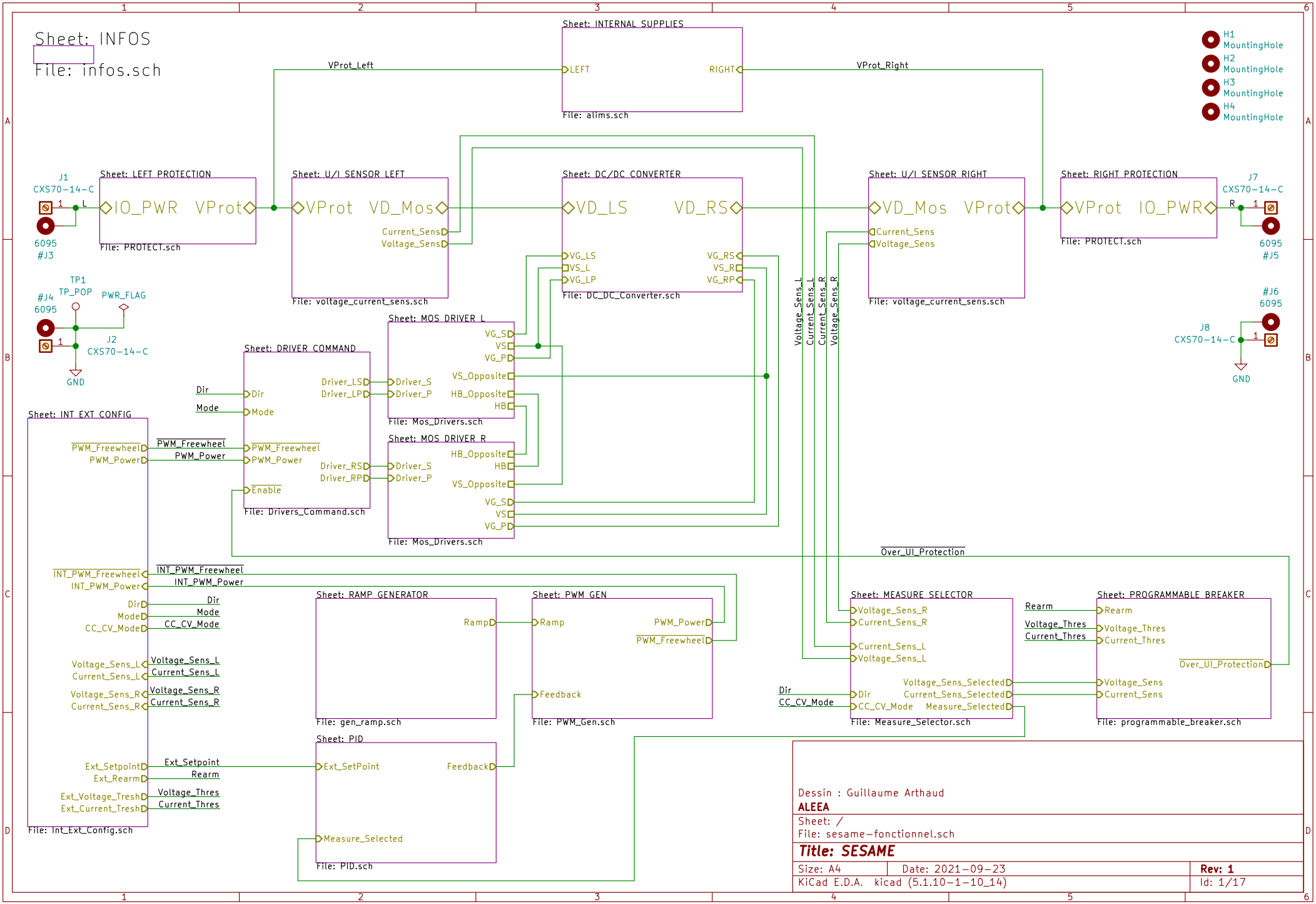
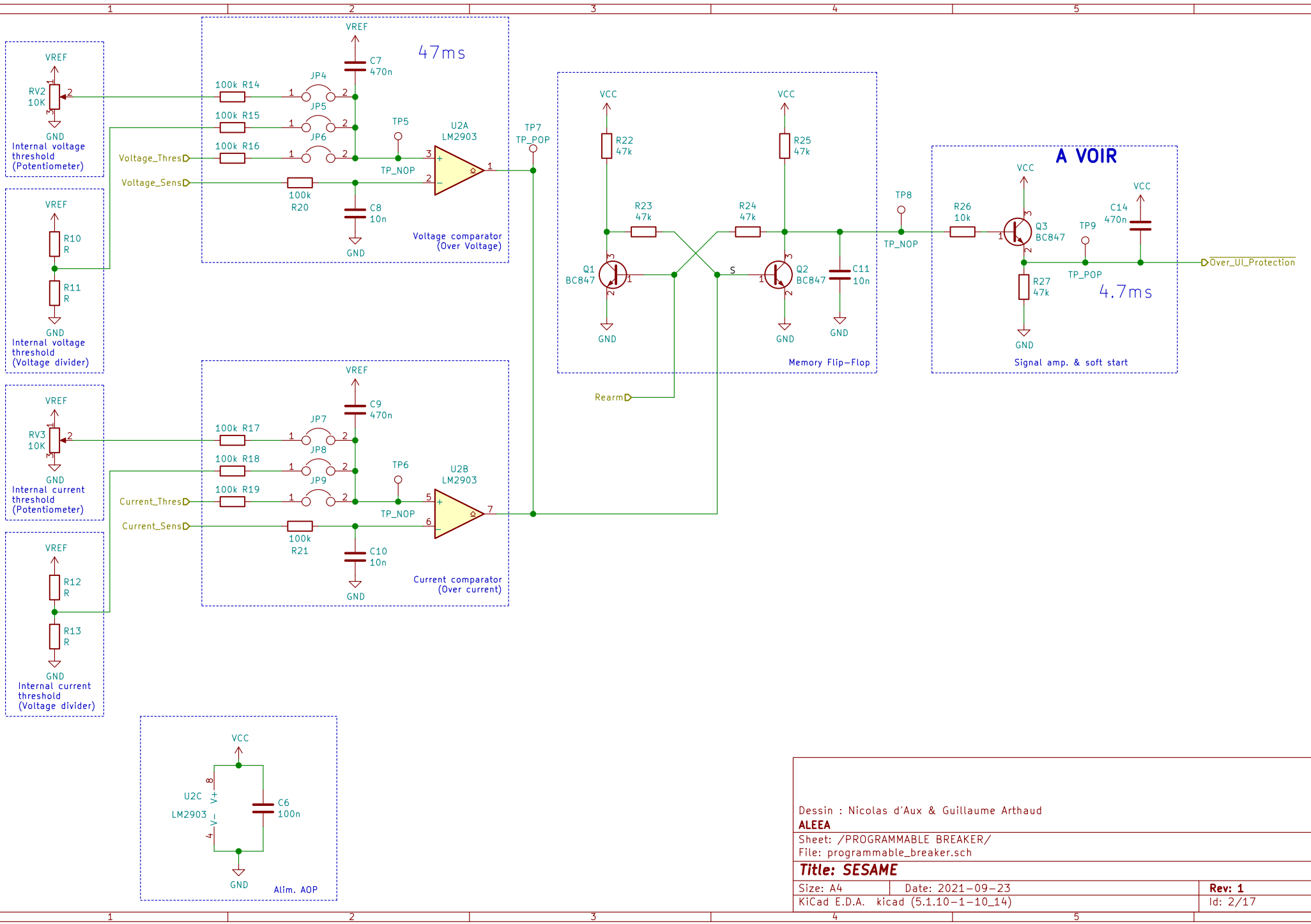
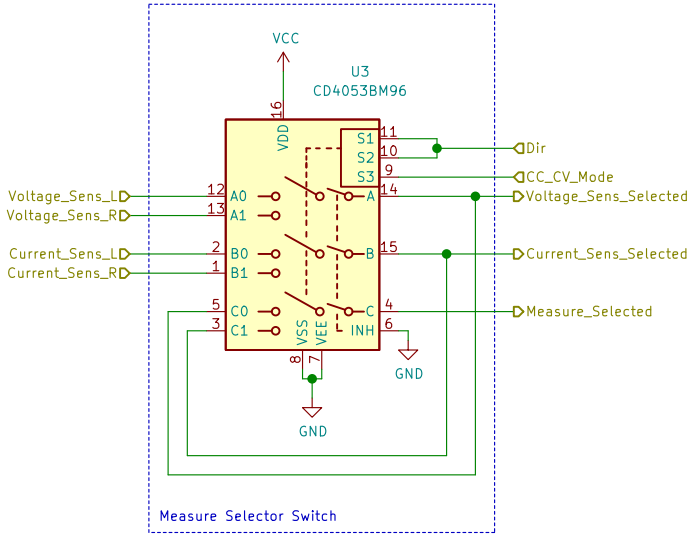
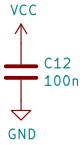

