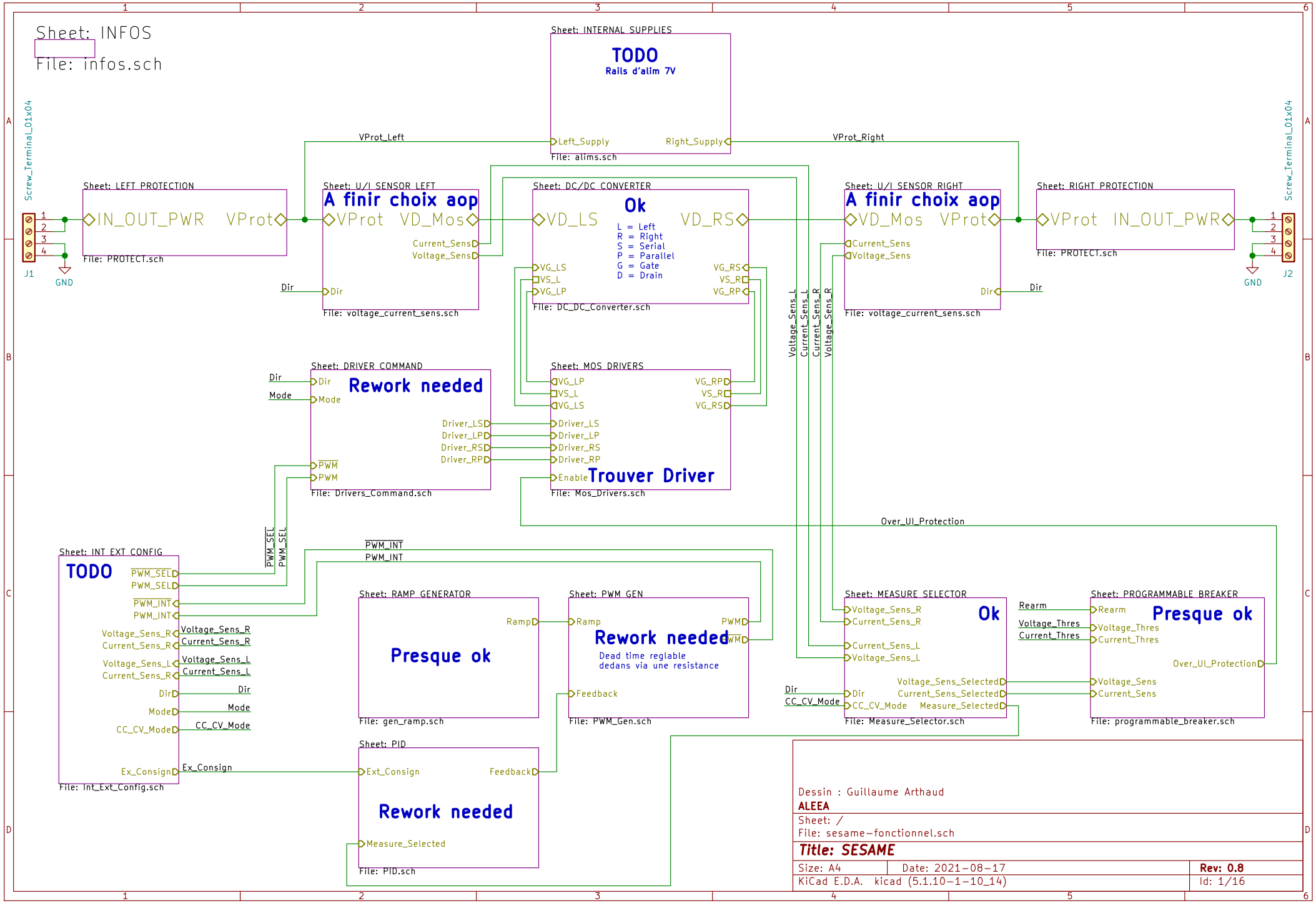
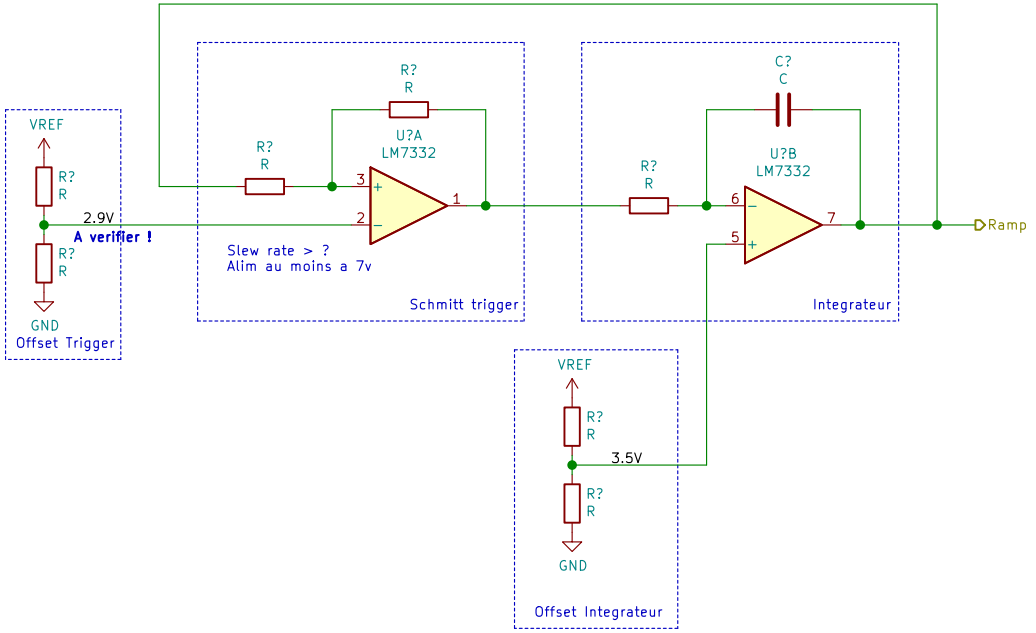
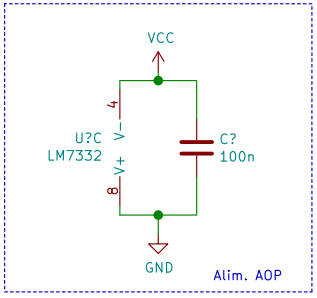

