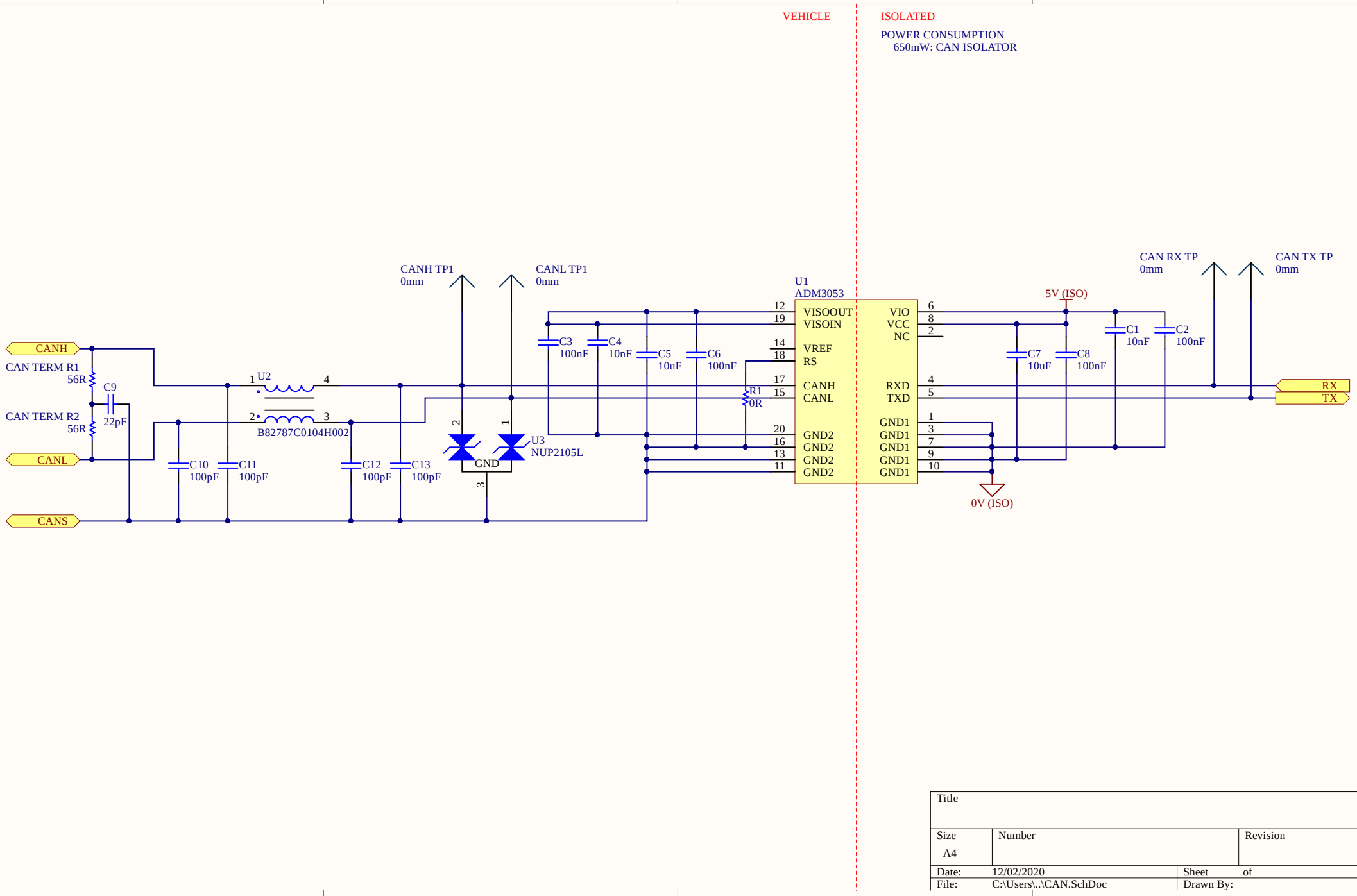
