

Note 1.1: Possible alternative AUFR5305, SUD19P06-60, SPD30P06P or other with similar or lower input capacitance
 Note 1.2: WE 7447709330, WE 7443551331, Coilcraft MSS1210-333, Coilcraft XAL1510-333, Vishay IHL4040DZER470M11, etc.
 Note 1.3: Use 240K for 30 VAC main transformer
 Note 1.4: Install 0R only if 100% Duty cycle feature for Low Ripple mode is not needed
 Note 1.5: Use R020 for 0-3.12 A or R015 for 0-4.16 A range
 Note 1.6: Replace ZD1 and C3, C5, C6 if Vin is above 50 V

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 Repository: <https://github.com/eez-open>



SMPS power pre-regulator with 100% duty cycle

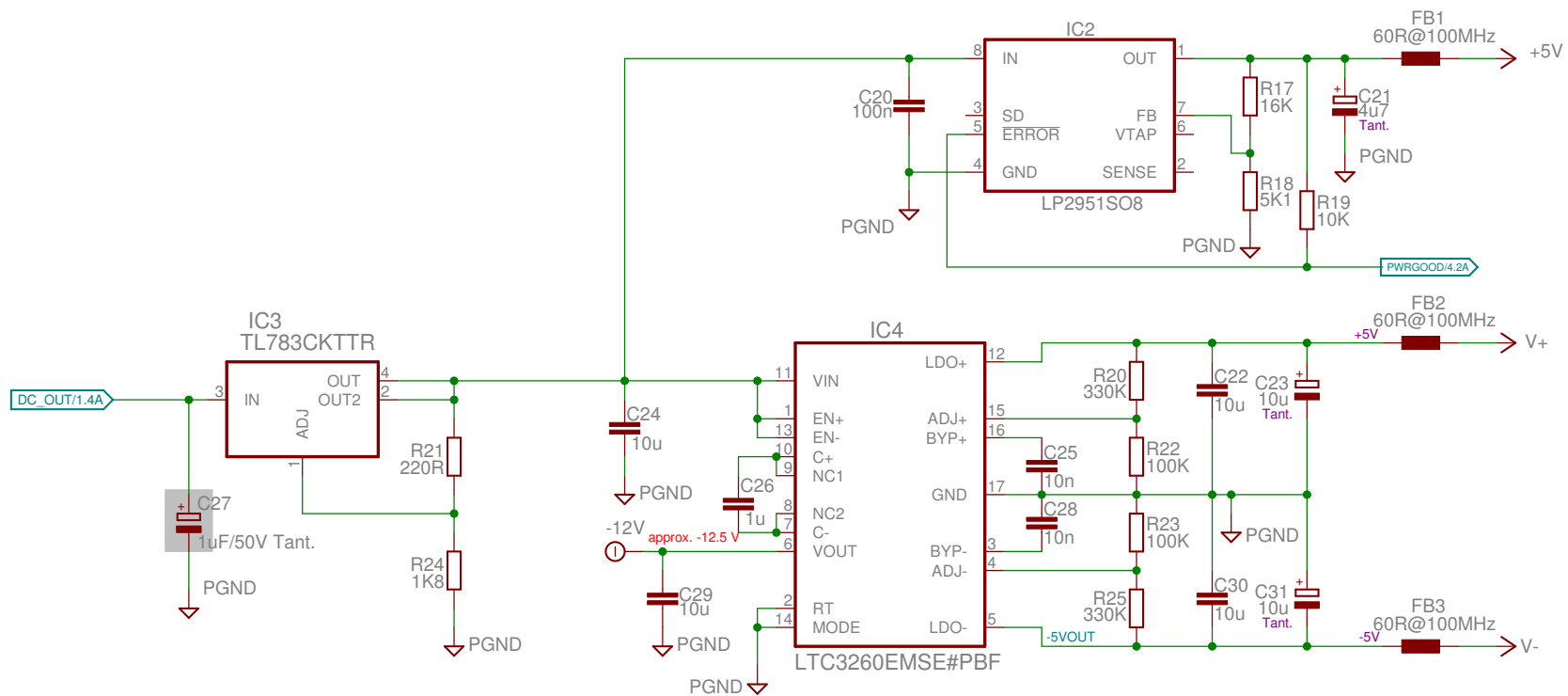
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Bias power supply (+/-5V, +5V, -12V)
Powergood signal