Sheet: INFOS
File: infos.sch
Sheet: INTERNAL SUPPLIES
TODO
Rails d'alim 7V
Left_Supply
Right_Supply
File: alims.sch
VProt_Left
VProt_Right
Screw_Terminal_01x04
J1
GND
Sheet: LEFT PROTECTION
IN_OUT_PWR
VProt
File: PROTECT.sch
Sheet: U/I SENSOR LEFT
A finir choix aop
VProt
VD_Mos
Current_Sens
Voltage_Sens
Dir
File: voltage_current_sens.sch
Sheet: DC/DC CONVERTER
Ok
VD_LS
VD_RS
L = Left
R = Right
S = Serial
P = Parallel
G = Gate
D = Drain
VG_LS
VS_L
VG_LP
VG_RS
VS_R
VG_RP
File: DC_DC_Converter.sch
Sheet: U/I SENSOR RIGHT
A finir choix aop
VD_Mos
VProt
Current_Sens
Voltage_Sens
Dir
File: voltage_current_sens.sch
Sheet: RIGHT PROTECTION
VProt
IN_OUT_PWR
File: PROTECT.sch
Screw_Terminal_01x04
J2
GND
Voltage_Sens_L
Current_Sens_L
Current_Sens_R
Voltage_Sens_R
Sheet: DRIVER COMMAND
Rework needed
Dir
Mode
PWM
PWM
File: Drivers_Command.sch
Sheet: MOS DRIVERS
VG_LP
VS_L
VG_LS
VG_RP
VS_R
VG_RS
Driver_LS
Driver_LP
Driver_RS
Driver_RP
Enable
Trouver Driver
File: Mos_Drivers.sch
Over_UI_Protection
PWM_SEL
PWM_SEL
PWM_INT
PWM_INT
Sheet: INT EXT CONFIG
TODO
PWM_SEL
PWM_SEL
PWM_INT
PWM_INT
Voltage_Sens_R
Current_Sens_R
Voltage_Sens_L
Current_Sens_R
Dir
Mode
CC_CV_Mode
Ex_Consign
File: Int_Ext_Config.sch
Sheet: RAMP GENERATOR
Presque ok
Ramp
File: gen_ramp.sch
Sheet: PWM GEN
Ramp
PWM
PWM
Rework needed
Dead time reglable
dedans via une resistance
Feedback
File: PWM_Gen.sch
Sheet: PID
Rework needed
Ext_Consign
Feedback
Measure_Selected
File: PID.sch
Sheet: MEASURE SELECTOR
Ok
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
Presque ok
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: 2021-08-17
Rev: 0.8
KiCad E.D.A. kicad (5.1.10-1-10_14)
Id: 1/16

