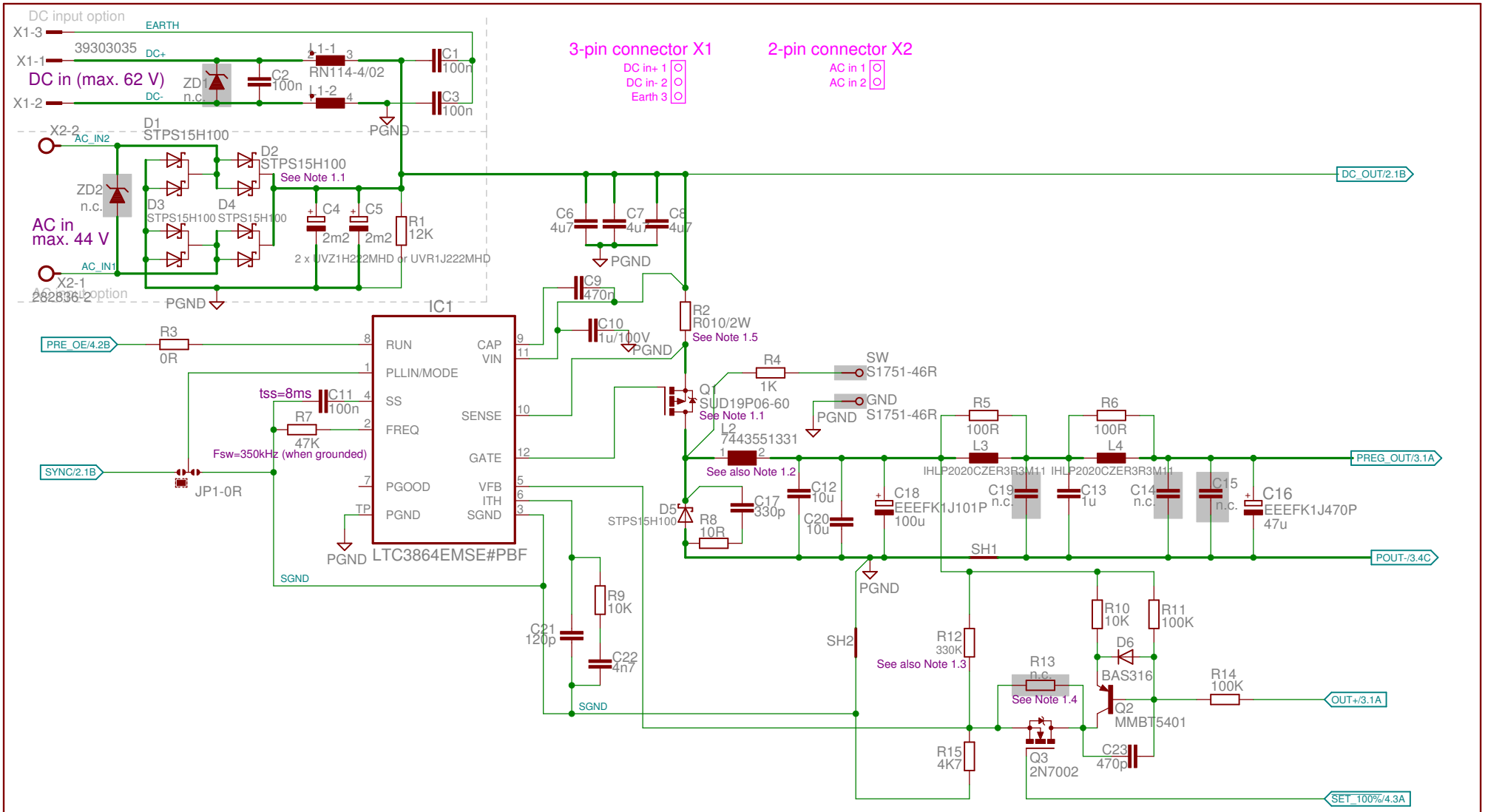

Note 1.1: D1-D5, L2 and Q1 requires thermal bridge to the external heatsink. See layer 114 on Board editor for an example.
Note 1.2: WE 7447709330, WE 7443551331, Coilcraft MSS1210-333, Coilcraft XAL1510-333, Vishay IHLP4040DZER470M11, etc.
Note 1.3: Use 240K for 30 VAC main transformer
Note 1.4: Install 0R only if 100% Duty cycle feature is not needed
Note 1.5: Use R020 for 0-3.12 A or R015 for 0-4.16 A range