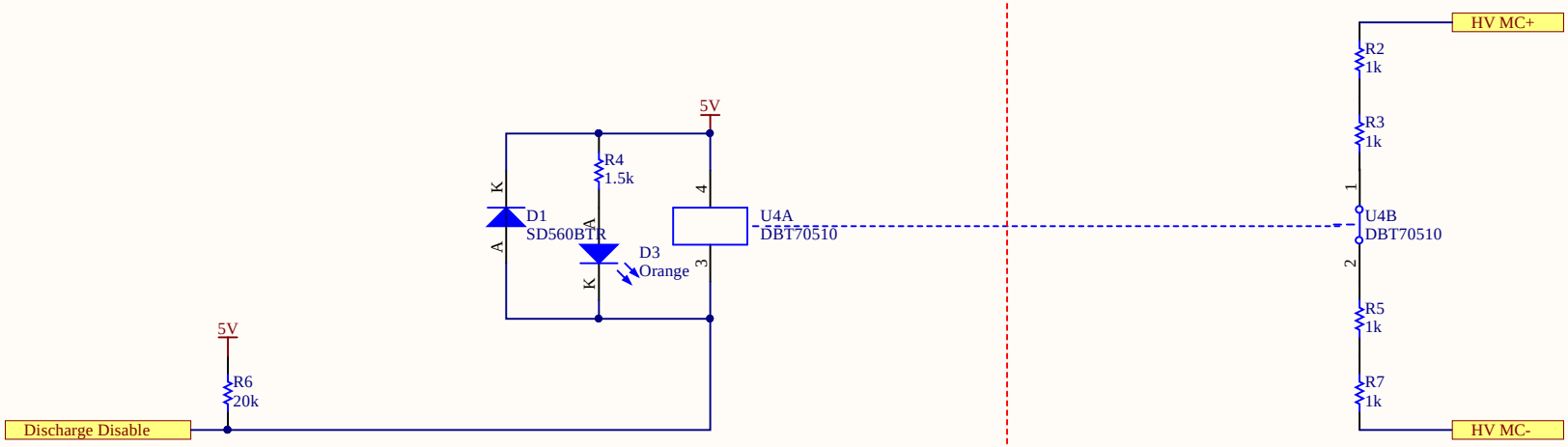