Choisir AOP Rail To Rail
Definir Resistances & Condos





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

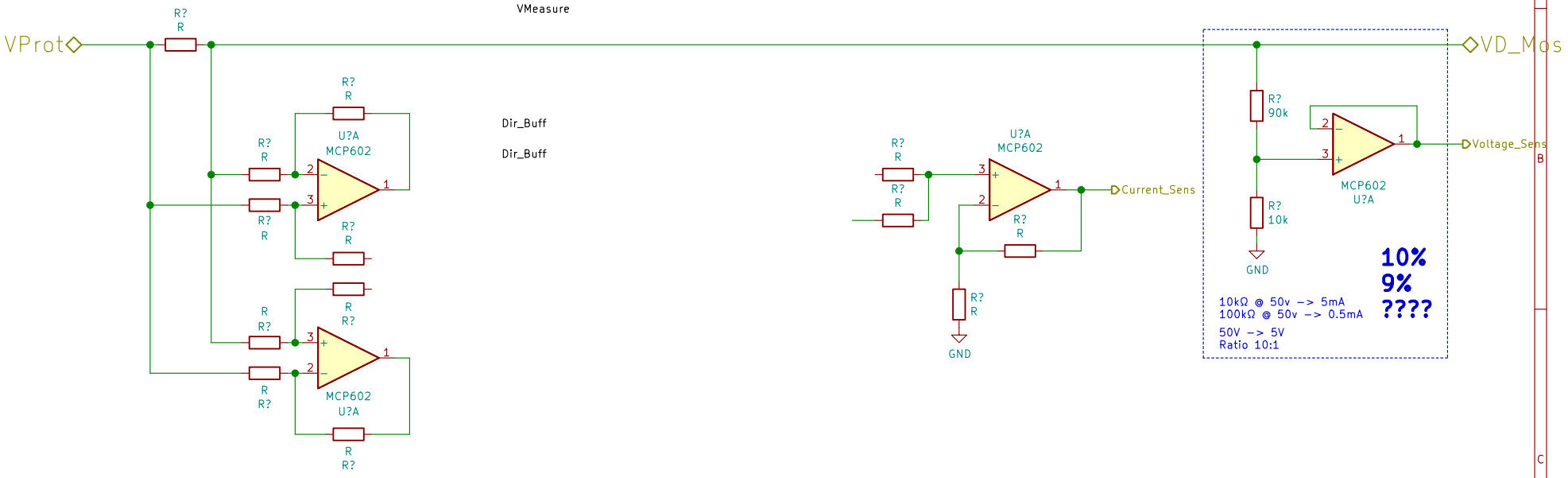
Title: SESAME

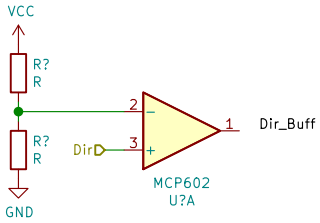
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 2/16

Simplification avec 2 aop de meusure
Mode commun important ->

Nouveau rapports
12A -> 5V
60V -> 5V
???

Alims en 5 ou 7V



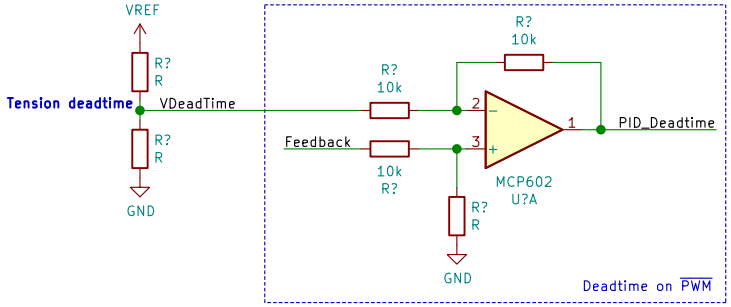


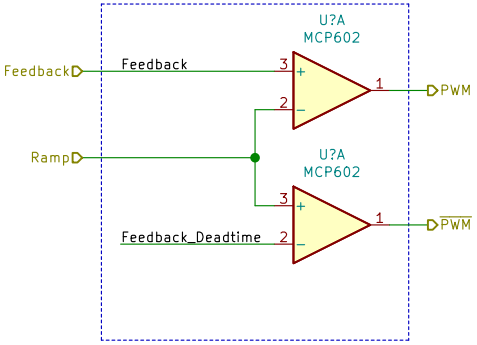
Dessin : Guillaume Arthaud
ALEEA
Sheet: /U/I SENSOR RIGHT/
File: voltage_current_sens.sch

Title: SESAME

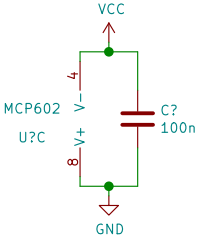
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 3/16

Probleme contre reaction. A voir

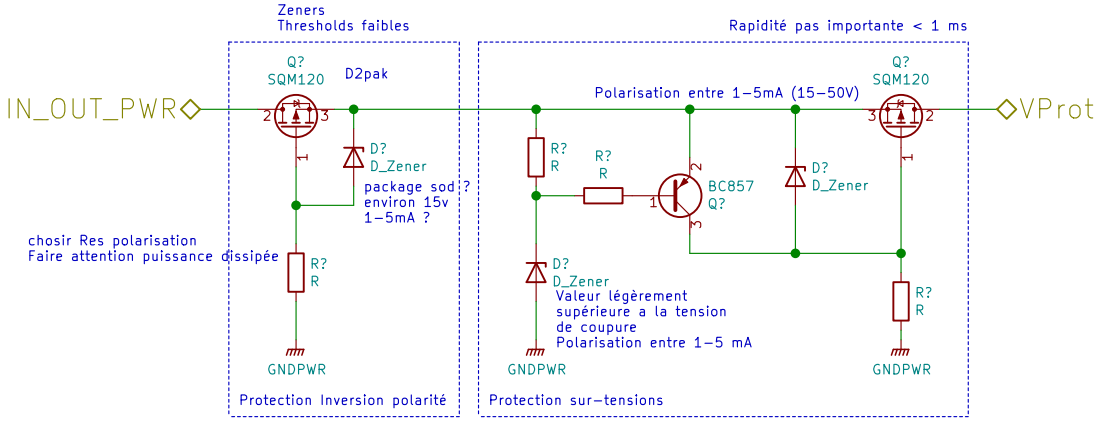




	DIR	MODE	GS	GP	DS	DP
Buck (I Droit)	0	0	PWM	~PWM	1	0
Boost (I Droit)	0	1	1	0	~PWM	PWM
Buck (I Gauche)	1	0	1	0	PWM	~PWM
Boost (I Gauche)	1	1	~PWM	PWM	1	0