SMPS power pre-regulator with 100% duty cycle

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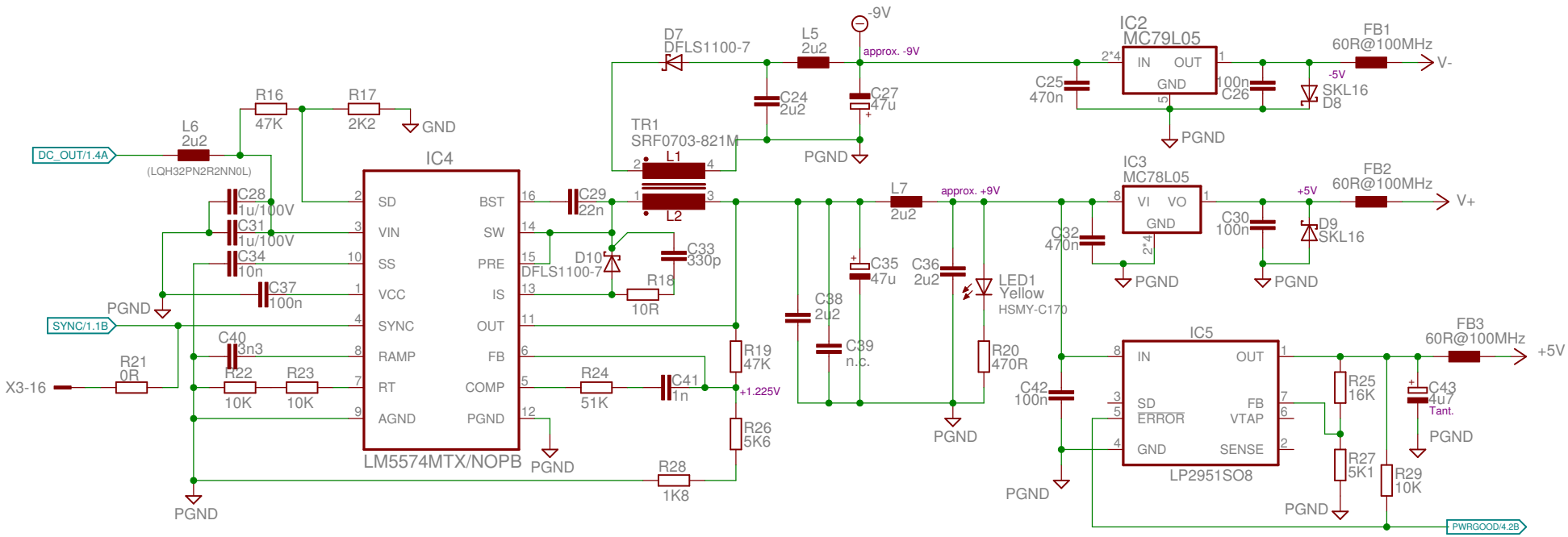

