text{RAILCOM-VREF} &= (3\text{v3} + 16) / (2700 + 16) \\ \text{RAILCOM-VREF} &= 19\text{mA} \end{aligned}$$

OpenLCB RailCom Reference Voltage

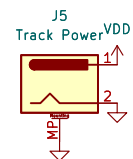


$$\begin{aligned} \text{RAILCOM-VREF} &= (3\text{v3} + \text{R12}) / (\text{R11} + \text{R12}) \\ \text{RAILCOM-VREF} &= (3\text{v3} + 16) / (2700 + 16) \\ \text{RAILCOM-VREF} &= 19\text{mA} \end{aligned}$$

PROG/LCC-DCC Supply



Note: This limits the current to ~250mA.
To increase the current 2R7 can be adjusted.
Or a jumper can be added between the 2N3906
pin 3 to TP0606 pin 3 and all five components
can be omitted to disable current limiting.



Sheet: /Power/
File: power.kicad_sch

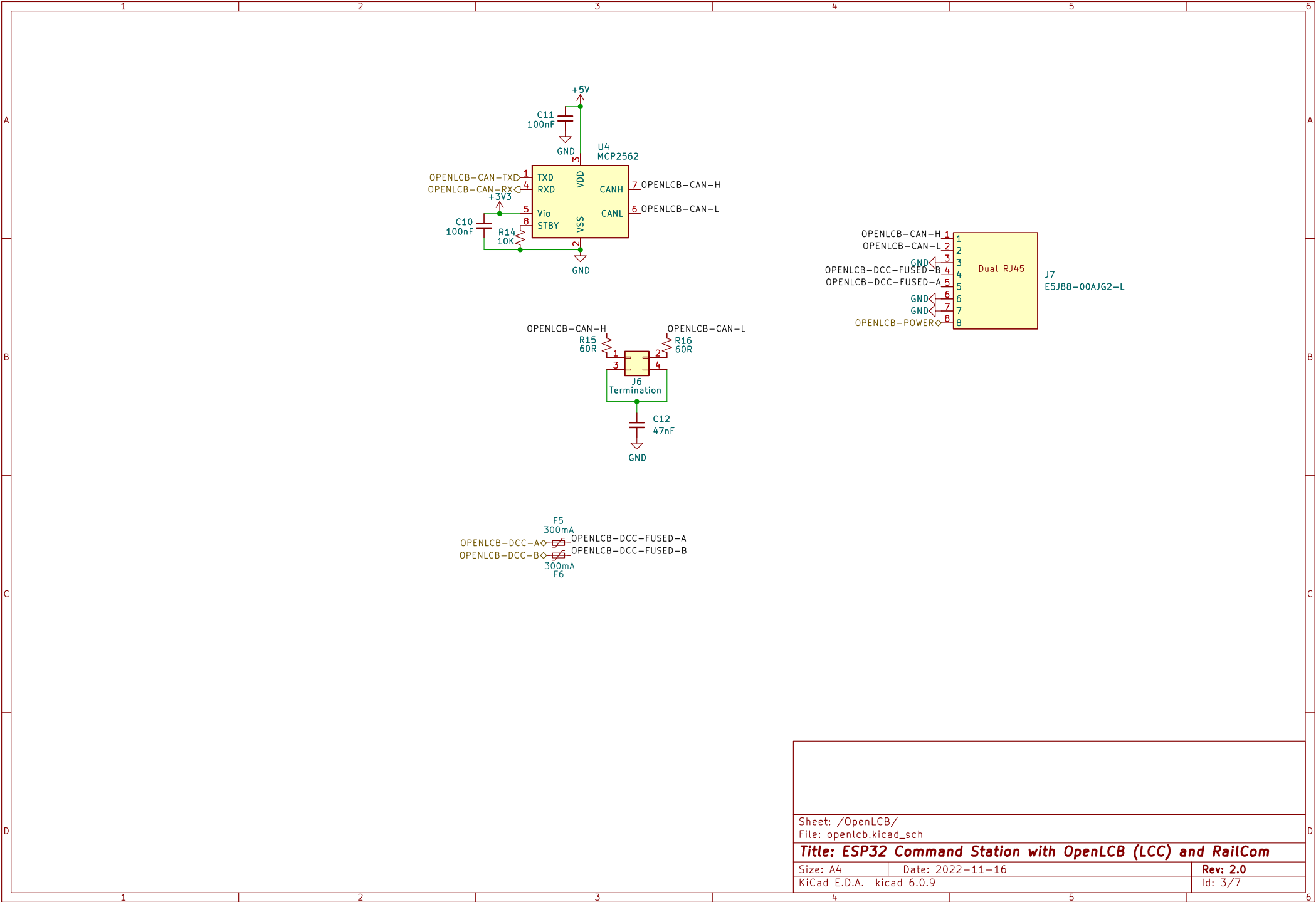
Title: ESP32 Command Station with OpenLCB (LCC) and RailCom