Sheet: INFOS
File: infos.sch
Sheet: INTERNAL SUPPLIES
LEFT
RIGHT
File: alims.sch
VProt_Left
VProt_Right
H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole
J1 CXS70-14-C
6095 #J3
Sheet: LEFT PROTECTION
IO_PWR VProt
File: PROTECT.sch
Sheet: U/I SENSOR LEFT
VProt VD_Mos
Current_Sens
Voltage_Sens
File: voltage_current_sens.sch
Sheet: DC/DC CONVERTER
VD_LS VD_RS
VG_LS VS_L VG_LP
VG_RS VS_R VG_RP
File: DC_DC_Converter.sch
Sheet: U/I SENSOR RIGHT
VD_Mos VProt
Current_Sens
Voltage_Sens
File: voltage_current_sens.sch
Sheet: RIGHT PROTECTION
VProt IO_PWR
File: PROTECT.sch
J7 CXS70-14-C
6095 #J5
TP1 TP_POP
PWR_FLAG
#J4 6095
J2 CXS70-14-C
GND
#J6 6095
J8 CXS70-14-C
GND
Voltage_Sens_L
Current_Sens_L
Current_Sens_R
Voltage_Sens_R
Sheet: MOS DRIVER L
VG_S VS VG_P VS_Opposite HB_Opposite HB
Driver_S Driver_P
File: Mos_Drivers.sch
Sheet: DRIVER COMMAND
Dir Mode PWM_Freewheel PWM_Power Enable
Driver_LS Driver_LP Driver_RS Driver_RP
File: Drivers_Command.sch
Sheet: MOS DRIVER R
HB_Opposite HB VS_Opposite VG_S VS VG_P
Driver_S Driver_P
File: Mos_Drivers.sch
Sheet: INT EXT CONFIG
PWM_Freewheel PWM_Power
INT_PWM_Freewheel INT_PWM_Power
Dir Mode CC_CV_Mode
Voltage_Sens_L Current_Sens_L
Voltage_Sens_R Current_Sens_R
Ext_Setpoint Ext_Rearm
Ext_Voltage_Tresh Ext_Current_Tresh
Ext_Setpoint Rearm Voltage_Thres Current_Thres
File: Int_Ext_Config.sch
Over_UI_Protection
Sheet: RAMP GENERATOR
Ramp
File: gen_ramp.sch
Sheet: PWM GEN
Ramp Feedback PWM_Power PWM_Freewheel
File: PWM_Gen.sch
Sheet: PID
Ext_SetPoint Feedback Measure_Selected
File: PID.sch
Sheet: MEASURE SELECTOR
Voltage_Sens_R Current_Sens_R Current_Sens_L Voltage_Sens_L
Dir CC_CV_Mode
Voltage_Sens_Selected Current_Sens_Selected Measure_Selected
File: Measure_Selector.sch
Sheet: PROGRAMMABLE BREAKER
Rearm Voltage_Thres Current_Thres Over_UI_Protection
Voltage_Sens Current_Sens
File: programmable_breaker.sch
Dessin : Guillaume Arthaud
ALEEA
Sheet: /
File: sesame-fonctionnel.sch
Title: SESAME
Size: A4
Date: 2021-09-23
Rev: 1
KiCad E.D.A. kicad (5.1.10-1-10_14)
Id: 1/17


VREF
RV2
10K
GND
Internal voltage
threshold
(Potentiometer)
R10
R
R11
R
Internal voltage
threshold
(Voltage divider)
RV3
10K
Internal current
threshold
(Potentiometer)
R12
R
R13
R
Internal current
threshold
(Voltage divider)
47ms
C7
470n
100k R14
100k R15
100k R16
JP4
JP5
JP6
TP5
TP_NOP
U2A
LM2903
Voltage_Thres
Voltage_Sens
100k
R20
C8
10n
Voltage comparator
(Over Voltage)
TP7
TP_POP
C9
470n
100k R17
100k R18
100k R19
JP7
JP8
JP9
TP6
U2B
LM2903
Current_Thres
Current_Sens
100k
R21
C10
10n
Current comparator
(Over current)
VCC
R22
47k
R23
47k
R24
47k
R25
47k
Q1
BC847
Q2
BC847
C11
10n
S
Rearm
Memory Flip-Flop
TP8
TP_NOP
A VOIR
R26
10k
Q3
BC847
TP9
TP_POP
C14
470n
R27
47k
4.7ms
Over_UI_Protection
Signal amp. & soft start
U2C
LM2903
C6
100n
Alim. AOP
Dessin : Nicolas d'Aux & Guillaume Arthaud
ALEEA
Sheet: /PROGRAMMABLE BREAKER/
File: programmable_breaker.sch
Title: SESAME
Size: A4
Date: 2021-09-23
Rev: 1
KiCad E.D.A. kicad (5.1.10-1-10_14)
Id: 2/17