Bias power supply with SMPS pre-regulator

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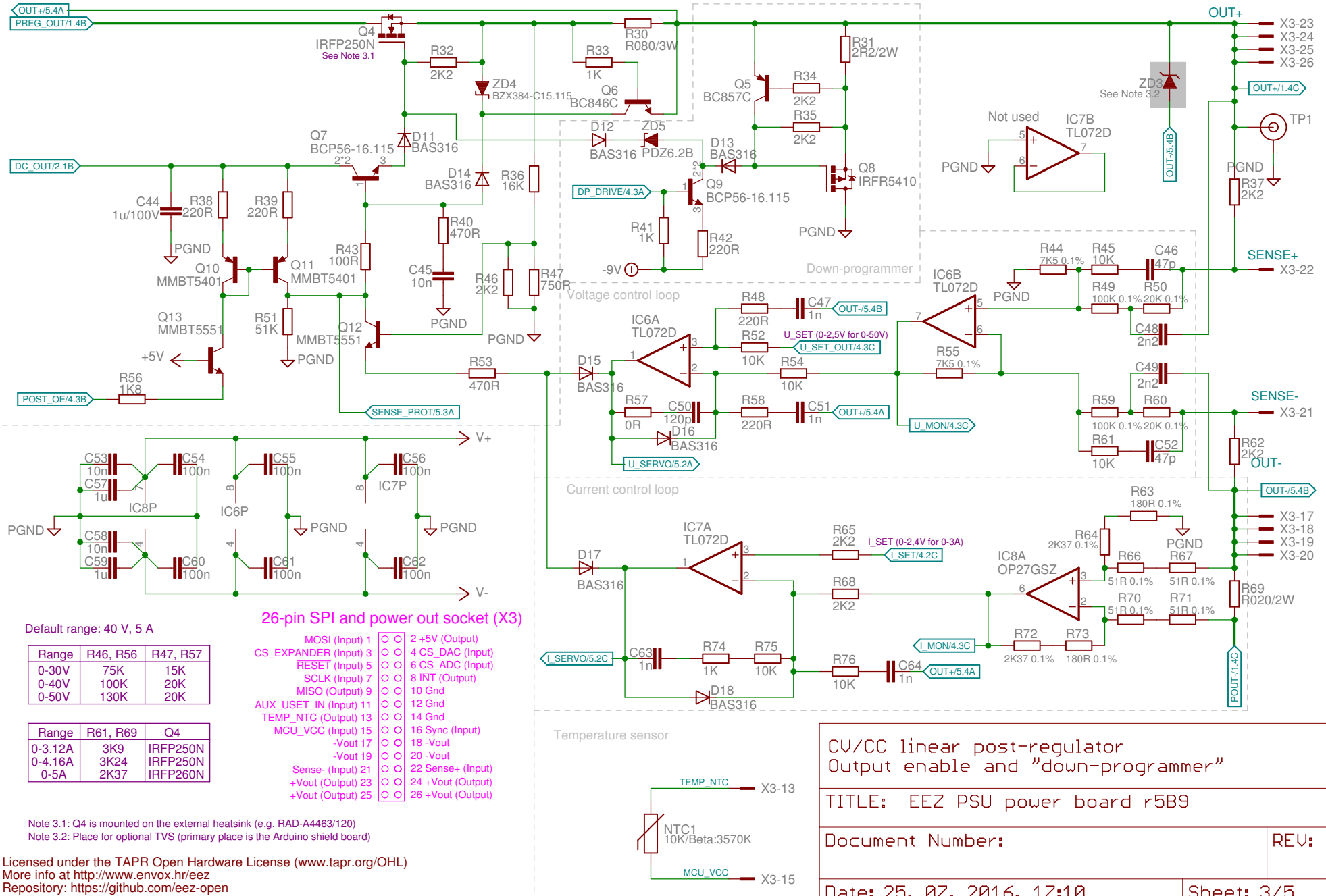

Default range: 40 V, 5 A

Range	R46, R56	R47, R57
0-30V	75K	15K
0-40V	100K	20K
0-50V	130K	20K

Range	R61, R69	Q4
0-3.12A	3K9	IRFP250N
0-4.16A	3K24	IRFP250N
0-5A	2K37	IRFP260N

26-pin SPI and power out socket (X3)

MOSI (Input) 1	○ ○	2 +5V (Output)
CS_EXPANDER (Input) 3	○ ○	4 CS_DAC (Input)
$\overline{\text{RESET}}$ (Input) 5	○ ○	6 CS_ADC (Input)
SCLK (Input) 7	○ ○	8 $\overline{\text{INT}}$ (Output)
MISO (Output) 9	○ ○	10 Gnd
AUX_USET_IN (Input) 11	○ ○	12 Gnd
TEMP_NTC (Output) 13	○ ○	14 Gnd
MCU_VCC (Input) 15	○ ○	16 Sync (Input)
-Vout 17	○ ○	18 -Vout
-Vout 19	○ ○	20 -Vout
Sense- (Input) 21	○ ○	22 Sense+ (Input)
+Vout (Output) 23	○ ○	24 +Vout (Output)
+Vout (Output) 25	○ ○	26 +Vout (Output)

Note 3.1: Q4 is mounted on the external heatsink (e.g. RAD-A4463/120)
Note 3.2: Place for optional TVS (primary place is the Arduino shield board)