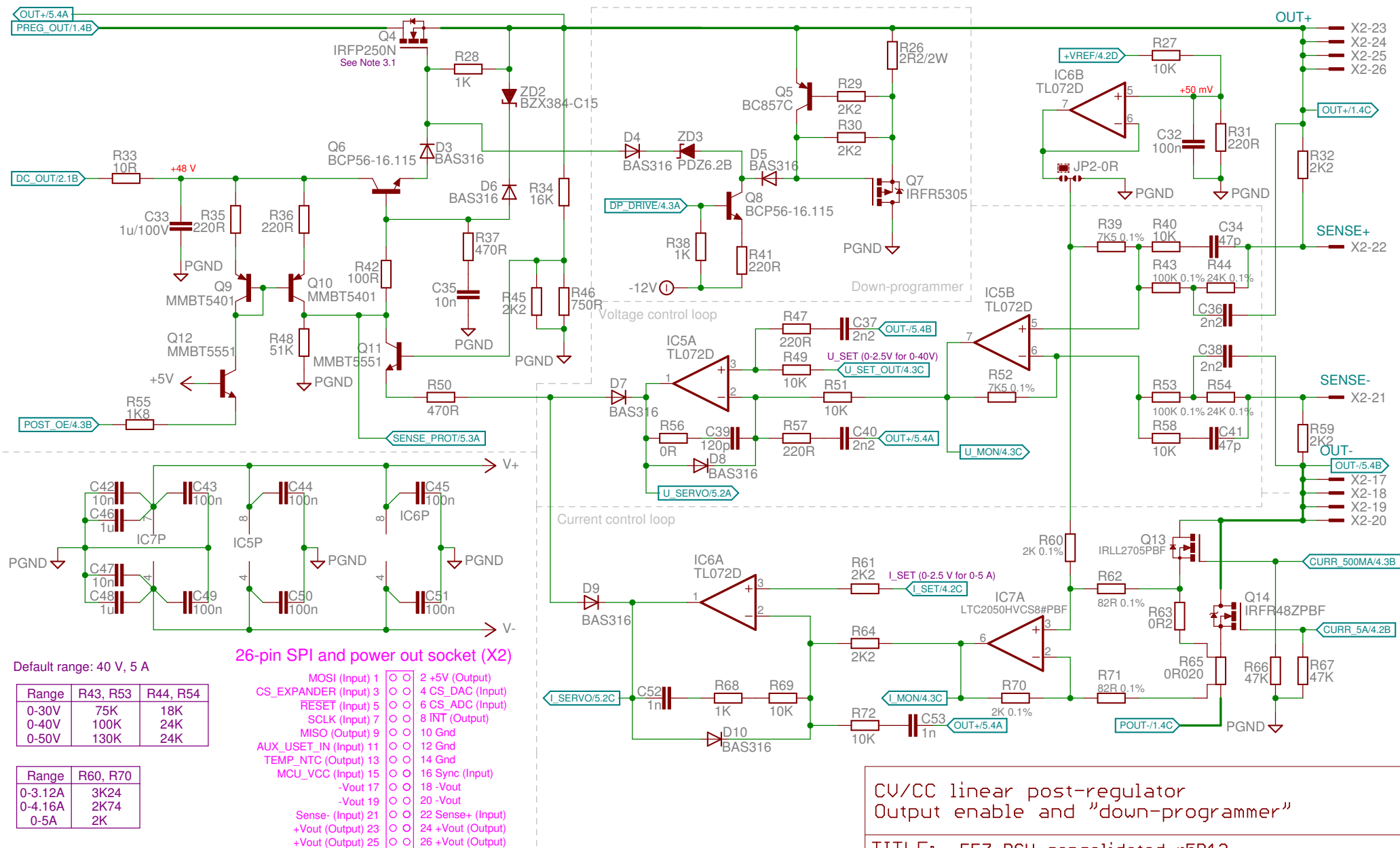
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CV/CC linear post-regulator
Output enable and "down-programmer"

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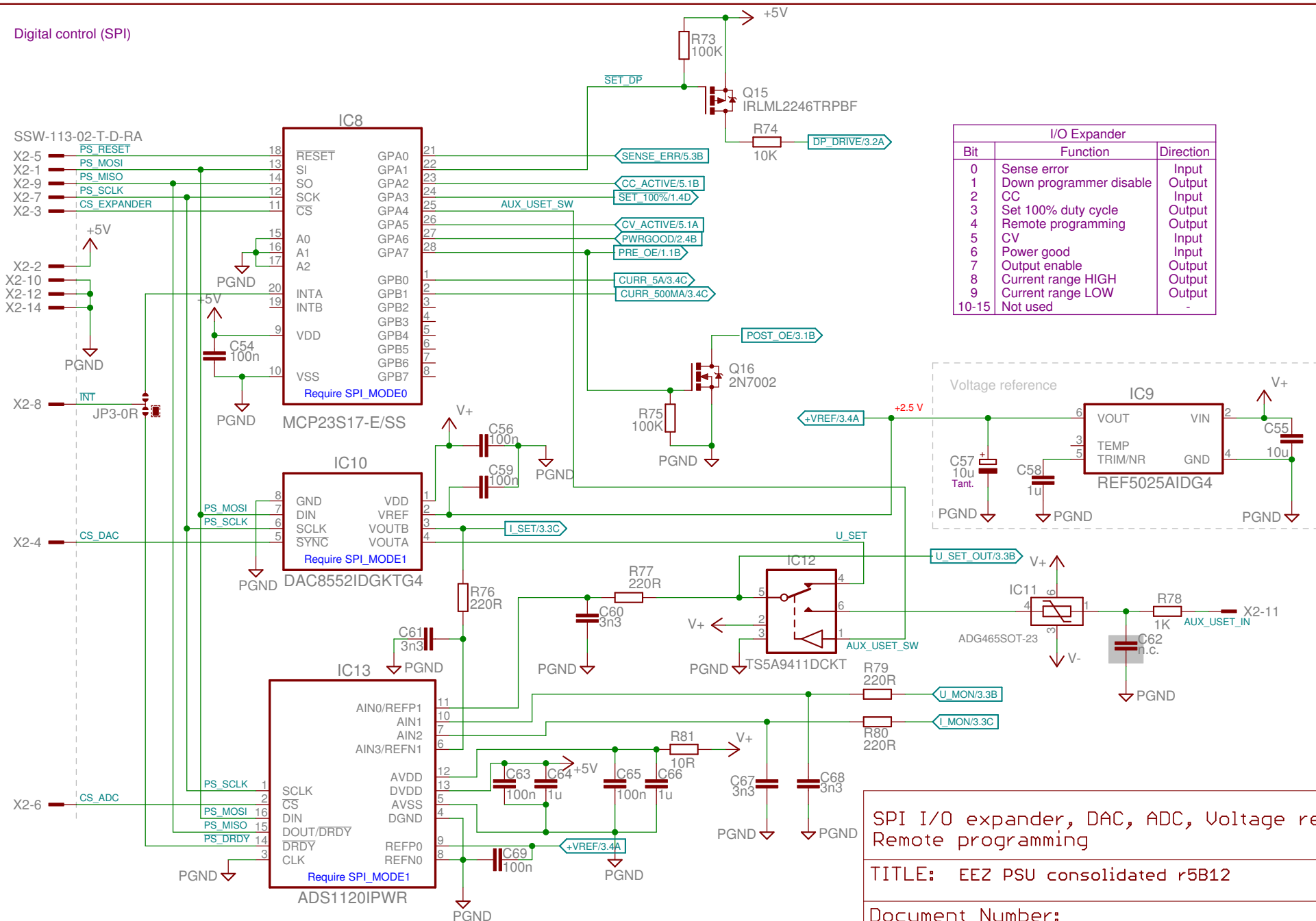
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Digital control (SPI)



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SPI I/O expander, DAC, ADC, Voltage reference
Remote programming