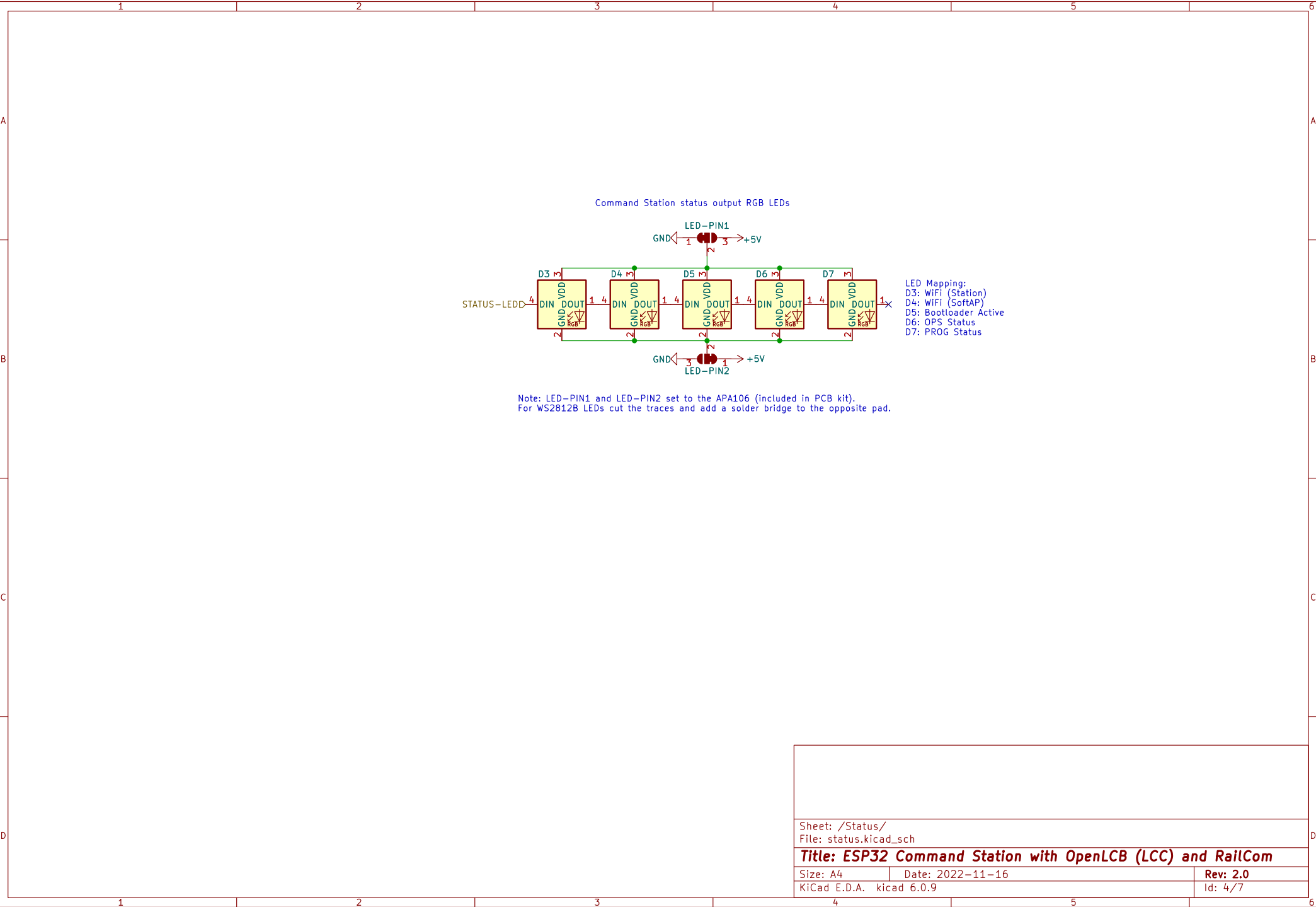
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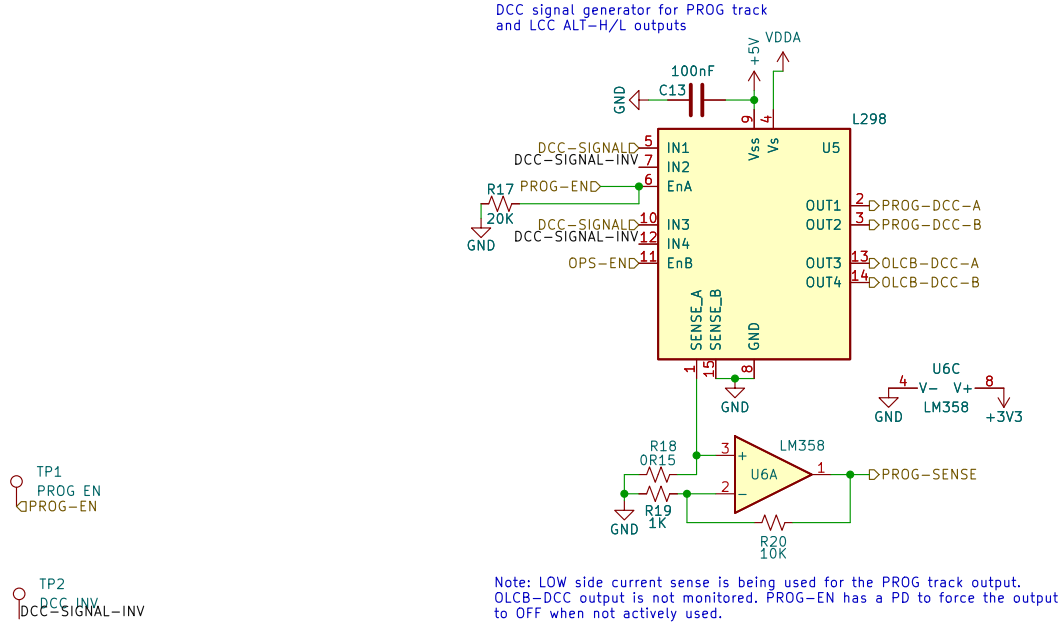
Rev: 2.0

Id: 2/7



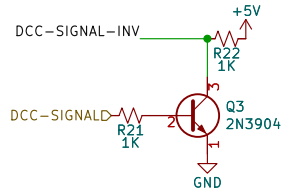


DCC signal generator for PROG track
and LCC ALT-H/L outputs



Note: LOW side current sense is being used for the PROG track output.
OLCB-DCC output is not monitored. PROG-EN has a PD to force the output
to OFF when not actively used.

OPS track signal split for L298 h-bridge



Sheet: /PROG and OpenLCB DCC/
File: prog-olcb-dcc.kicad_sch

Title: ESP32 Command Station with OpenLCB (LCC) and RailCom

Size: A4 Date: 2022-11-16

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Rev: 2.0

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