VEHICLE
ISOLATED
POWER CONSUMPTION
650mW: CAN ISOLATOR
CANH TP1
0mm
CANL TP1
0mm
CAN RX TP
0mm
CAN TX TP
0mm
U1
ADM3053
5V (ISO)
0V (ISO)
CANH
CANL
CANS
CAN TERM R1
56R
CAN TERM R2
56R
C9
22pF
U2
B82787C0104H002
U3
NUP2105L
GND
R1
0R
C1
10nF
C2
100nF
C3
100nF
C4
10nF
C5
10uF
C6
100nF
C7
10uF
C8
100nF
C10
100pF
C11
100pF
C12
100pF
C13
100pF
VISOOUT
VISOIN
VREF
RS
CANH
CANL
GND2
VIO
VCC
NC
RXD
TXD
GND1
RX
TX
Title
Size
A4
Number
Revision
Date:
12/02/2020
Sheet
of
File:
C:\Users\..\CAN.SchDoc
Drawn By:

VEHICLE

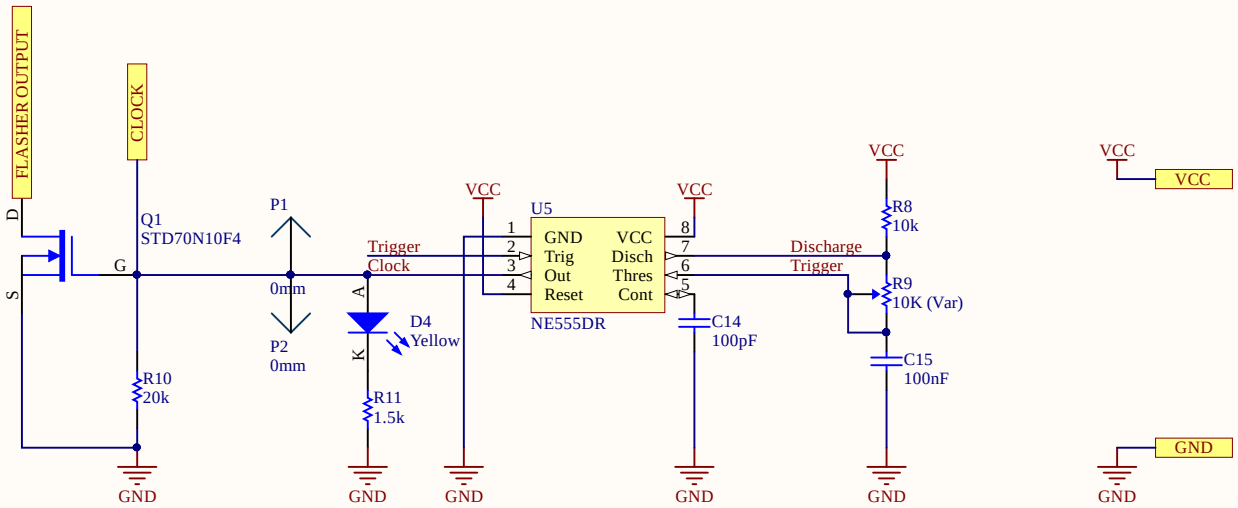
ISOLATED

Consider Replacing with this!
https://www.digikey.com/products/en?mpart=3350-4275-056&v=1835

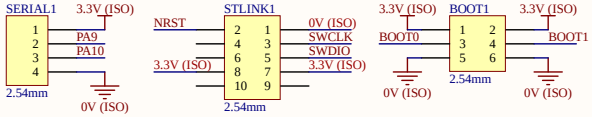


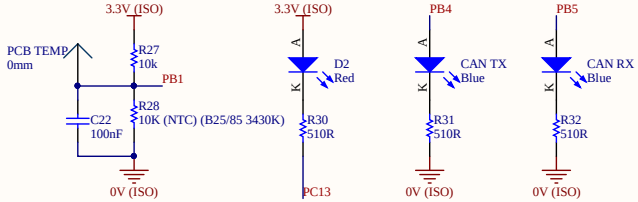
PULLED LOW BY AUX AIR-

Title		
Size: A4	Number	Revision
Date: 12/02/2020		Sheet of
File: C:\Users\..\Discharge.SchDoc		Drawn By:



Title			
Size A4	Number		Revision
Date: 12/02/2020		Sheet	of
File: C:\Users\..\Flasher.SchDoc		Drawn By:	





Instructions to Use PLATFORMIO & STLINK

platformio.ini

For use with Arduino Environment

```
[env:genericSTM32F103R8]
platform = ststm32
board = genericSTM32F103C8
framework = arduino
upload_protocol = stlink
```