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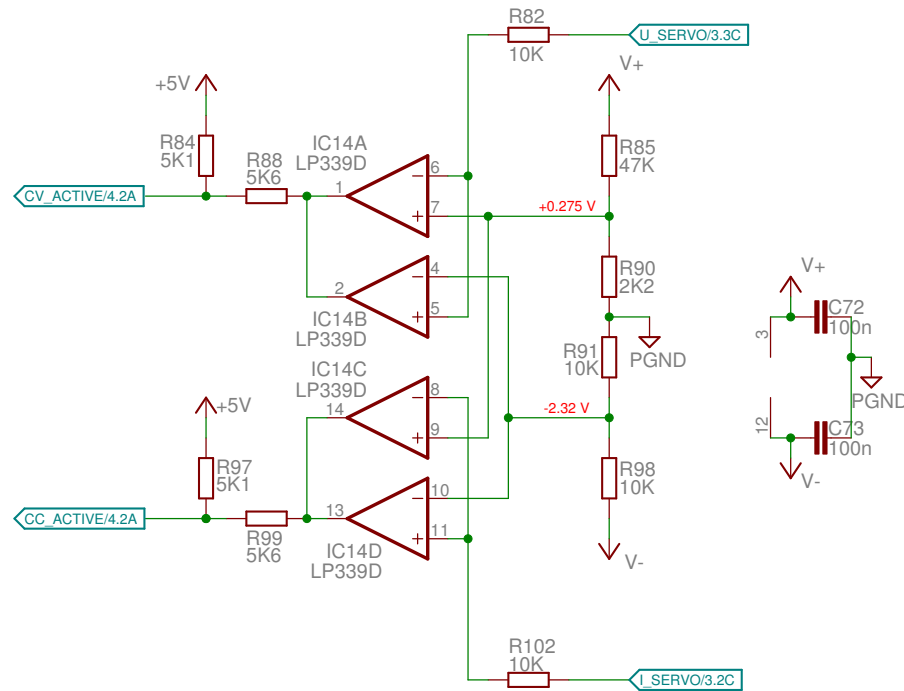
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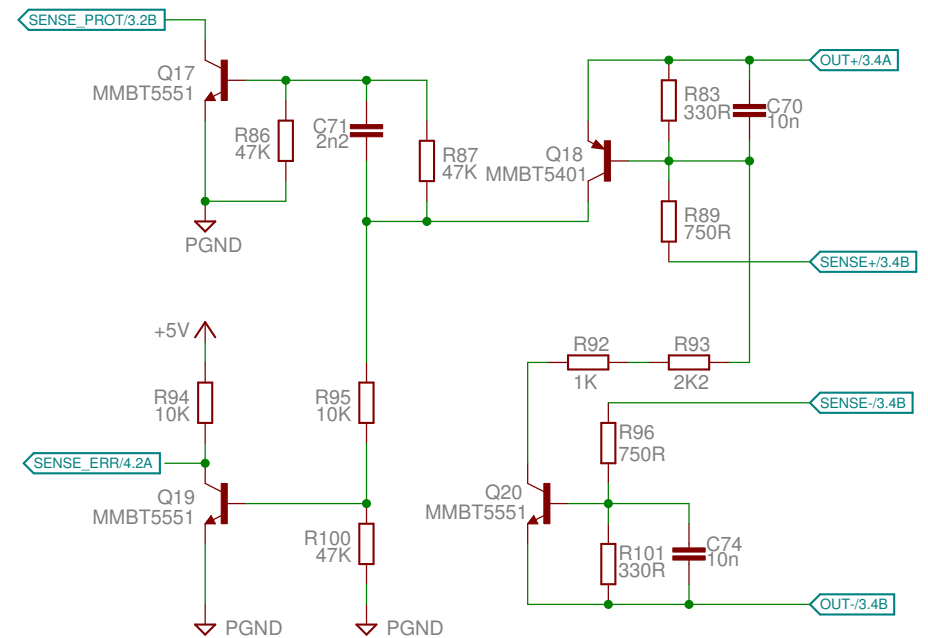
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Constant Voltage (CV) and Constant Current (CC) mode indicator



Remote sense reverse polarity detection



CC/CV indicators, Sense error detection

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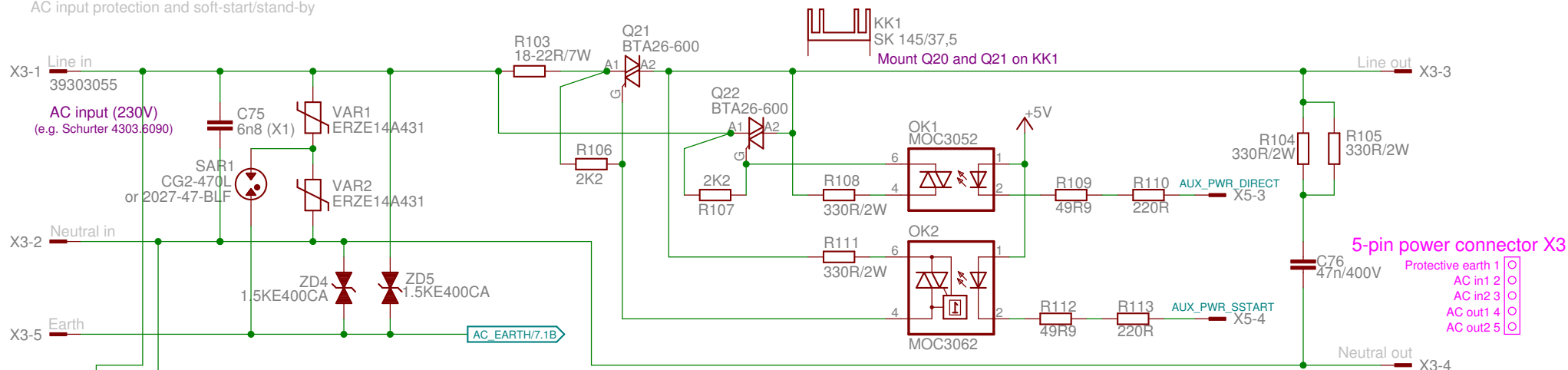
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AC input protection and soft-start/stand-by



+5 V, +12 V power supply (max. 5W)

+12VDC fan control

Fan sense (tacho out)