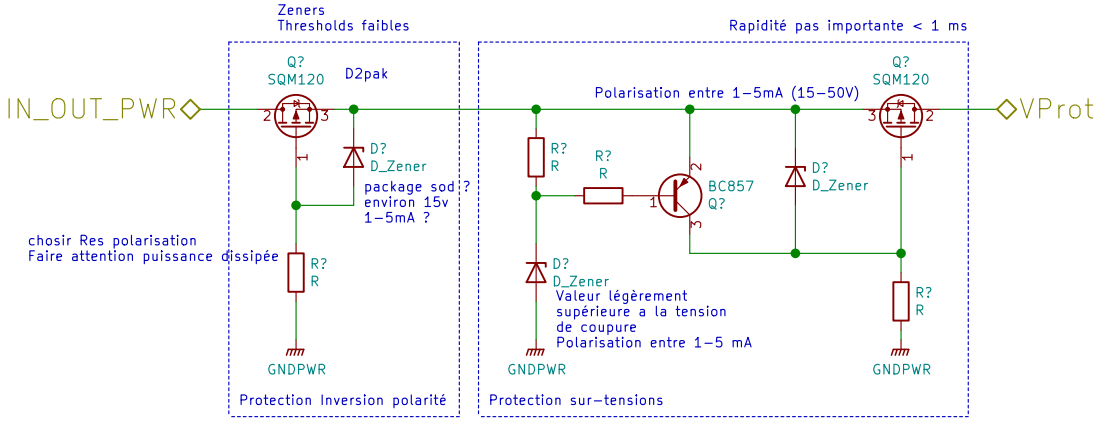
Dessin : Guillaume Arthaud
ALEEA
Sheet: /PWM GEN/
File: PWM_Gen.sch
Title: SESAME
Size: A4 | Date: | **Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14) | Id: 4/16



Dessin : Guillaume Arthaud
ALEEA
Sheet: /RIGHT PROTECTION/
File: PROTECT.sch

Title:

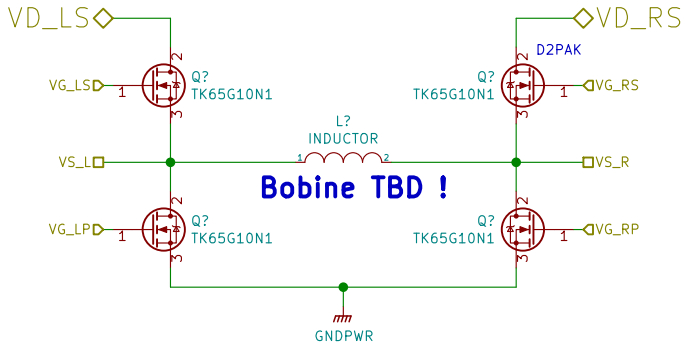
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 5/16



Dessin : Guillaume Arthaud **ALEEA**		
Sheet: /LEFT PROTECTION/ File: PROTECT.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 6/16

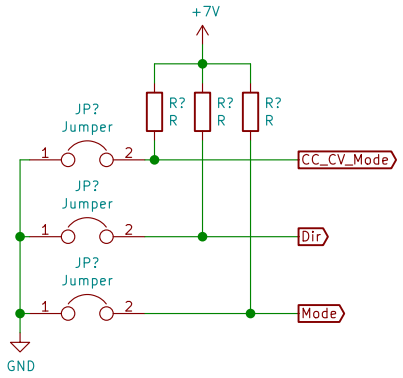
Entrées:
Signaux de commande provenant du block driver permetant de controller les gates
Les differents modes sont generer dans MOS Logic

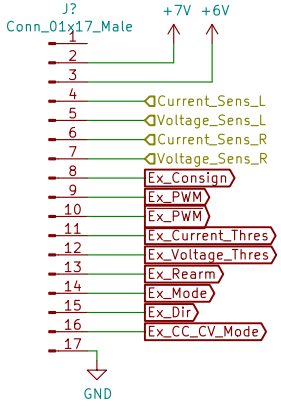
Bidir:
Tension de 0 a 50v ou 5 48v TBD



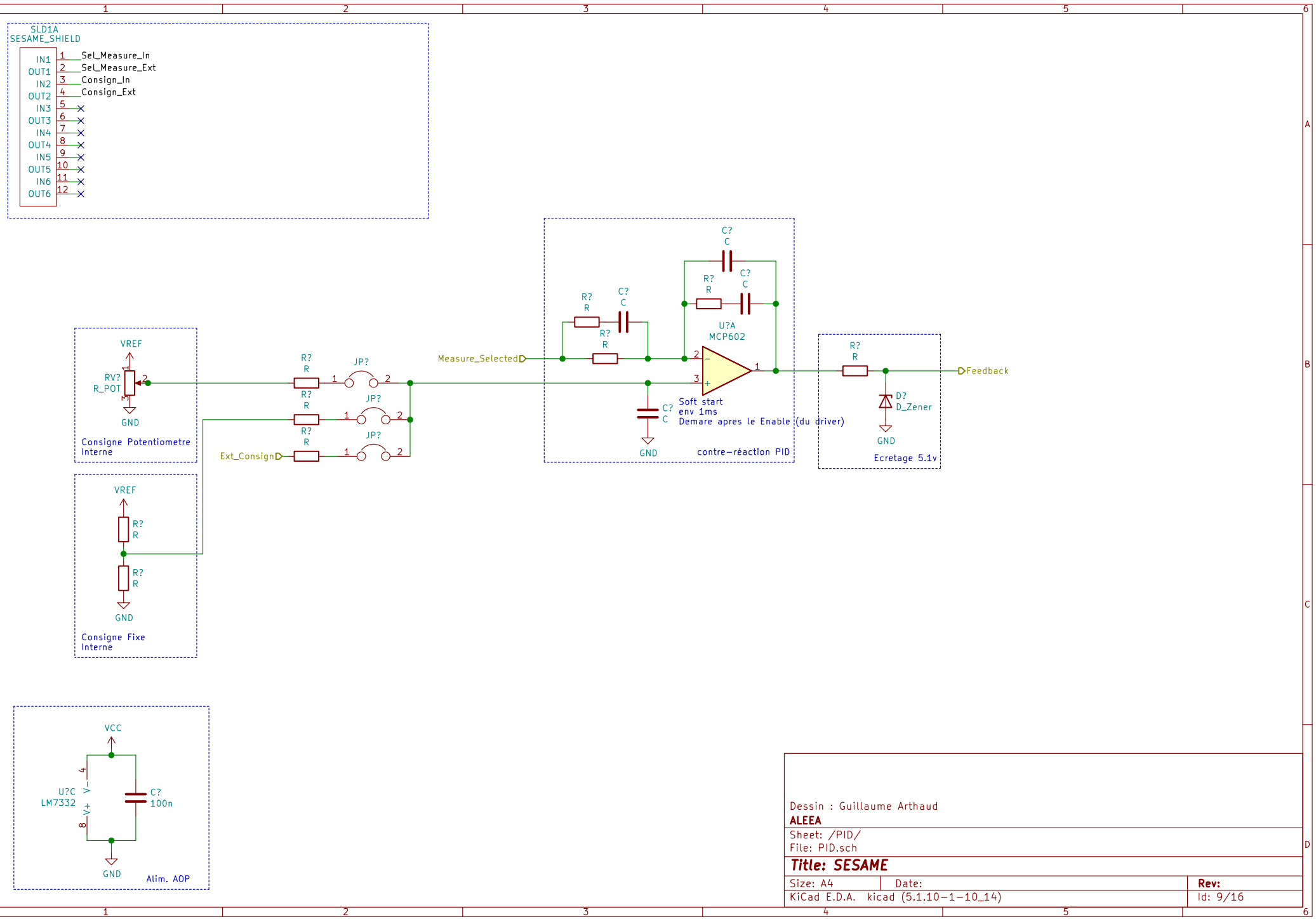
Dessin : Guillaume Arthaud
ALEEA
Sheet: /DC/DC CONVERTER/
File: DC_DC_Converter.sch
Title: SESAME
Size: A4 | Date: | **Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14) | Id: 7/16