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

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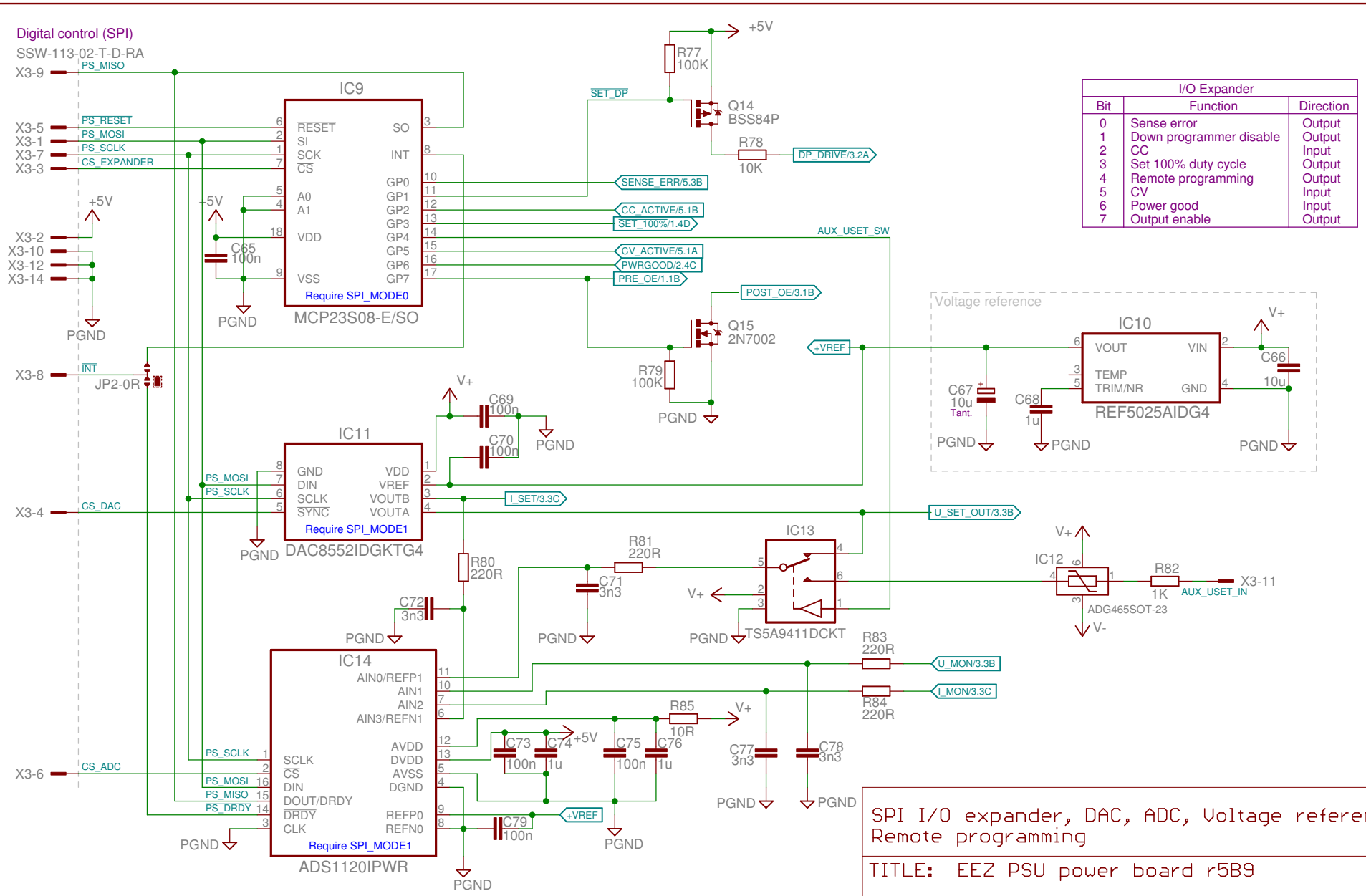
Digital control (SPI)
SSW-113-02-T-D-RA
X3-9
PS_MISO
IC9
X3-5
X3-1
X3-7
X3-3
PS_RESET
PS_MOSI
PS_SCLK
CS_EXPANDER
RESET
SI
SCK
CS
SO
INT
GP0
GP1
GP2
GP3
GP4
GP5
GP6
GP7
A0
A1
VDD
VSS
Require SPI_MODE0
MCP23S08-E/SO
+5V
C65
100n
PGND
X3-2
X3-10
X3-12
X3-14
X3-8
INT
JP2-0R
R77
100K
SET_DP
Q14
BSS84P
R78
10K
DP_DRIVE/3.2A
SENSE_ERR/5.3B
CC_ACTIVE/5.1B
SET_100%/1.4D
AUX_USET_SW
CV_ACTIVE/5.1A
PWRGOOD/2.4C
PRE_OE/1.1B
POST_OE/3.1B
Q15
2N7002
R79
100K
+VREF
Voltage reference
IC10
VOUT
VIN
TEMP
TRIM/NR
GND
REF5025AIDG4
C66
10u
C67
10u
Tant.
C68
1u
V+
IC11
C69
100n
C70
100n
GND
DIN
SCLK
SYNC
VDD
VREF
VOUTB
VOUTA
Require SPI_MODE1
DAC8552IDGKTG4
I_SET/3.3C
U_SET_OUT/3.3B
X3-4
CS_DAC
R80
220R
R81
220R
C71
3n3
C72
3n3
IC13
TS5A9411DCKT
IC12
ADG465SOT-23
R82
1K
X3-11
AUX_USET_IN
V-
R83
220R
R84
220R
U_MON/3.3B
I_MON/3.3C
IC14
AIN0/REFP1
AIN1
AIN2
AIN3/REFN1
AVDD
DVDD
AVSS
DGND
REFP0
REFN0
SCLK
CS
DIN
DOUT/DRDY
DRDY
CLK
Require SPI_MODE1
ADS1120IPWR
X3-6
CS_ADC
PS_SCLK
PS_MOSI
PS_MISO
PS_DRDY
R85
10R
C73
100n
C74
1u
C75
100n
C76
1u
C77
3n3
C78
3n3
C79
100n
+VREF
I/O Expander
Bit | Function | Direction
0 | Sense error | Output
1 | Down programmer disable | Output
2 | CC | Input
3 | Set 100% duty cycle | Output
4 | Remote programming | Output
5 | CV | Input
6 | Power good | Input
7 | Output enable | Output
SPI I/O expander, DAC, ADC, Voltage reference
Remote programming
TITLE: EEZ PSU power board r5B9
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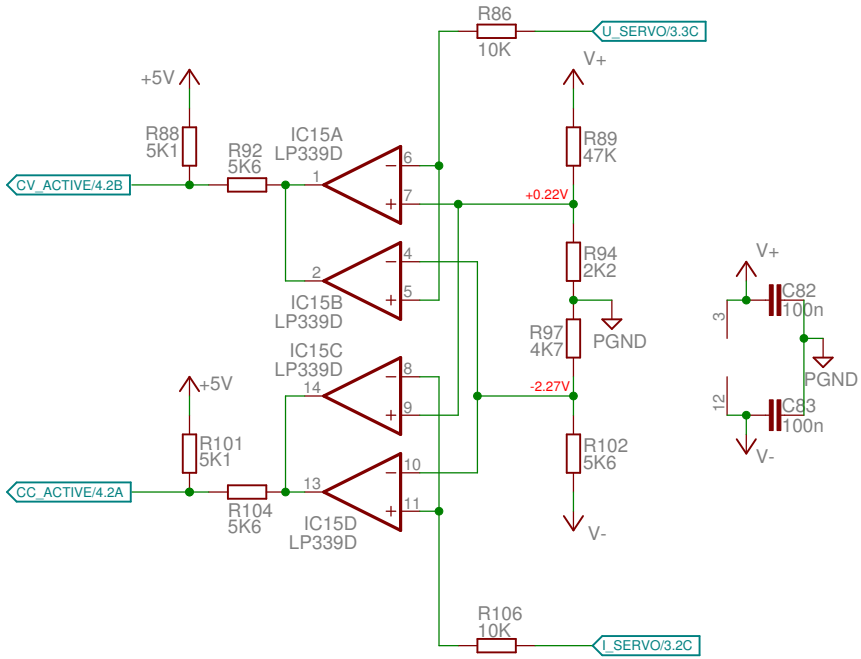
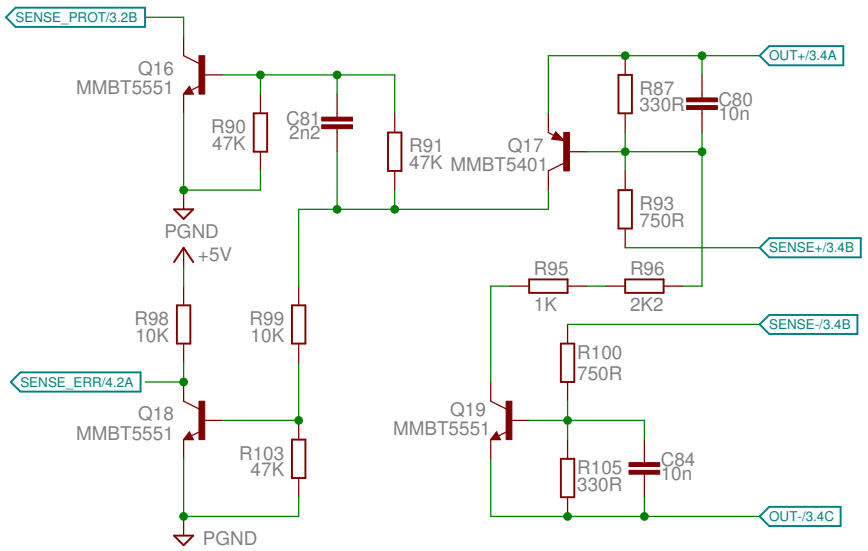
More info at http://www.envox.hr/eez
Repository: https://github.com/eez-open

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



Remote sense reverse polarity detection



CC/CV indicators, Sense error detection	
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