TR1

VTX-214-005-0512

V2+ V2- V1+ V1-

6 5 4 3

0V 0V

09185067324

+5V X5-8 X5-10

+5V X5-1 X5-2 X5-9

C80 47u

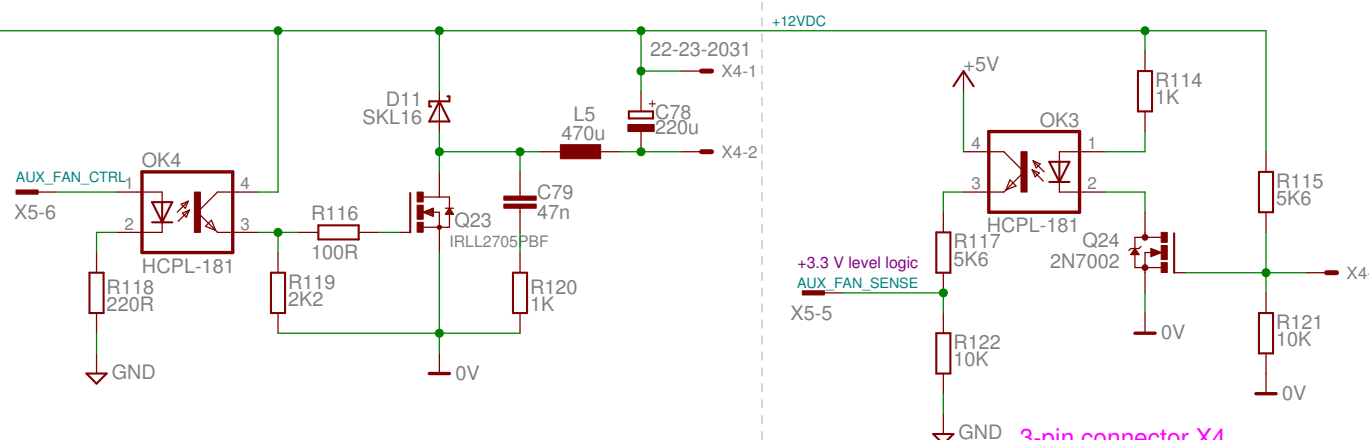
GND

10-pin IDC connector X5

10 +5V (Output)	○	○	Gnd 9
8 +5V (Output)	○	○	DOUT2 (Output) 7
6 FAN_PWM (Input)	○	○	FAN_SENSE (Output) 5
4 PWR_SSTART (Input)	○	○	PWR_DIRECT (Input) 3
2 Gnd	○	○	Gnd 1

115VAC option:

Name	Value	Code
SAR1	2027-23-BLF	Farnell: 1780455, TME: CG2-230L
TR2	VPP24-210	Digikey: 237-1085-ND Mouser: 553-VPP24-210 Newark: 93F8764
VAR1, VAR2	or AC/DC module Myrra 47202	Farnell: 2469211
ZD1, ZD2	S20K140	Farnell: 1004387, TME: SIOV-S20K140
	1.5KE200CA	Farnell: 1837117, TME: 1.5KE200CA



3-pin connector X4

Fan+ (Red)	1	○
Fan- (Black)	2	○
Fan sense (Yellow)	3	○

AC input protection, in-rush current limiter
+5V/+12V 5W power supply, fan control

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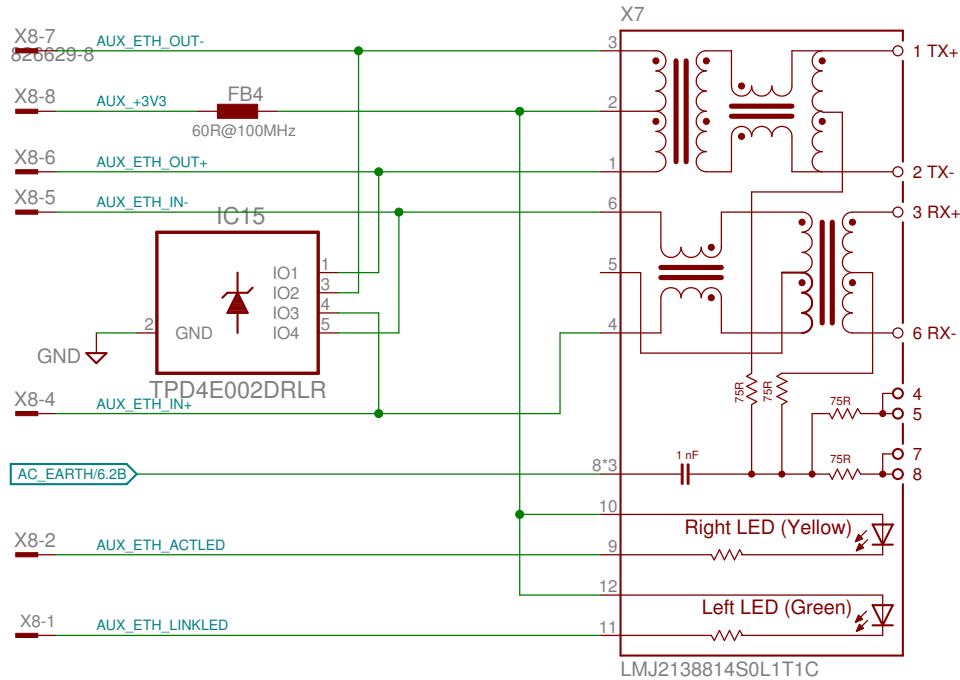
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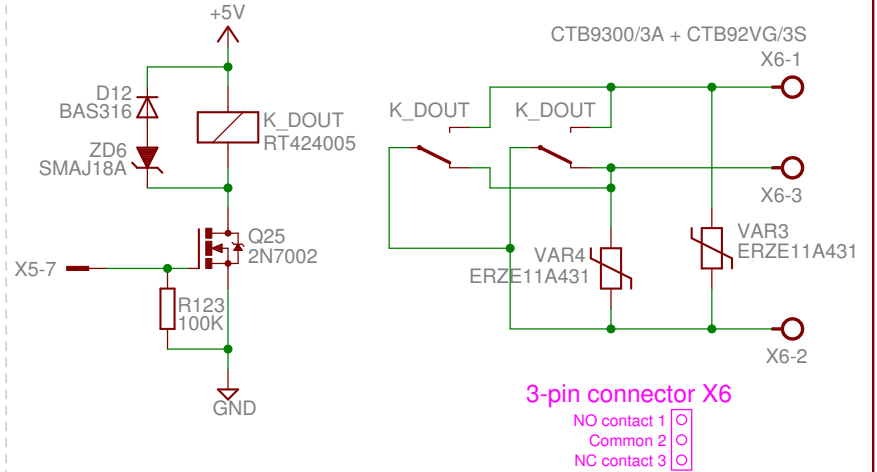
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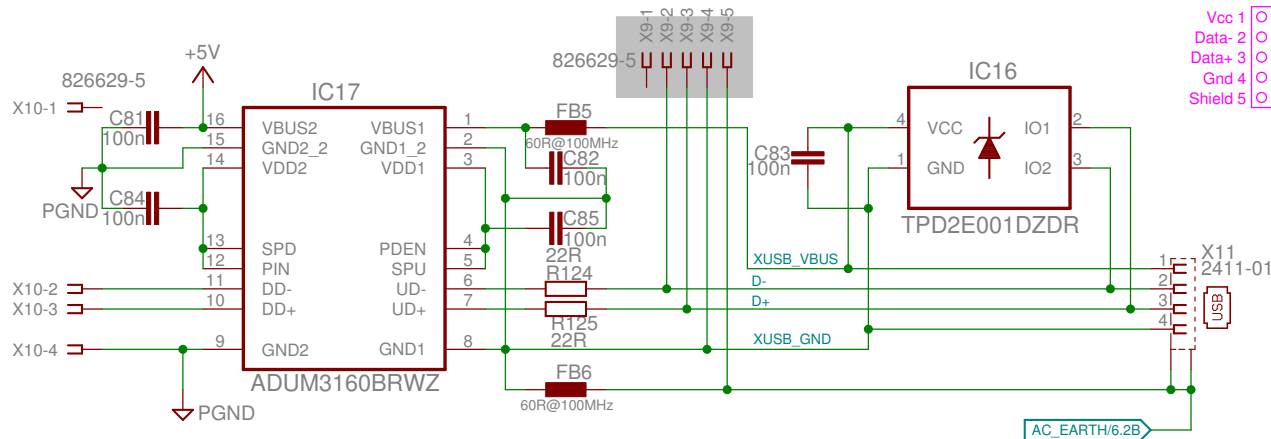
Ethernet connector with optional surge protection