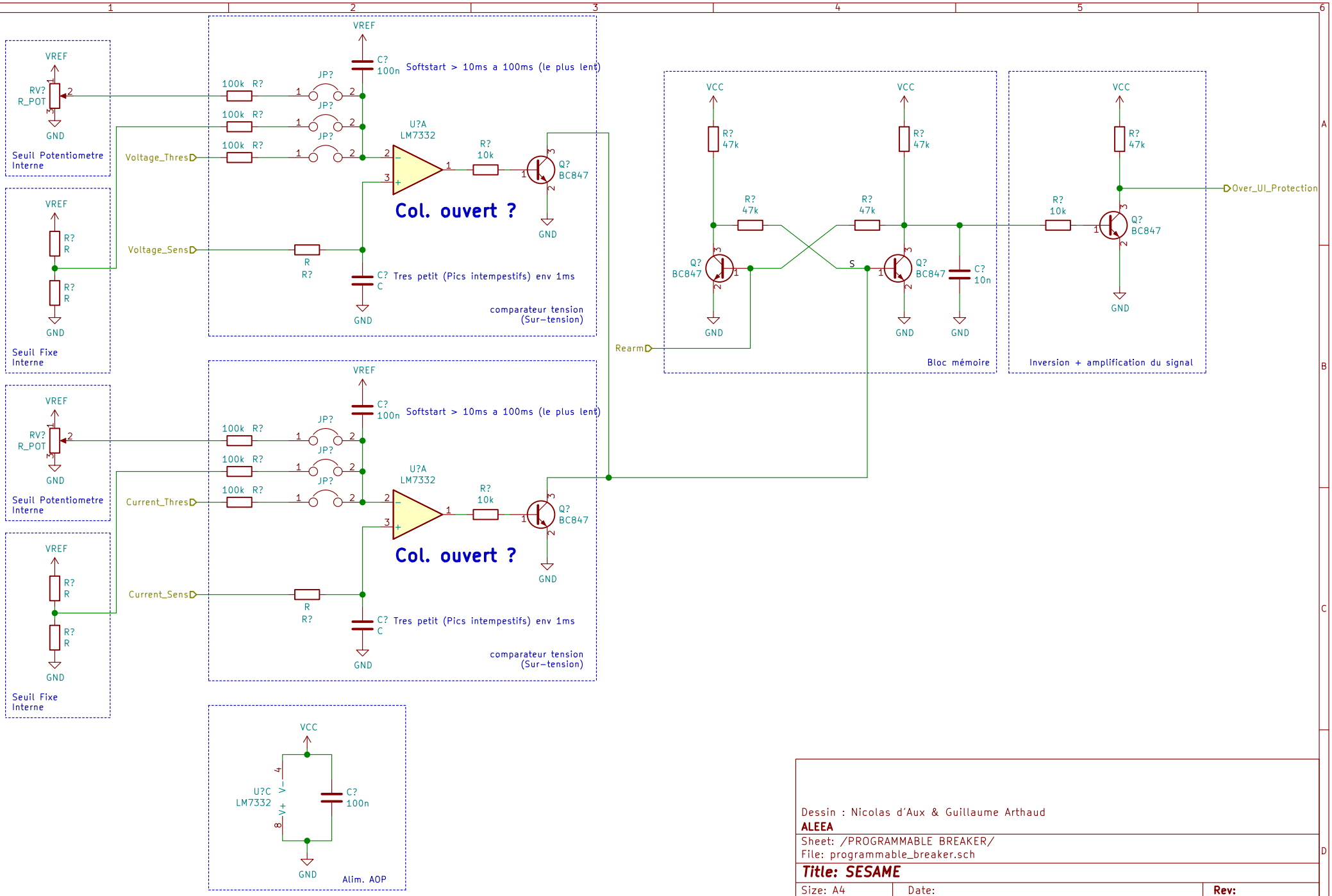
A voir au dernier moment





ALEEA		
Sheet: /INT EXT CONFIG/		
File: Int_Ext_Config.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 8/16

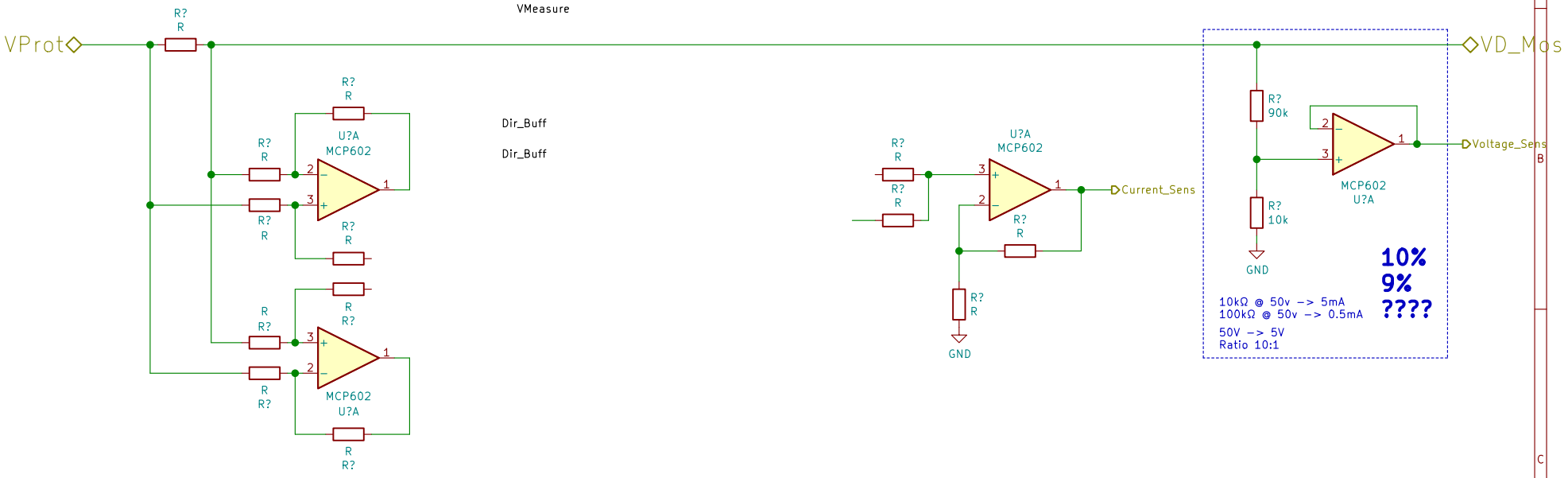

SLD1A
SESAME_SHIELD
IN1
OUT1
IN2
OUT2
IN3
OUT3
IN4
OUT4
IN5
OUT5
IN6
OUT6
Sel_Measure_In
Sel_Measure_Ext
Consign_In
Consign_Ext
VREF
RV?
R_POT
GND
Consigne Potentiometre
Interne
R?
R
JP?
Ext_Consign
Measure_Selected
C?
C
U?A
MCP602
Soft start
env 1ms
Demare apres le Enable (du driver)
contre-réaction PID
Feedback
D?
D_Zener
Ecretage 5.1v
Consigne Fixe
Interne
VCC
U?C
LM7332
V-
V+
C?
100n
Alim. AOP
Dessin : Guillaume Arthaud
ALEEA
Sheet: /PID/
File: PID.sch
Title: SESAME
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (5.1.10-1-10_14)
Id: 9/16

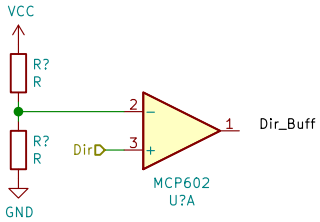

VREF
RV?
R_POT
GND
Seuil Potentiometre Interne
R?
R
Seuil Fixe Interne
C? 100n
Softstart > 10ms a 100ms (le plus lent)
100k R?
JP?
Voltage_Thres
Voltage_Sens
U?A
LM7332
R? 10k
Q? BC847
Col. ouvert ?
R
R?
C? Tres petit (Pics intempestifs) env 1ms
C
comparateur tension (Sur-tension)
Current_Thres
Current_Sens
VCC
R? 47k
Rearm
Bloc mémoire
S
C? 10n
Inversion + amplification du signal
Over_UI_Protection
U?C
LM7332
V-
V+
Alim. AOP
Dessin : Nicolas d'Aux & Guillaume Arthaud
ALEEA
Sheet: /PROGRAMMABLE BREAKER/
File: programmable_breaker.sch
Title: SESAME
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (5.1.10-1-10_14)
Id: 10/16

Simplification avec 2 aop de meusure
Mode commun important ->

Nouveau rapports
12A -> 5V
60V -> 5V
???

Alims en 5 ou 7V

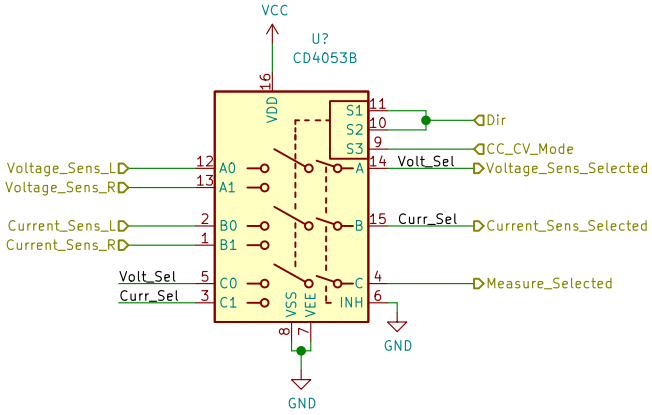


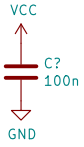


Dessin : Guillaume Arthaud
ALEEA
Sheet: /U/I SENSOR LEFT/
File: voltage_current_sens.sch

Title: SESAME

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 11/16





Dessin : Clément GRIMARD & Guillaume Arthaud
ALEEA

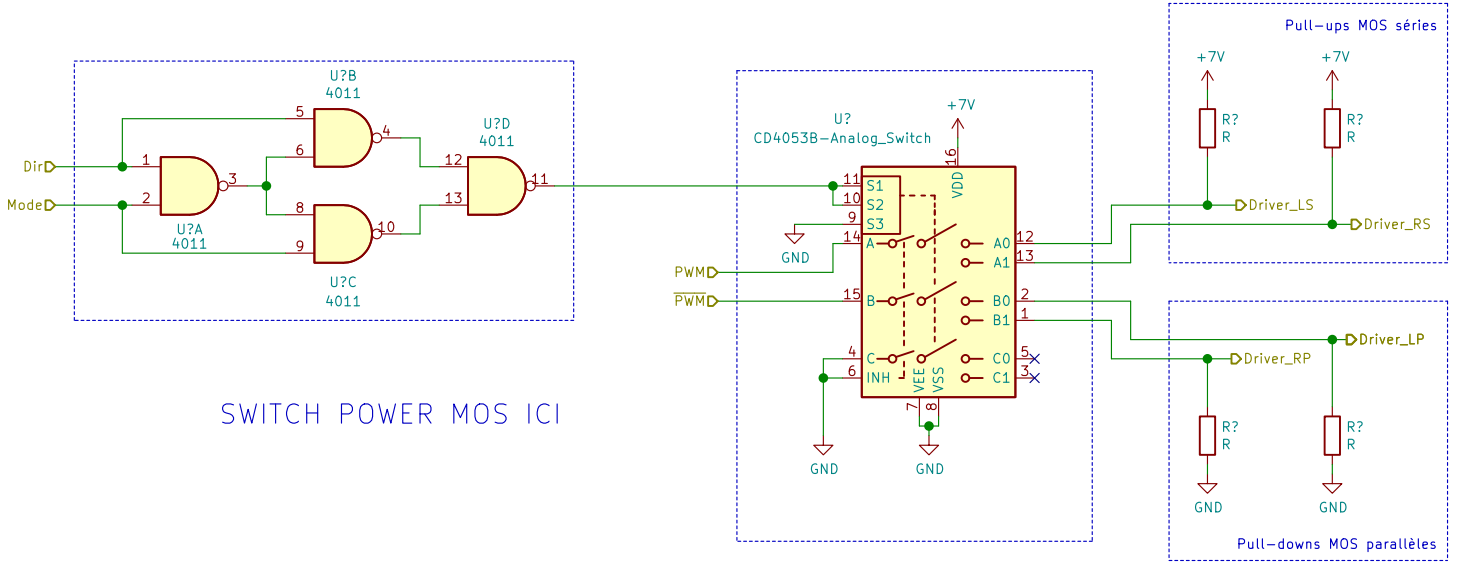
Sheet: /MEASURE SELECTOR/
File: Measure_Selector.sch