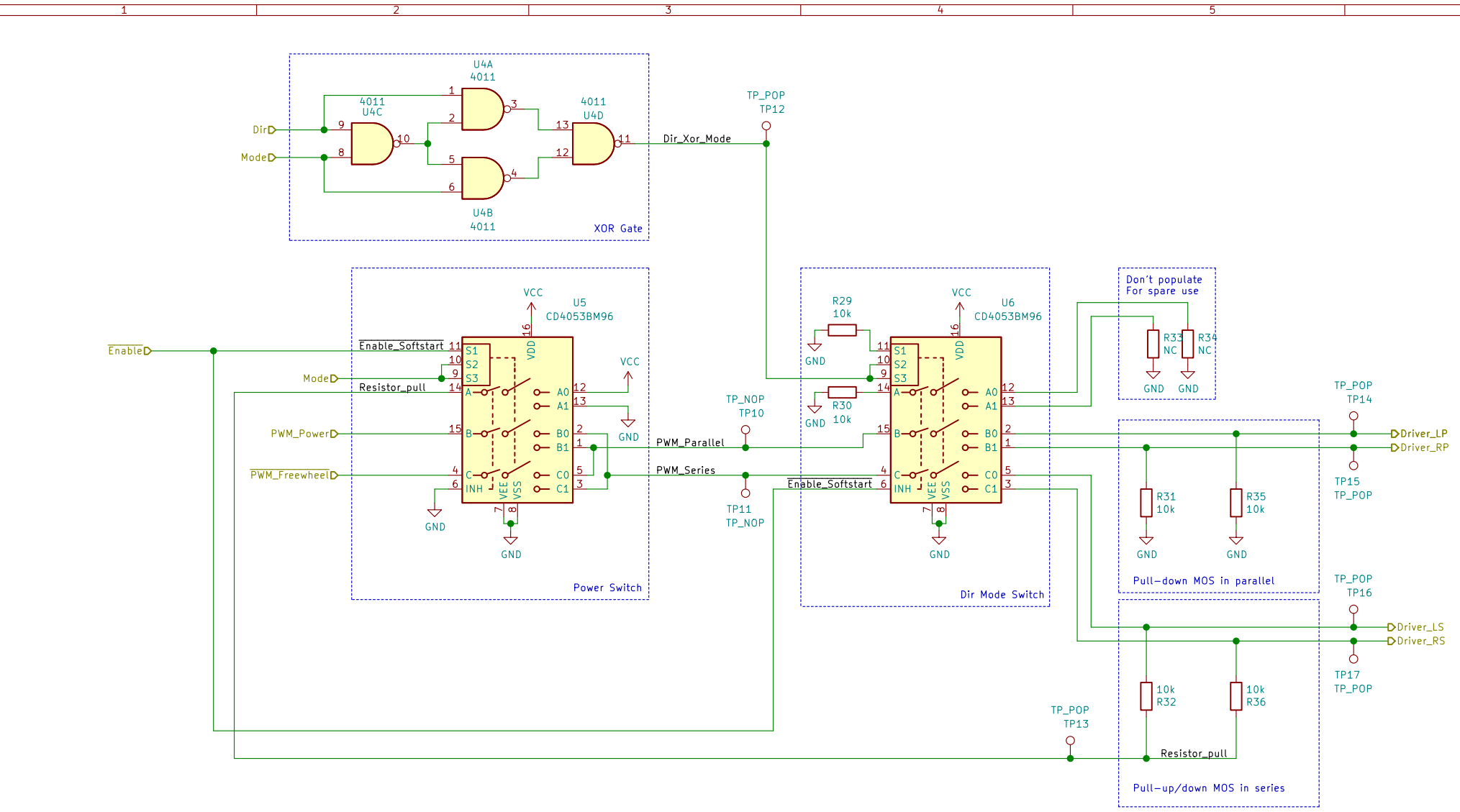


Dessin : Clément GRIMARD & Guillaume Arthaud
ALEEA

Sheet: /MEASURE SELECTOR/
File: Measure_Selector.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 3/17



	DIR	MODE	GS	GP	DS	DP
Buck (I Droit)	0	0	PWM	~PWM	1	0
Boost (I Droit)	0	1	1	0	~PWM	PWM
Buck (I Gauche)	1	0	1	0	PWM	~PWM
Boost (I Gauche)	1	1	~PWM	PWM	1	0

Dessin : Clément & Josué & Guillaume Arthaud
ALEEA
Sheet: /DRIVER COMMAND/
File: Drivers_Command.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 4/17

Soft starts order:
Enable Driver < PID < Entree de disjoncteur
4.7ms < 23ms < 47ms

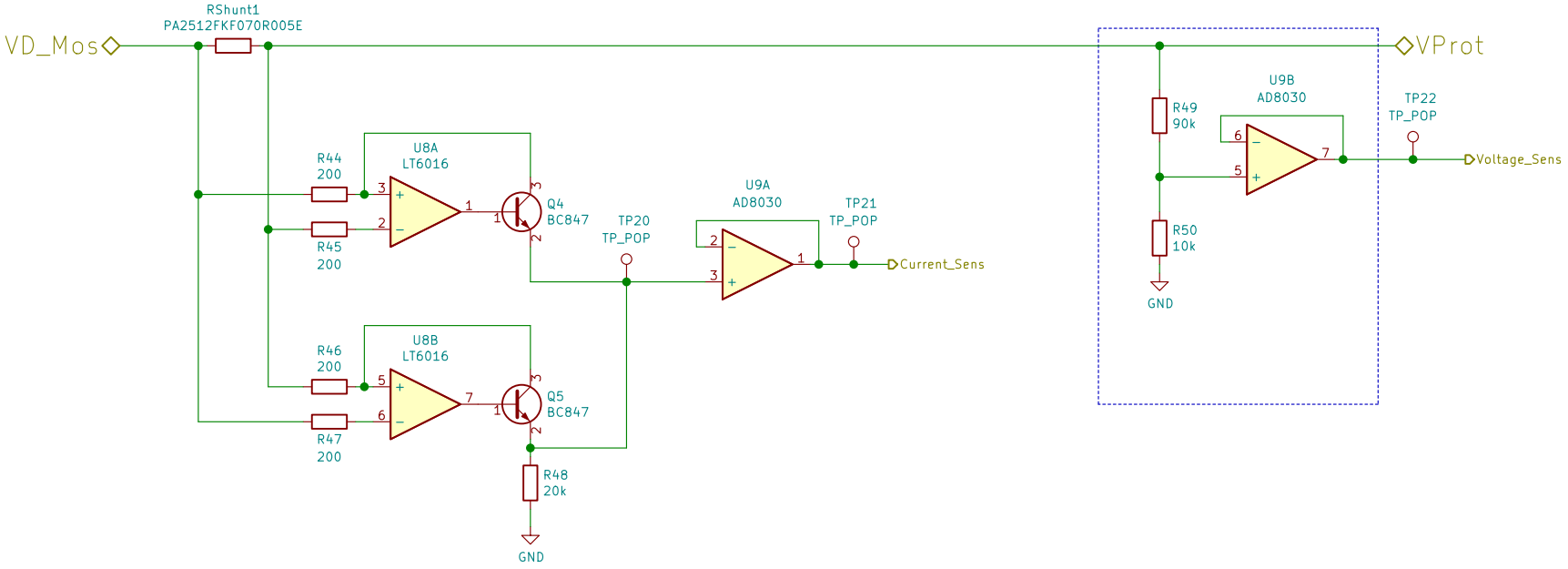
Memo:
- L = Left
- R = Right
- S = Serial
- P = Parallel
- G = Gate
- D = Drain