BOOT JUMPER POSITIONS

	BOOT1	BOOT0
User Flash	X	0
System (Bootloader)	0	1
Embedded SRAM	1	1

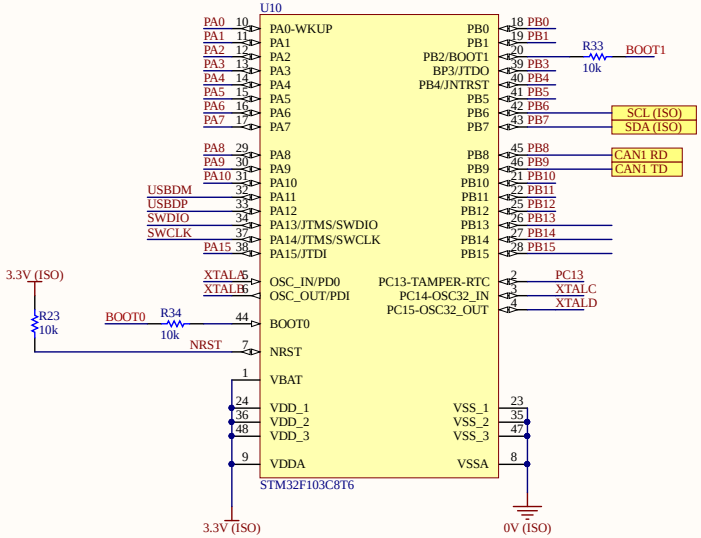
ST-LINK

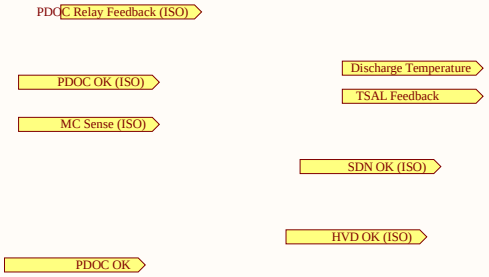
For all operations, use the select the bootloader, then reset the device.

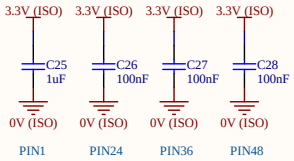
Example Code

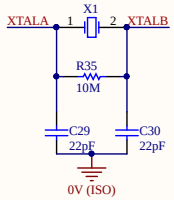
```
#include "Arduino.h"

#define LED_BUILTIN PC13
USBSerial usb;

void setup()
{
  pinMode(LED_BUILTIN, OUTPUT);
  Serial.begin(9600);
  usb.begin(9600);
}

void loop()
{
  digitalWrite(LED_BUILTIN, HIGH);
  Serial.println("Serial LED OFF");
  usb.println("usb LED OFF");

  delay(1000);

  digitalWrite(LED_BUILTIN, LOW);
  Serial.println("Serial LED ON");
  usb.println("usb LED ON");

  delay(1000);
}
```

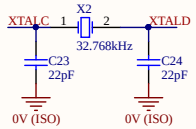
https://www.shortn0tes.com/2017/06/how-to-use-platformio-to-develop-for.html
https://www.onetransistor.eu/2018/09/stm32-bluepill-dev-mbed-platformio-vscode.html











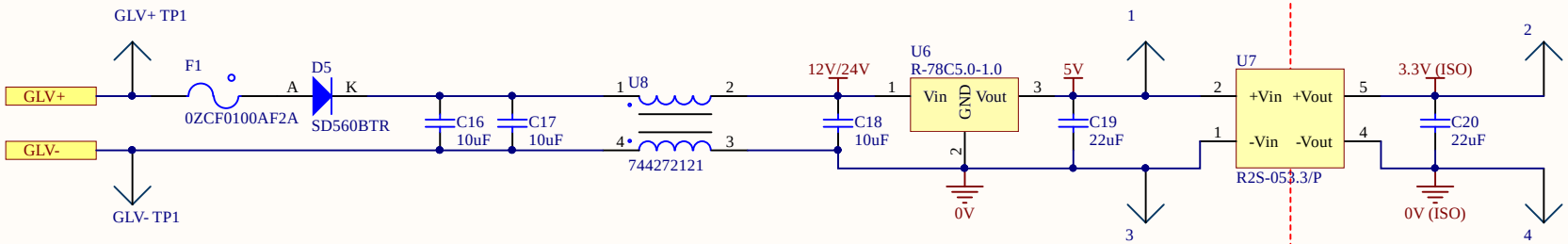
Title *			
Size: A3	Number:*	Revision:*	
Date: 12/02/2020	Time: 3:53:25 PM	Sheet * of *	
File: C:\Users\patri\Google Drive\ts_19\Car\5. P&E\Future Schematics\ts_20-Discharge-Module\200108 Discharge Module R0\Micro			