Digital OUT2 relay



USB connector with optional isolator and surge protection



Note 7.1: Mount X4 and X8 on the opposite (top) side of the PCB. Use 14 mm (e.g. Bossard B3X14/BN3320) for enclosure with 3 mm rear panel

Ethernet and USB PCB connectors

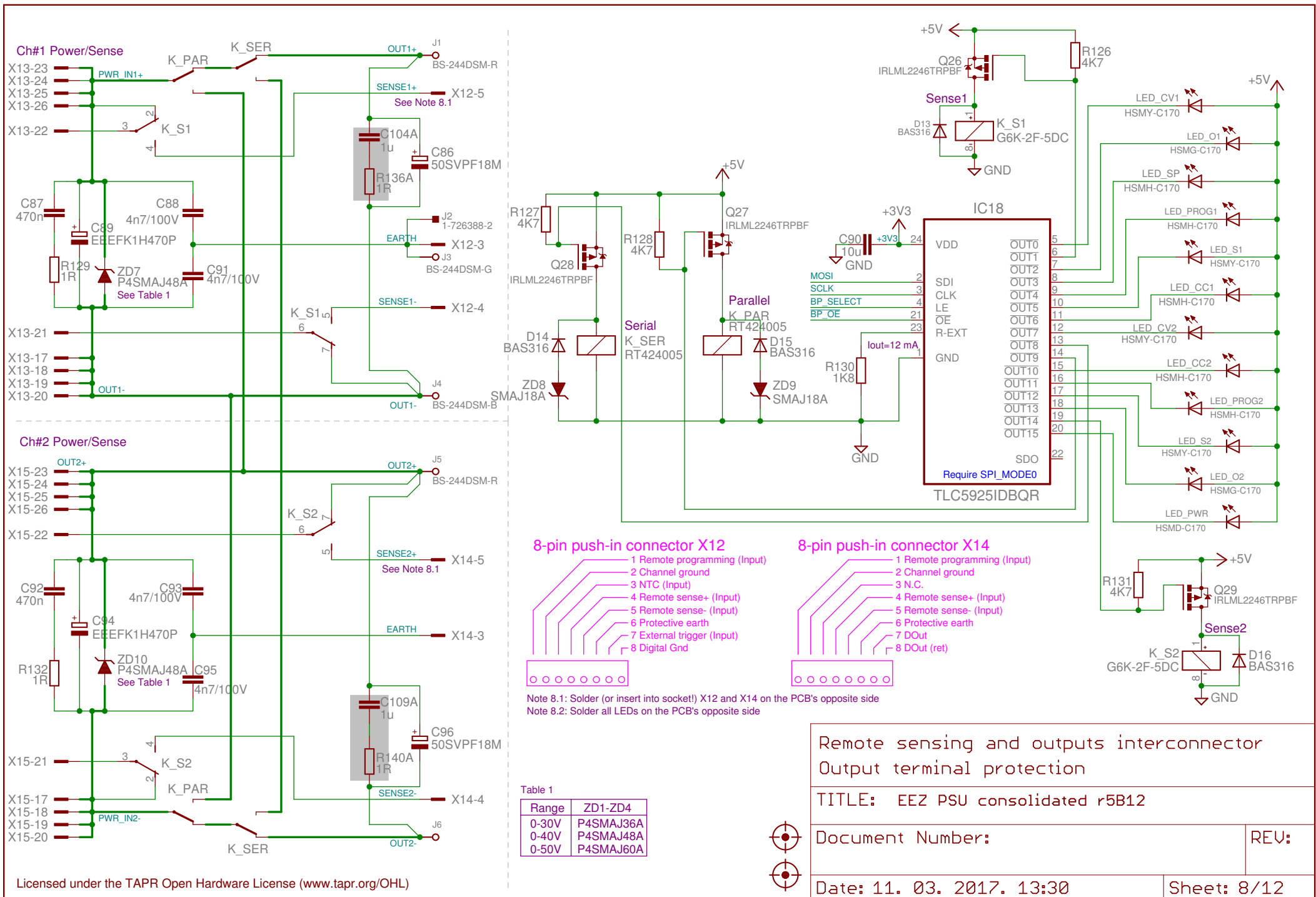