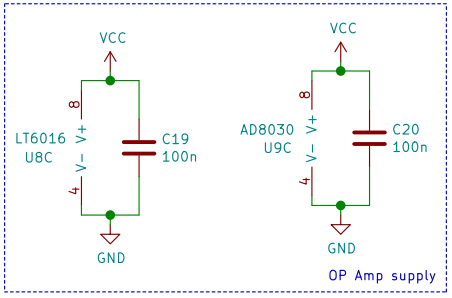
Power connectors:
Johnson / Cinch Connectivity Solutions 108-0740-102
or Keystone 6095
+ CXS70-14-C

FUTURE Improvements:

SHIELD BLOCKS
- Measure UI L + R
- Driver MOS
- Ramp Generator + PID + PWM GEN

ALEEA
Sheet: /INFOS/
File: infos.sch
Title: SESAME
Size: A4 | Date: 2021-09-23 | Rev: 1
KiCad E.D.A. kicad (5.1.10-1-10_14) | Id: 5/17

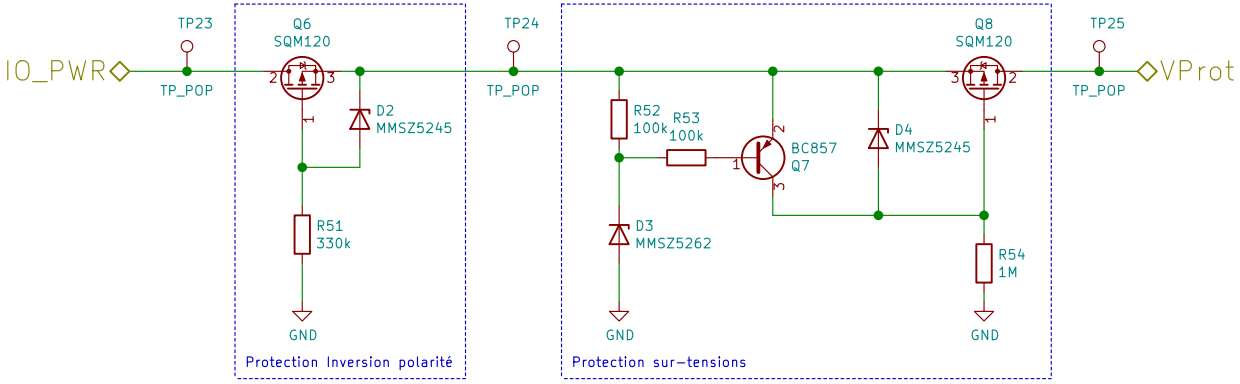




Dessin : Guillaume Arthaud
ALEEA
Sheet: /U/I SENSOR LEFT/
File: voltage_current_sens.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 6/17

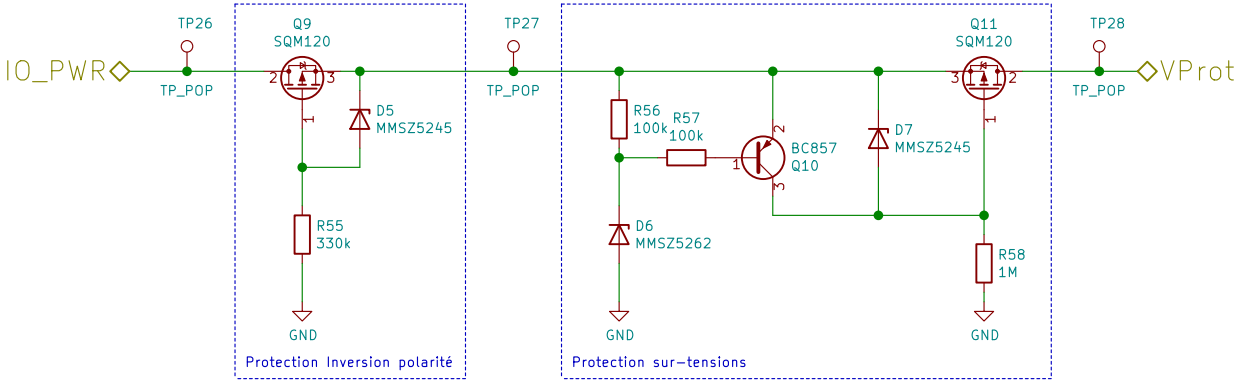


Dessin : Guillaume Arthaud
ALEEA

Sheet: /LEFT PROTECTION/
File: PROTECT.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 7/17