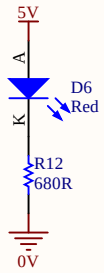
VEHICLE

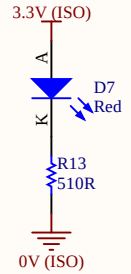
ISOLATED

2W: POWER OUTPUT

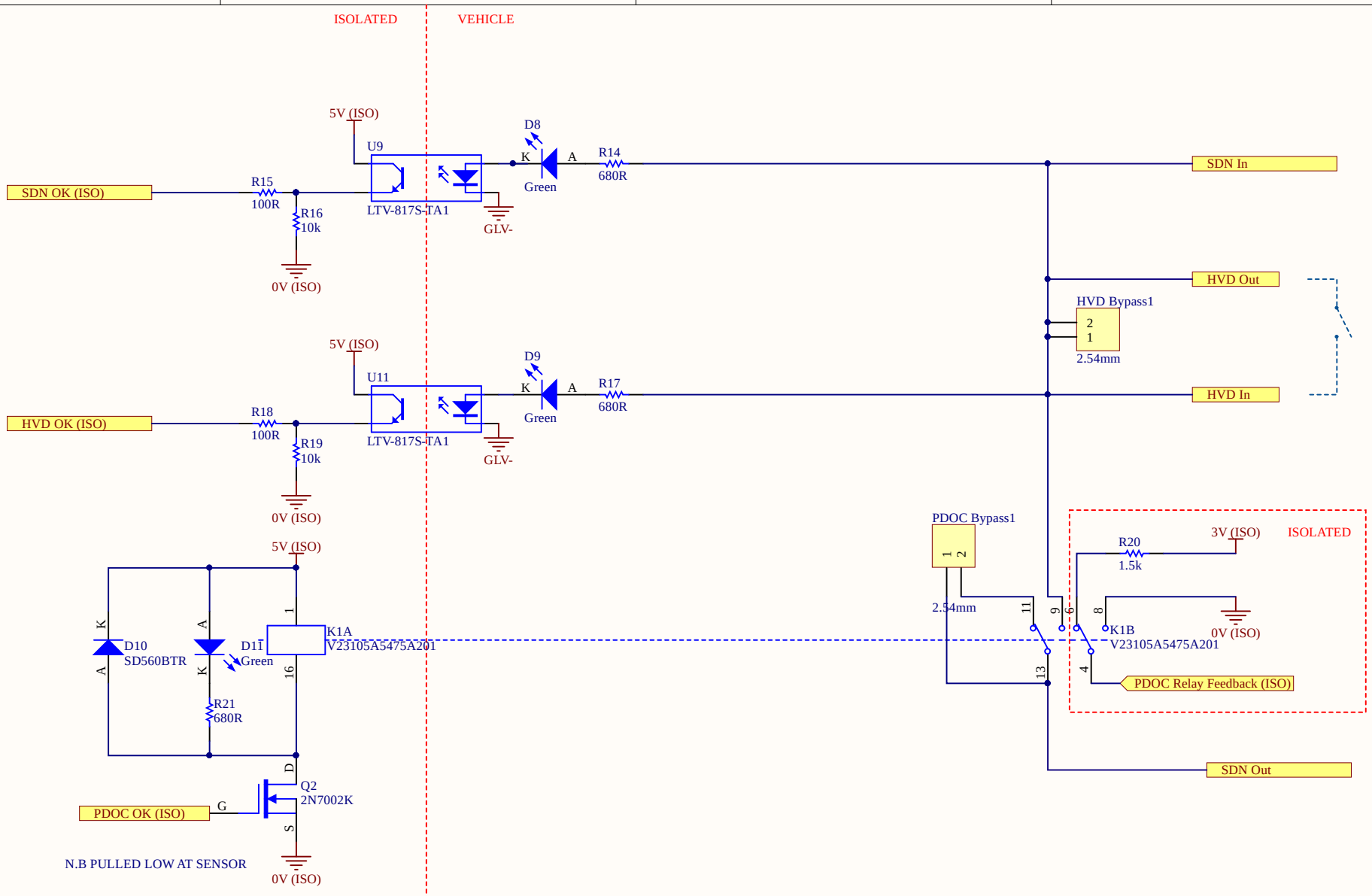
REQUIRES 5V REGULATOR!