Title: SESAME

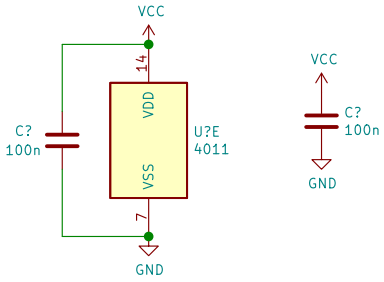
Size: A4	Date: 2021-08-03	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 12/16

ENTREE(S):
PWM | Entree Numérique | Signal provenant du block PWM
PWM | Entree Numérique | Signal provenant du block PWM
Dir | Entrée Numérique | Sens du courant et par extension choix de la meusure Droite / Gauche | 0:Gauche -> Droite - 1:Droite -> Gaucge
Mode | Entrée Numérique | Selecteur Boost ou buck | 0 Buck - 1 Boost
Shutdown | entree Numérique | Signal de coupure des MOS | 0: Fonctionnement Normal - 1: Disjoncté

SORTIE(S):
Nmos_xx | Sortie Numérique | Signal de grille du mos xx



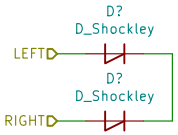
SWITCH POWER MOS ICI

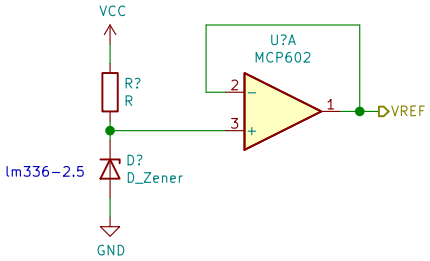


Dessin : Clément & Josué & Guillaume Arthaud
ALEEA
Sheet: /DRIVER COMMAND/
File: Drivers_Command.sch

Title: SESAME

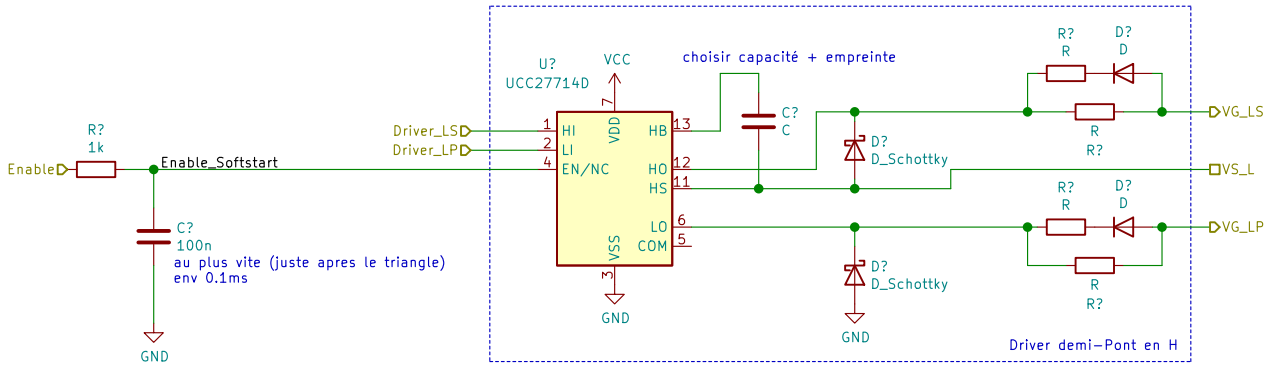
Size: A4	Date: 2021-08-04	**Rev: A**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 13/16





Gen 5v and Vref
The Dir pin chose from which side the power supply is generated

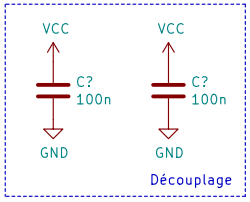
ALEEA		
Sheet: /INTERNAL SUPPLIES/ File: alims.sch		
Title: SESAME		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 14/16



Driver_RP
Driver_RS

VG_RS
VS_R
VG_RP

Candidats potentiels:
MCP14628
https://www.microchip.com/en-us/parametric-search.html/385
-> UCC27284 (pas sourcable)
Besoin:
HalfBridge driver
PWM & PWM
Rapidité < 100ns
Alim 7v
(Pas cher)
Chez RS
Courant de grille vers 2.5 - 3 A
Enable
Mode DC !!



ALEEA	
Sheet: /MOS DRIVERS/	
File: Mos_Drivers.sch	
Title: SESAME	
Size: A4	Date:
KiCad E.D.A. kicad (5.1.10-1-10_14)	Rev: Id: 15/16

Ordre soft starts: Enable Driver < PID < Entree de disjoncteur

RAF:
> Aop Rail to Rail
> Driver de MOS
> Zeners du circuit de protection et autres composants
> Recalculer la bobine et la sourcer
> Alims
> Revoir schema mesure de courant
> Probleme de contre reaction négative (deuxieme switch)
> Recalculer les ponts diviseurs avec un vref de 6V

* (Régler le PID)

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

Sheet: /INFOS/
File: infos.sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.10-1-10_14)		Id: 16/16