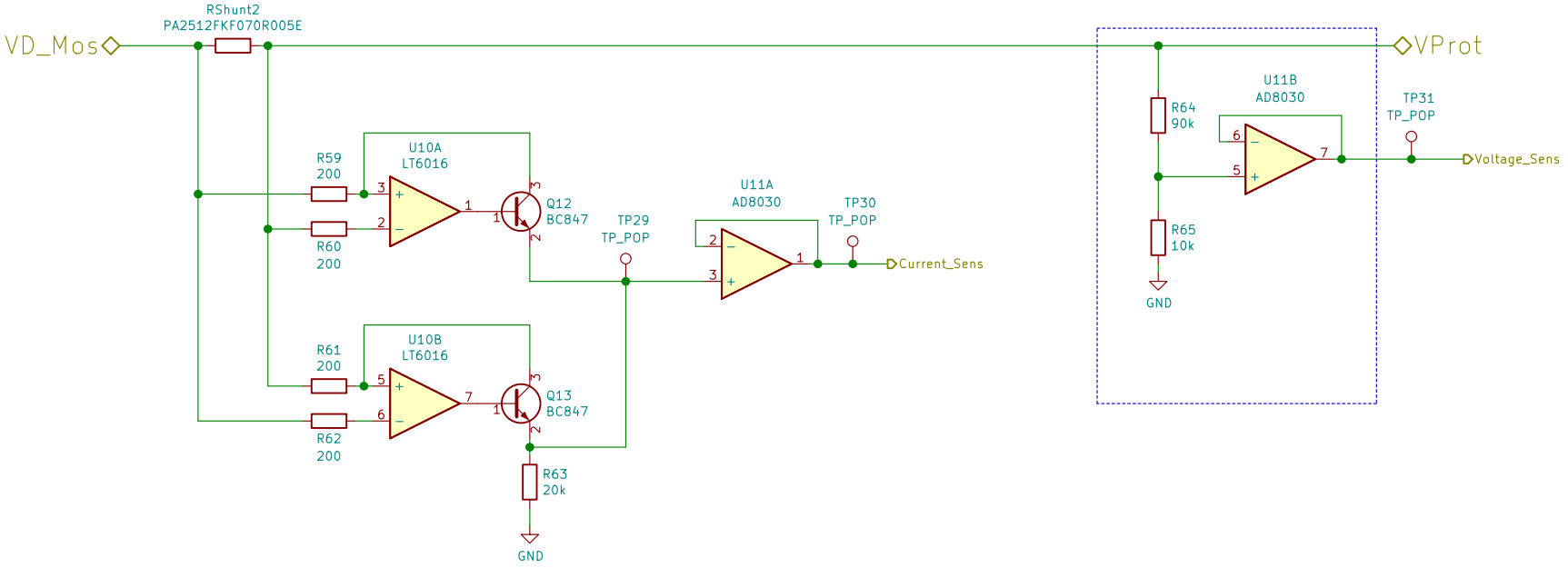


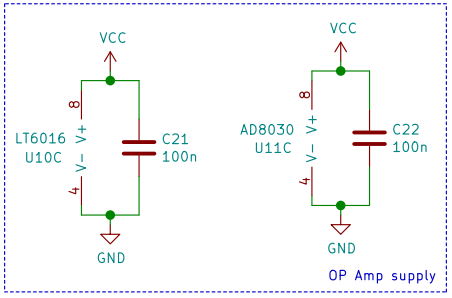
Dessin : Guillaume Arthaud
ALEEA

Sheet: /RIGHT PROTECTION/
File: PROTECT.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 8/17

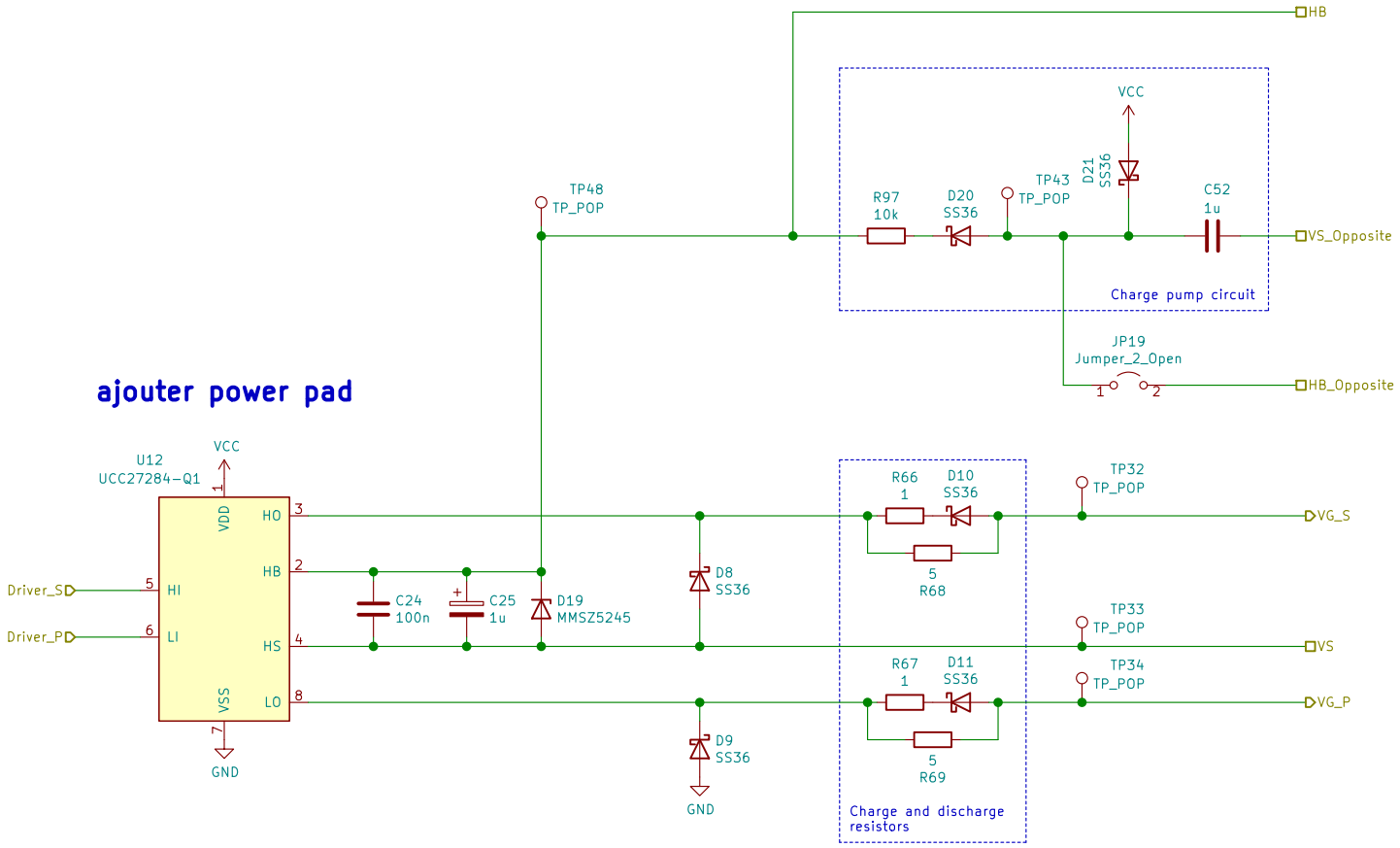


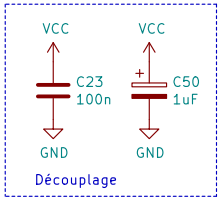


Dessin : Guillaume Arthaud
ALEEA
Sheet: /U/I SENSOR RIGHT/
File: voltage_current_sens.sch

Title: SESAME

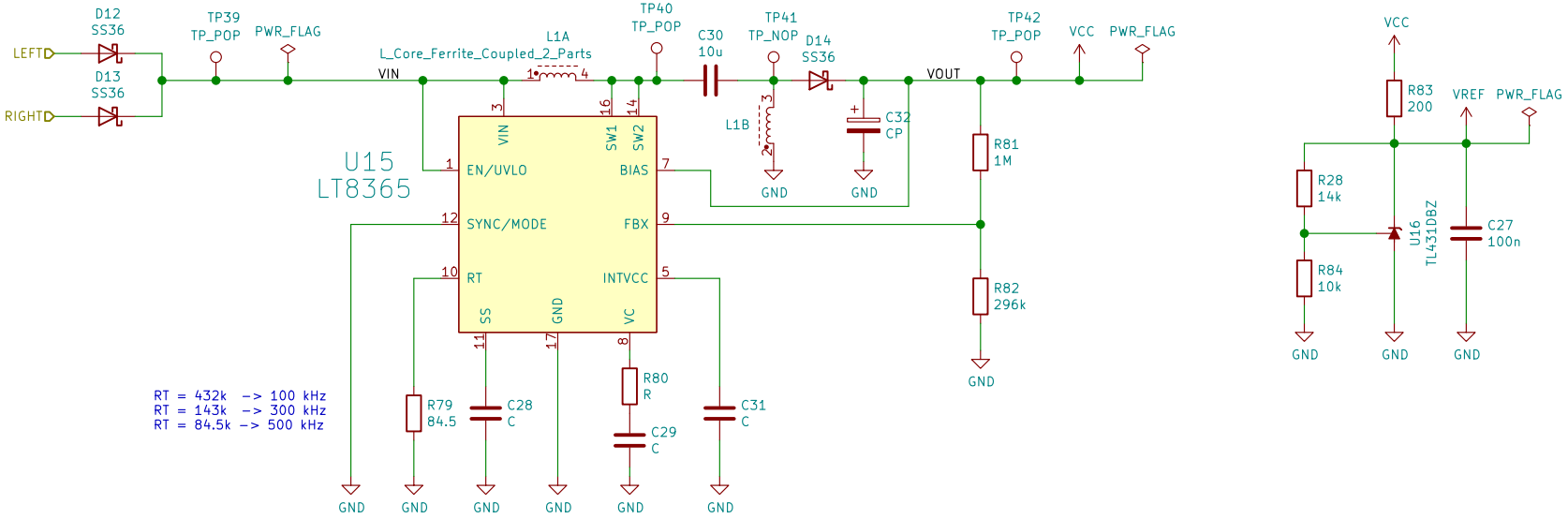
Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 9/17





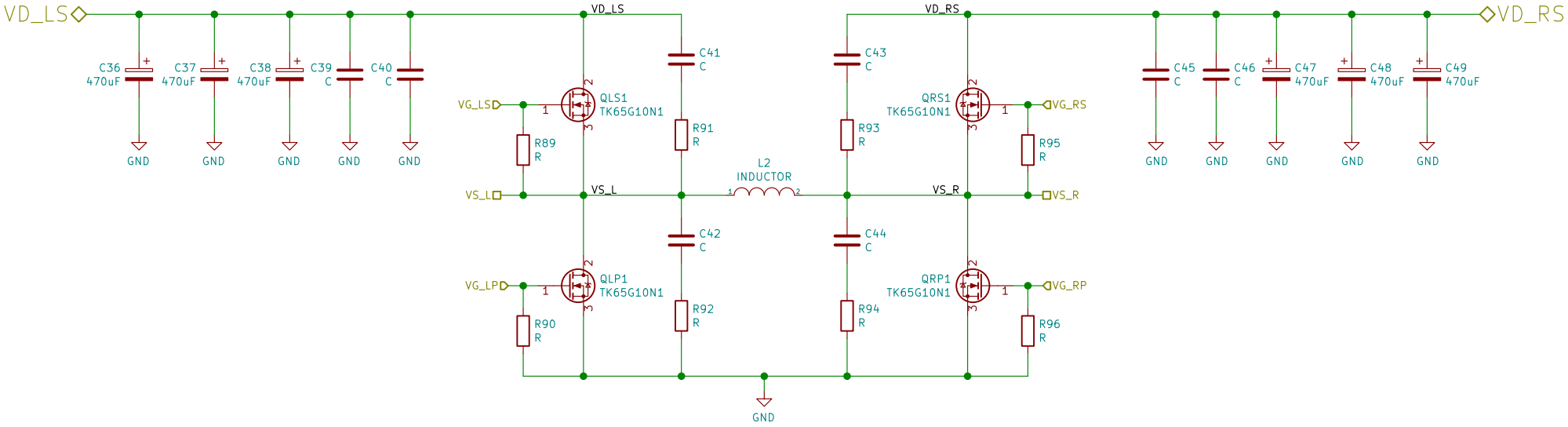
ALEEA		
Sheet: /MOS DRIVER L/		
File: Mos_Drivers.sch		
Title: SESAME		
Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 10/17

VCC = 7V
VREF = 6V



ALEEA		
Sheet: /INTERNAL SUPPLIES/		
File: alims.sch		
Title: SESAME		
Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 11/17

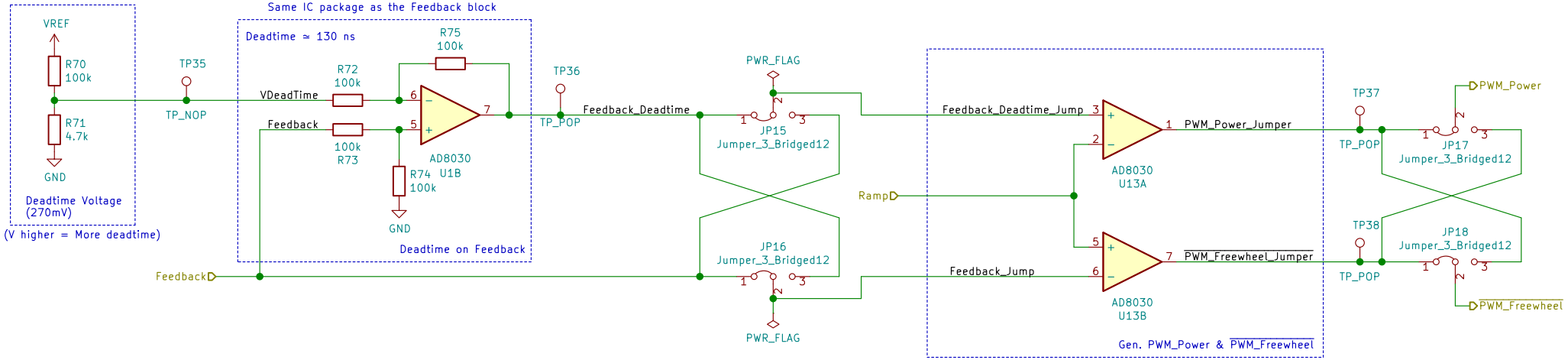
Inductor between 90uH -> 125uH
https://fr.rs-online.com/web/p/inductances-traversantes/1816037
https://fr.rs-online.com/web/p/inductances-traversantes/1542466
https://fr.rs-online.com/web/p/inductances-traversantes/1048448
https://fr.rs-online.com/web/p/inductances-traversantes/1229231

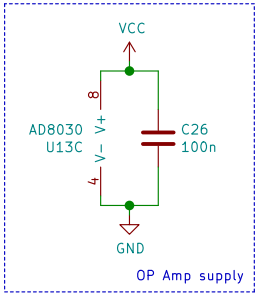


Dessin : Guillaume Arthaud
ALEEA
Sheet: /DC/DC CONVERTER/
File: DC_DC_Converter.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 12/17





Dessin : Kevin & Sarah & Guillaume Arthaud

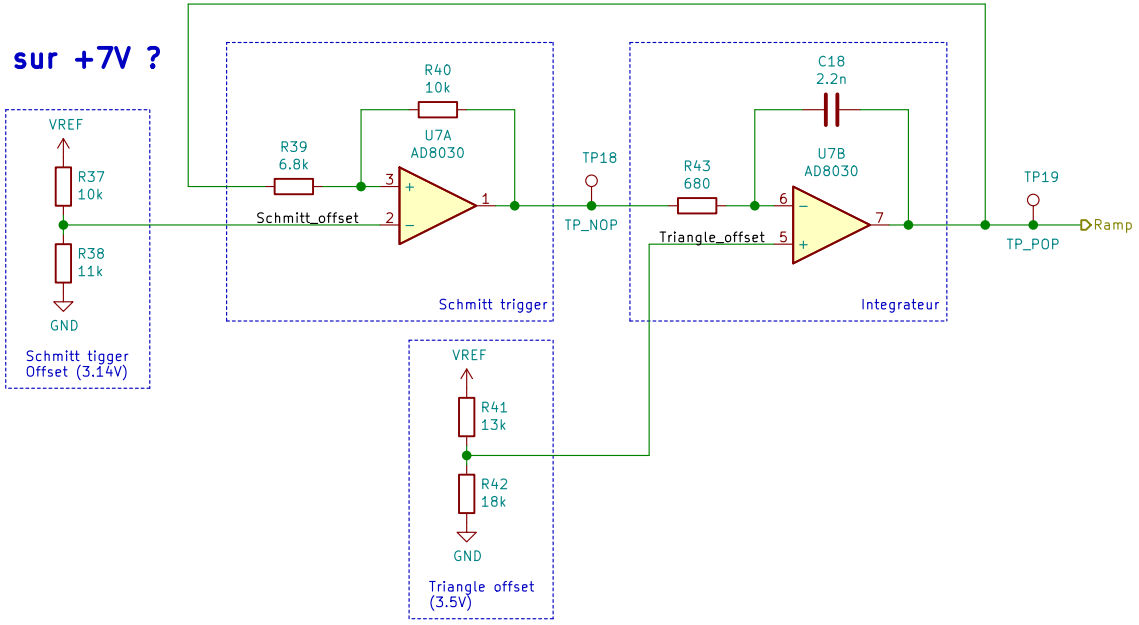
ALEEA

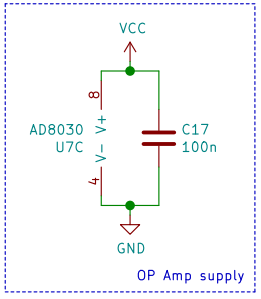
Sheet: /PWM GEN/
File: PWM_Gen.sch

Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 13/17

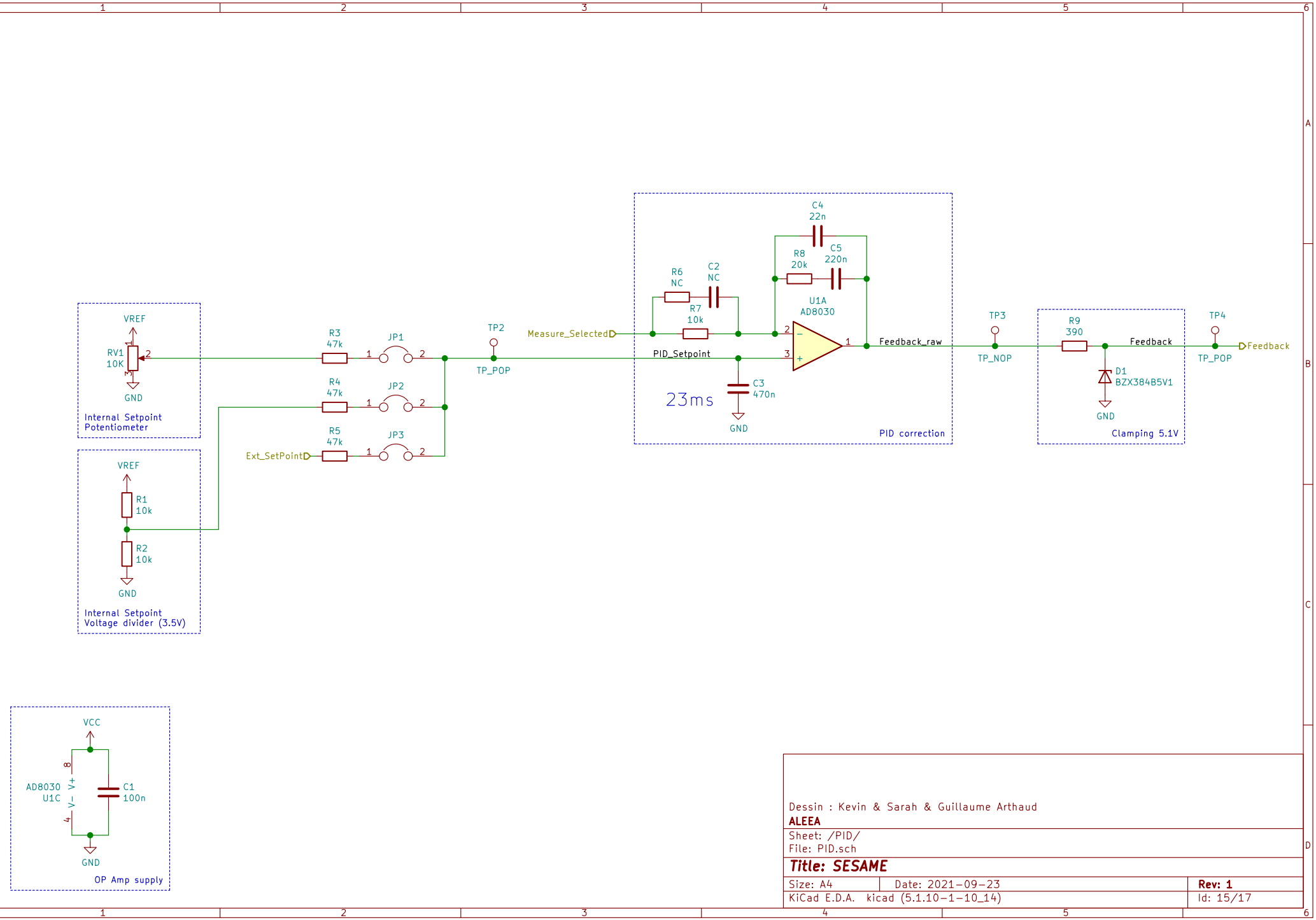
ponts diviseurs sur +7V ?