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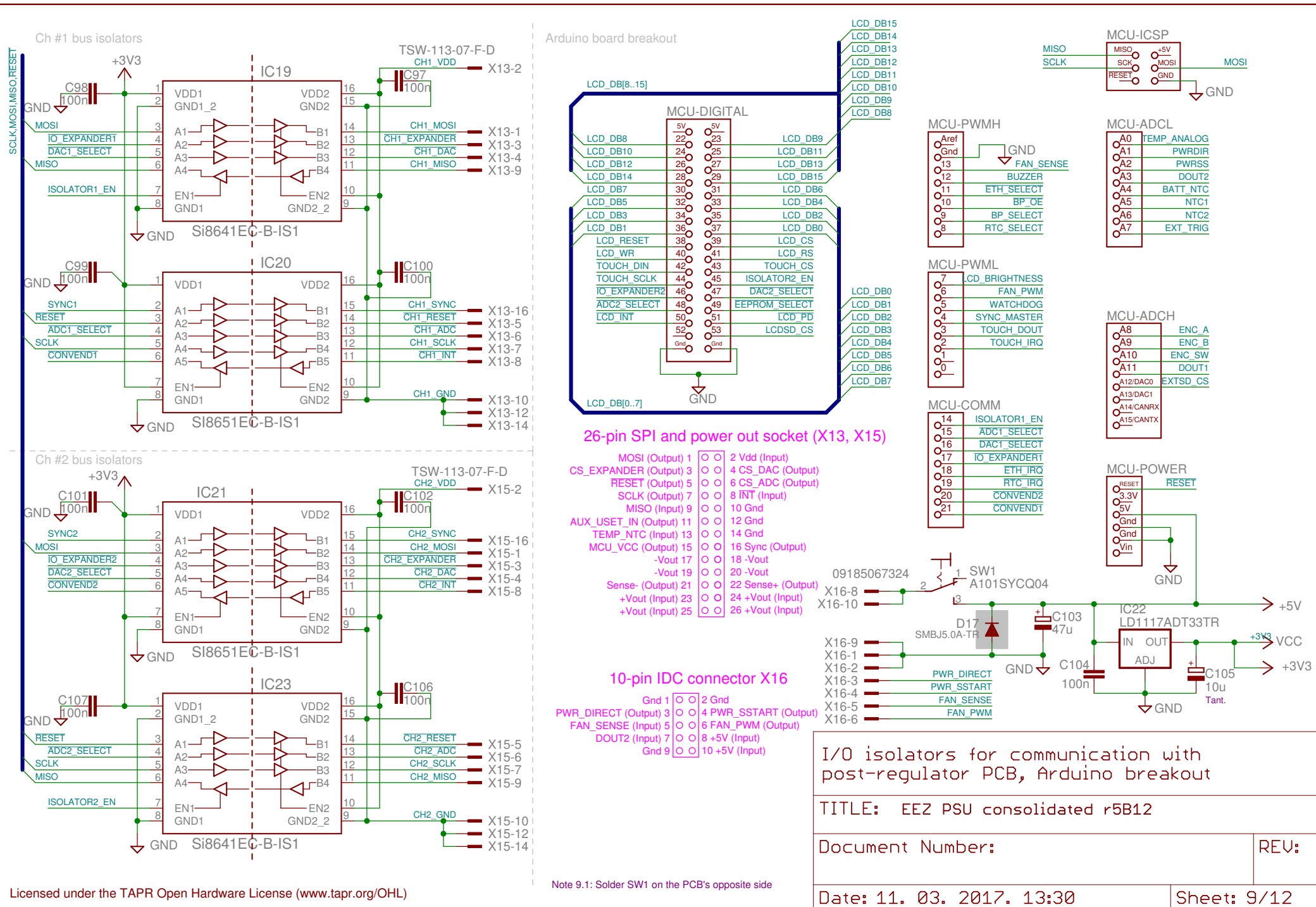
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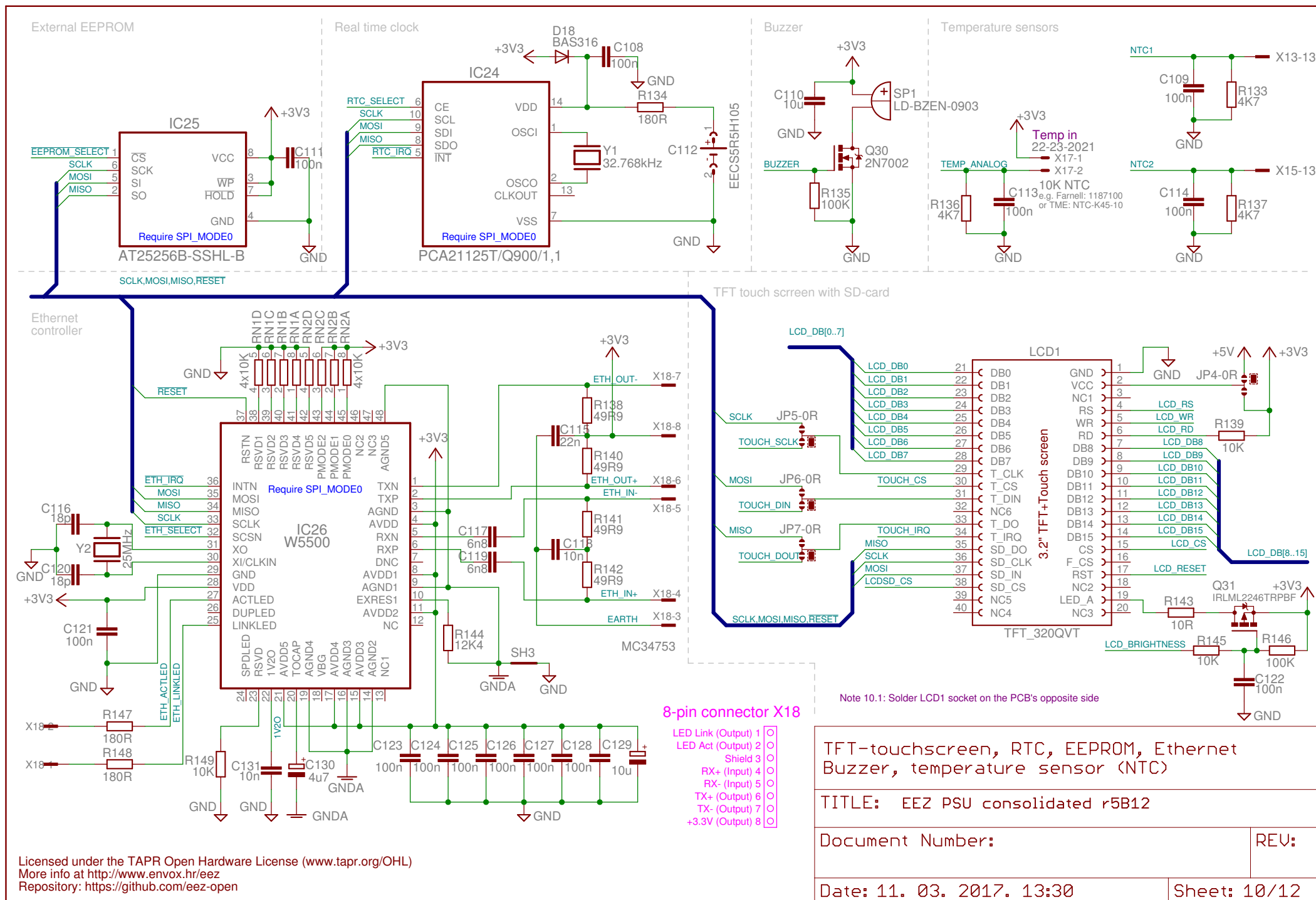
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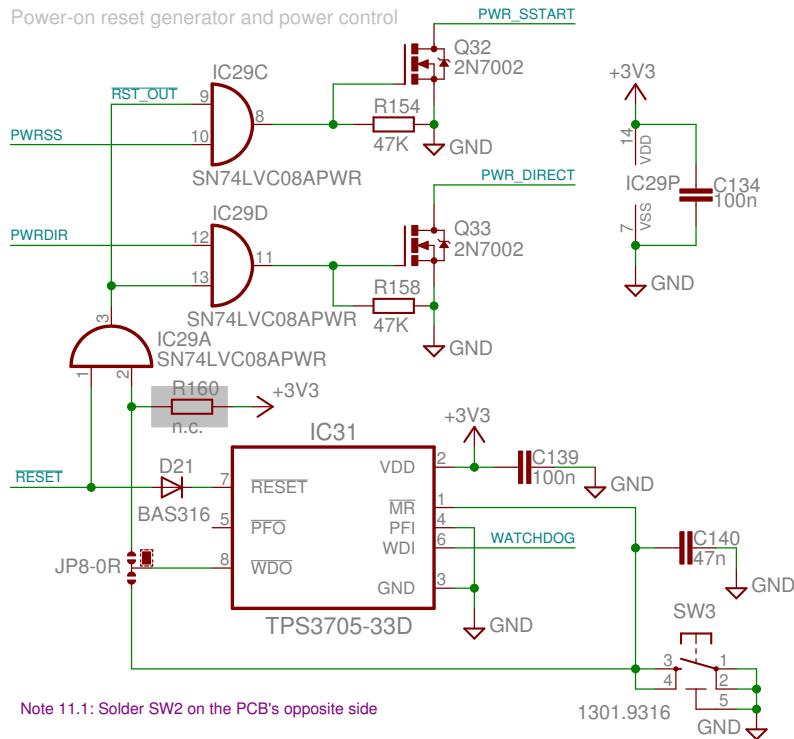