Title		
Size: A4	Number	Revision
Date: 12/02/2020		Sheet of
File: C:\Users\..\Power Supply.SchDoc		Drawn By:



Title		
Size: A4	Number	Revision
Date: 12/02/2020		Sheet of
File: C:\Users\..\Safety Loops.SchDoc		Drawn By:

https://www.cantherm.com/wp-content/uploads/2017/05/CWF_11x17_OCT_2014_1.pdf

TEMP SENSOR

ISOLATED

5V (HV MC ISO)

U17

VISO VDDP

VSEL PDIS

GNDISO GND1

GNDISO GND1

ADUM6028

C25 10uF

C26 100nF

C27 10uF

C28 100nF

0V (HV MC ISO)

5V (ISO)

0V (ISO)

PDOC NTC1

2.54mm

R44 2k

U18

VDD1 VDD2

VIN VOUT+

SHDN VOUT-

GND1 GND2

ACPL-C870

C30 100nF

C31 100nF

C33 100nF

R45 10k

R47 10k

C29 100pF

R43 10k

U19A

LM324D

C32 100pF

R48 10k

PDOC TEMP AMP OUT TP1

Discharge Temperature

Check input sources

U12

TS391ILT

R46 3k

PDOC OK

R49 10k

C21 100nF

R50 10K (Var)

PDOC TEMP REF TP1

OP AMP BYPASS C1 100nF

COMP BYPASS C1 100nF

1W: DC-DC CONVERTER x3

0.5W: Opto Isolator x4

0.5W: Op Amp

0.5W: Comparator

HV MC

HV MC+

HV MC-

R55 330K

R56 330K

R57 330K

R59 330K

R61 10K (Var)

R64 10K

U22

U23

ADUM6028

ACPL-C870

C34 10uF

C35 100nF

C36 10uF

C37 100nF

C39 100nF

C40 100nF

C42 100nF

R60 10k

R62 10k

C38 100pF

R58 10k

U19B

LM324D

C41 100pF

R63 10k

MC SENSE AMP OUT TP1

MC Sense (ISO)

VEHICLE

PREAMP1

Current Sensor

R40 1k

C44 100nF

U14A

LM324D

R26 1k

R25 10k

R29 10K (Var)

C43 100nF

REF1

POST AMP1

U15A

LMV339IDR

R38 3k

5kW Signal

R22 1.5k

R24 1.5k

R36 100R

D12 Blue

U13

LTV-817S-TA1

R37 100R

R39 10k

5kW Signal (ISO)

Q3 2N7002K

U20

TS391ILT

U16

LTV-817S-TA1

R42 10k

R51 10K (Var)