Dessin : Kevin & Sarah & Guillaume Arthaud
ALEEA
Sheet: /RAMP GENERATOR/
File: gen_ramp.sch
Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 14/17



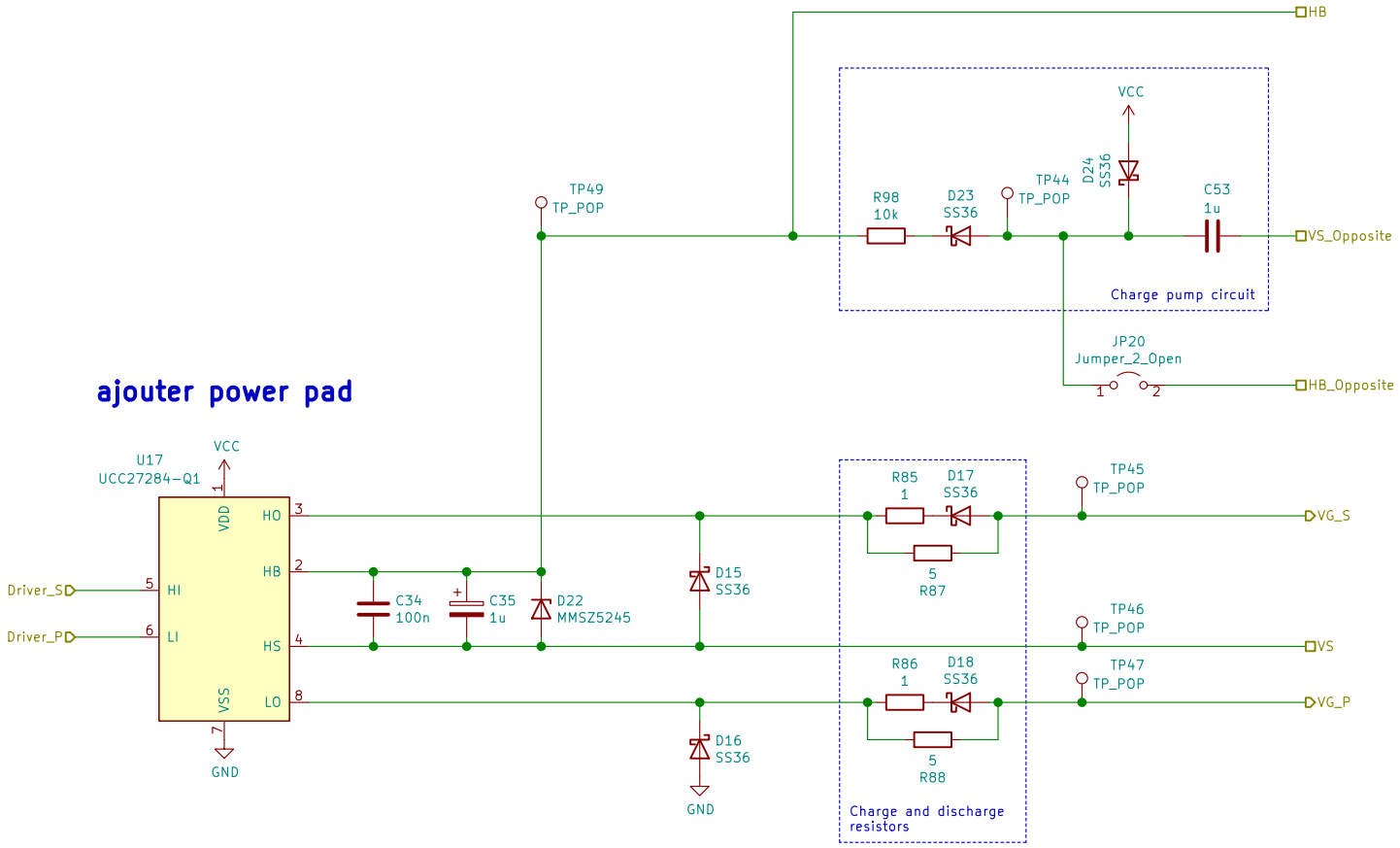
Dessin : Kevin & Sarah & Guillaume Arthaud

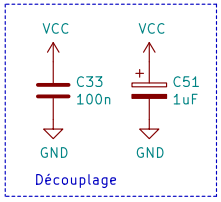
ALEEA

Sheet: /PID/
File: PID.sch

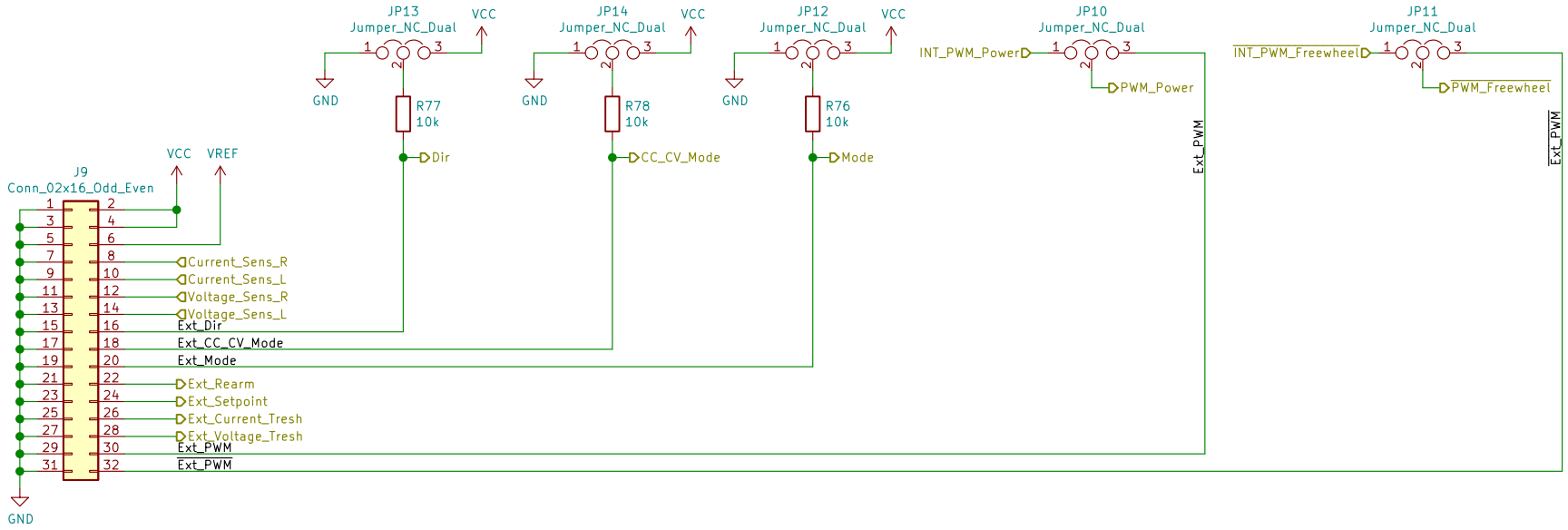
Title: SESAME

Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 15/17





ALEEA		
Sheet: /MOS DRIVER R/		
File: Mos_Drivers.sch		
Title: SESAME		
Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 16/17



ALEEA		
Sheet: /INT EXT CONFIG/		
File: Int_Ext_Config.sch		
Title: SESAME		
Size: A4	Date: 2021-09-23	**Rev: 1**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 17/17