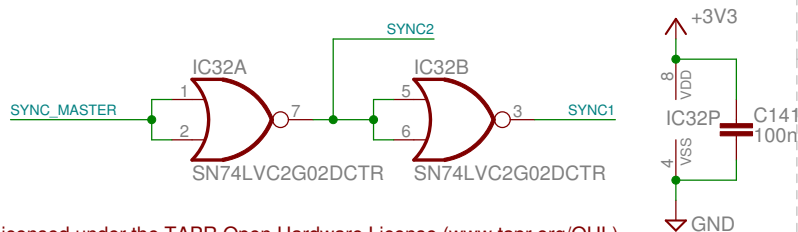
Remote programming inputs



Power-on reset generator and power control

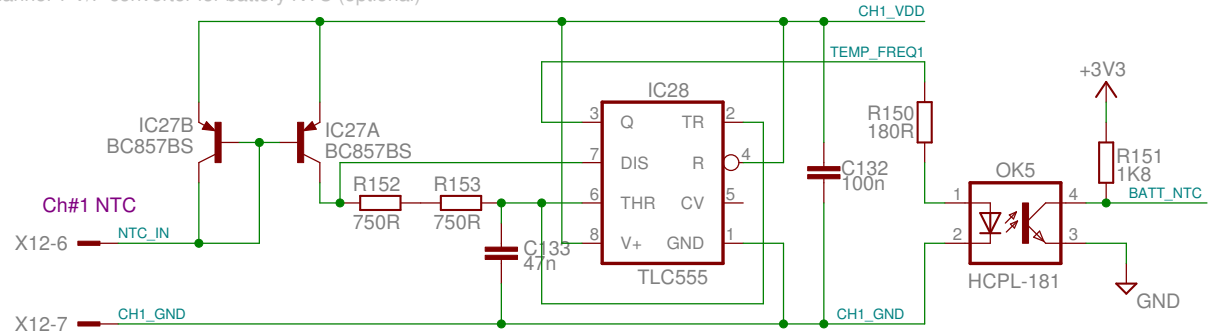


Master sync signal phase shifting

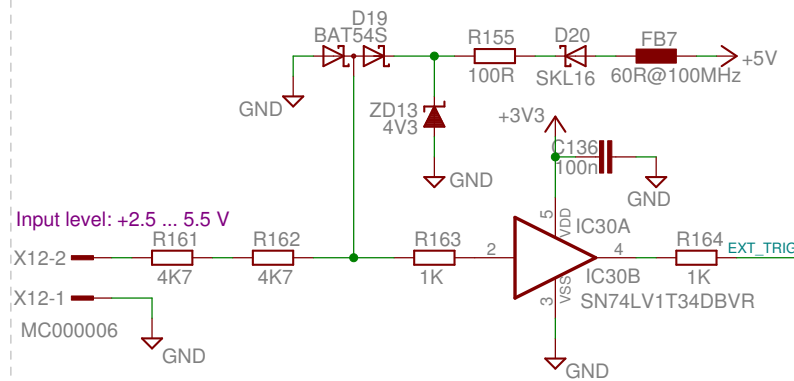


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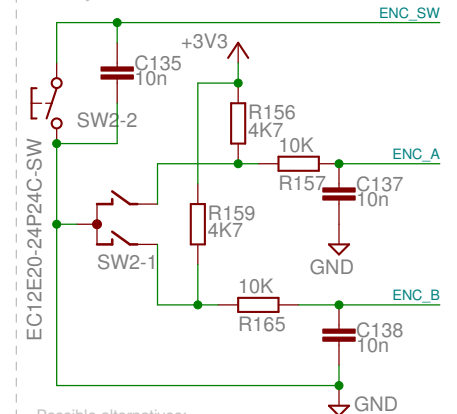
Channel 1 V/F converter for battery NTC (optional)



External trigger protection and level shifter/buffer

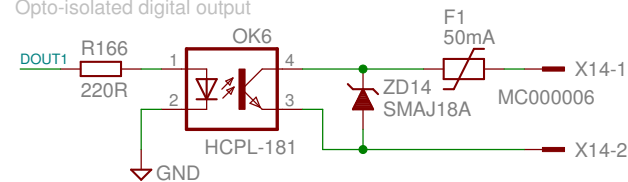


Rotary encoder

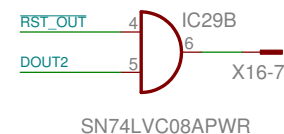


Possible alternatives:
PEC11R-4220F-S0024 or EN12-HS22AF20

Opto-isolated digital output



DOUT2 driver



Reset control, soft-start driver, encoder
V/F converter for battery NTC, External trigger

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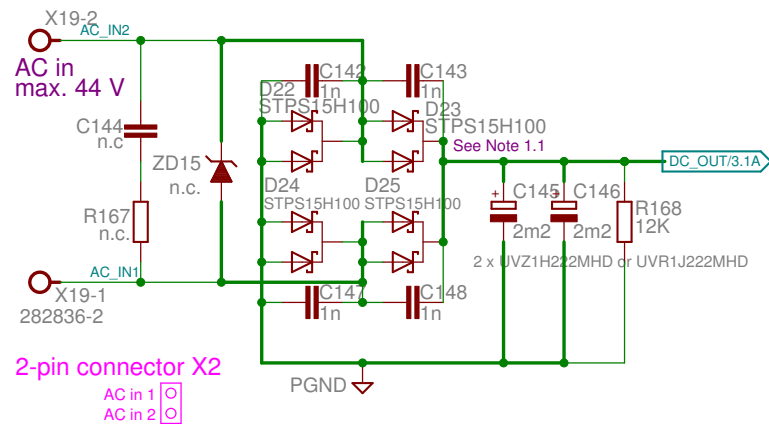
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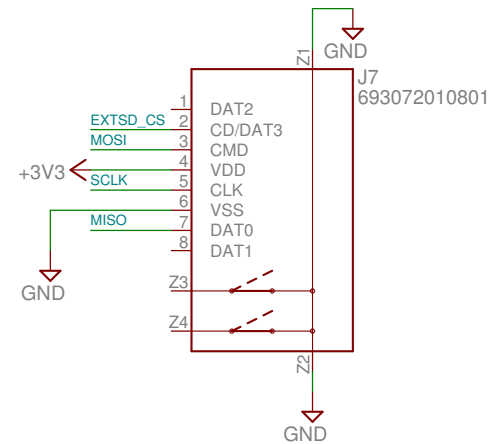
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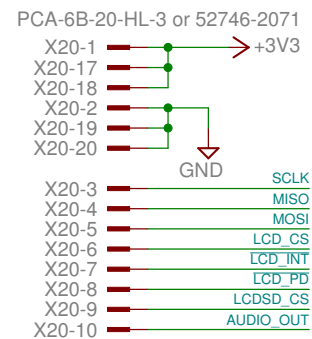
AC input option



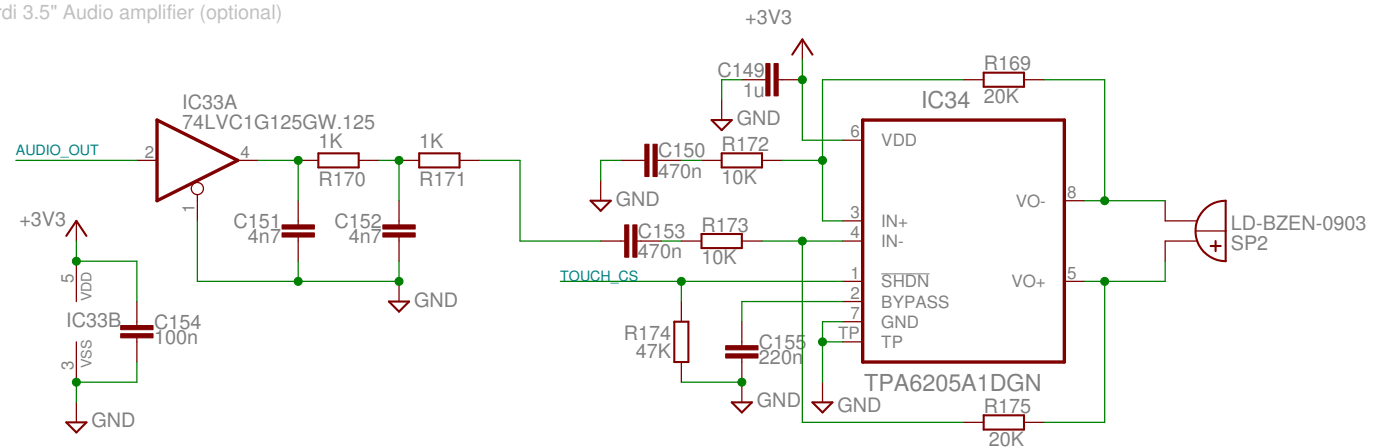
Micro SD card (optional)



Riverdi 3.5" LCD (optional)



Riverdi 3.5" Audio amplifier (optional)



Optional sections: AC input, 20-pin 3.5" TFT display
Audio amplifier for 3.5" TFT display, Micro SD card

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