PDOC TEMP REF TP2

C45 100nF

OPEN COLLECTOR CMOS LOGIC

Could move comparator to other side to save on compoennts

K2A V23105A5475A201

Q4 2N7002K

R52 20k

TSAL Feedback

K2B V23105A5475A201

R41 1.5k

Green

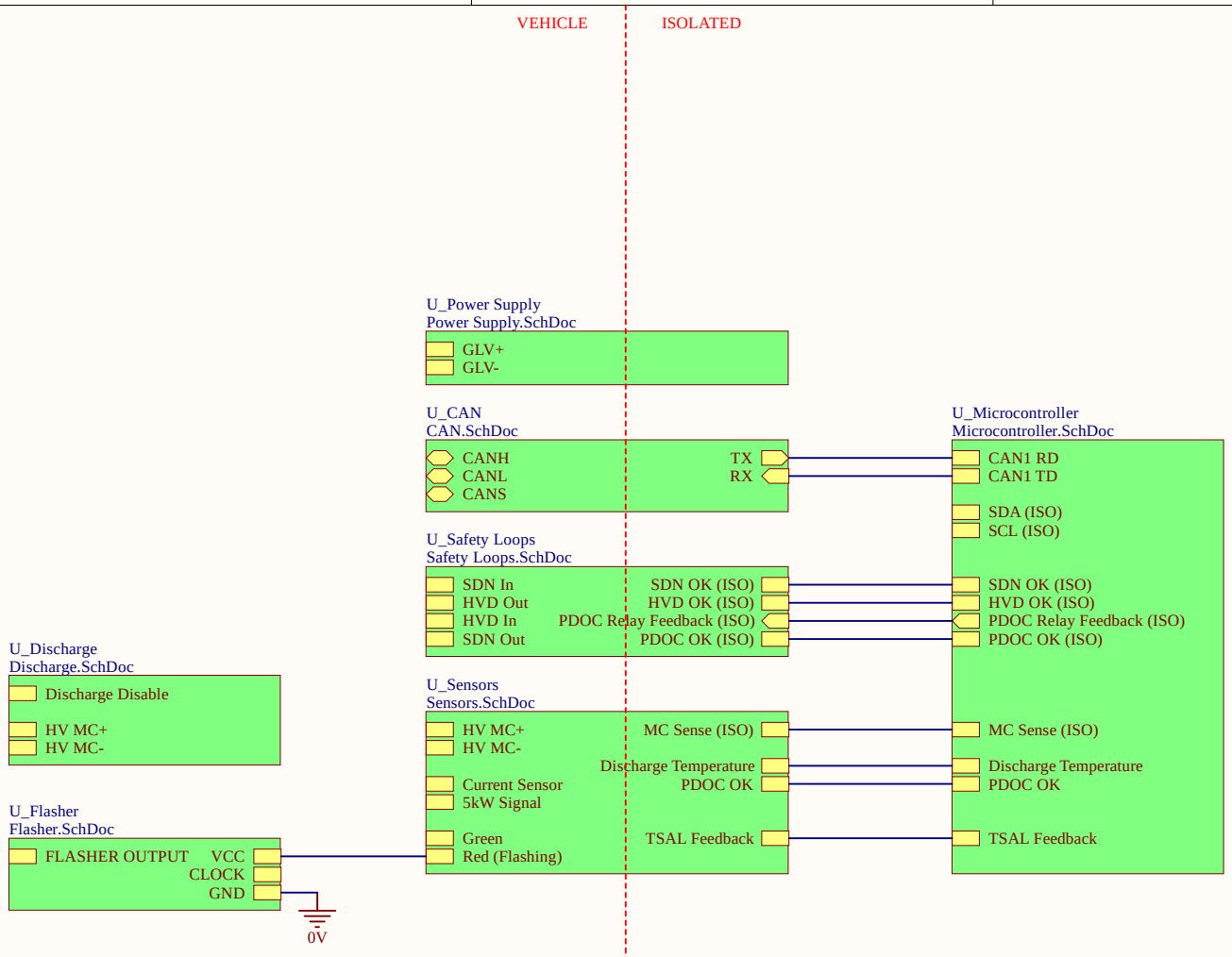
Red (Flashing)

F2 0154.750DR

F3 0154.750DR

Title *			
Size: A3	Number:*	Revision:*	
Date: 12/02/2020	Time: 3:53:26 PM	Sheet * of *	
File: C:\Users\patri\Google Drive\ts_19\Car\5. P&E\Future Schematics\ts_20-Discharge-Module\200108 Discharge Module R0\Sensc			

Altium



Title		
Size: A4	Number	Revision
Date: 12/02/2020		Sheet of
File: C:\Users\..\Top Level.SchDoc		Drawn By: