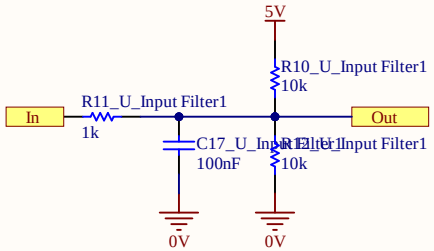

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Size A4	Number		Revision
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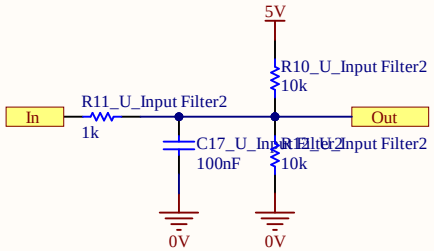

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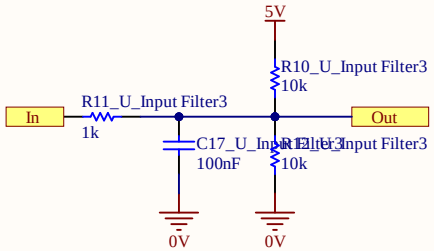

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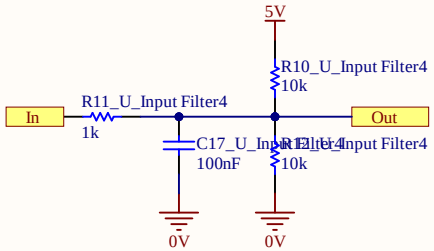

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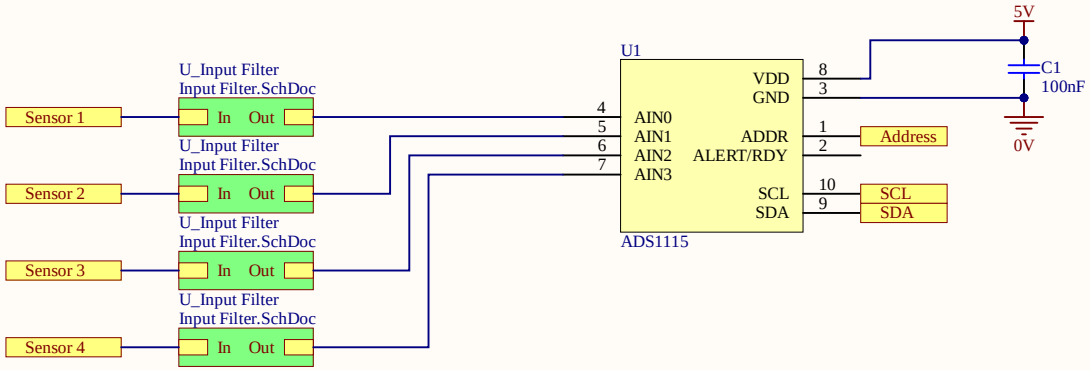

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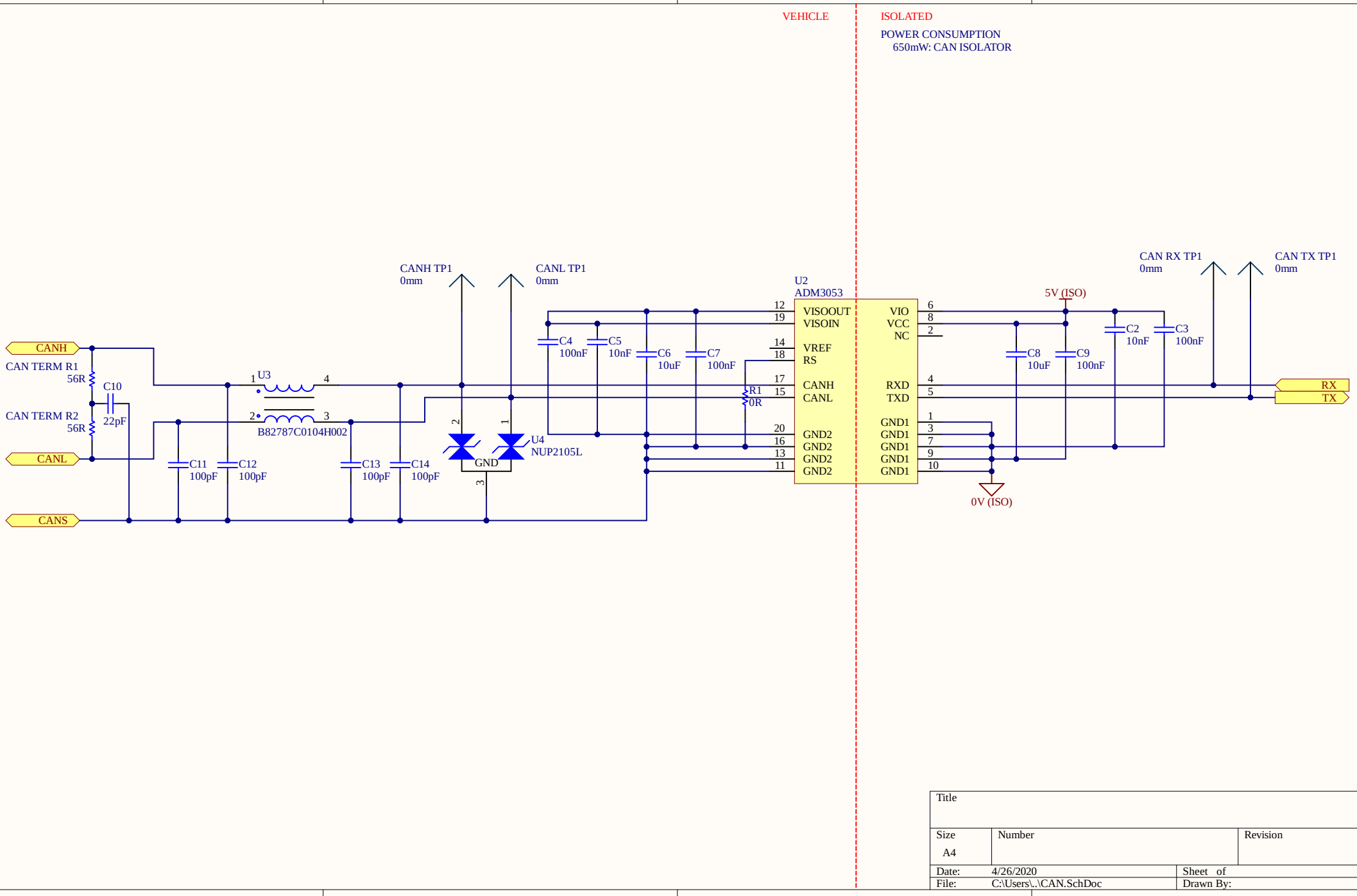

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Date: 4/26/2020	Sheet of	
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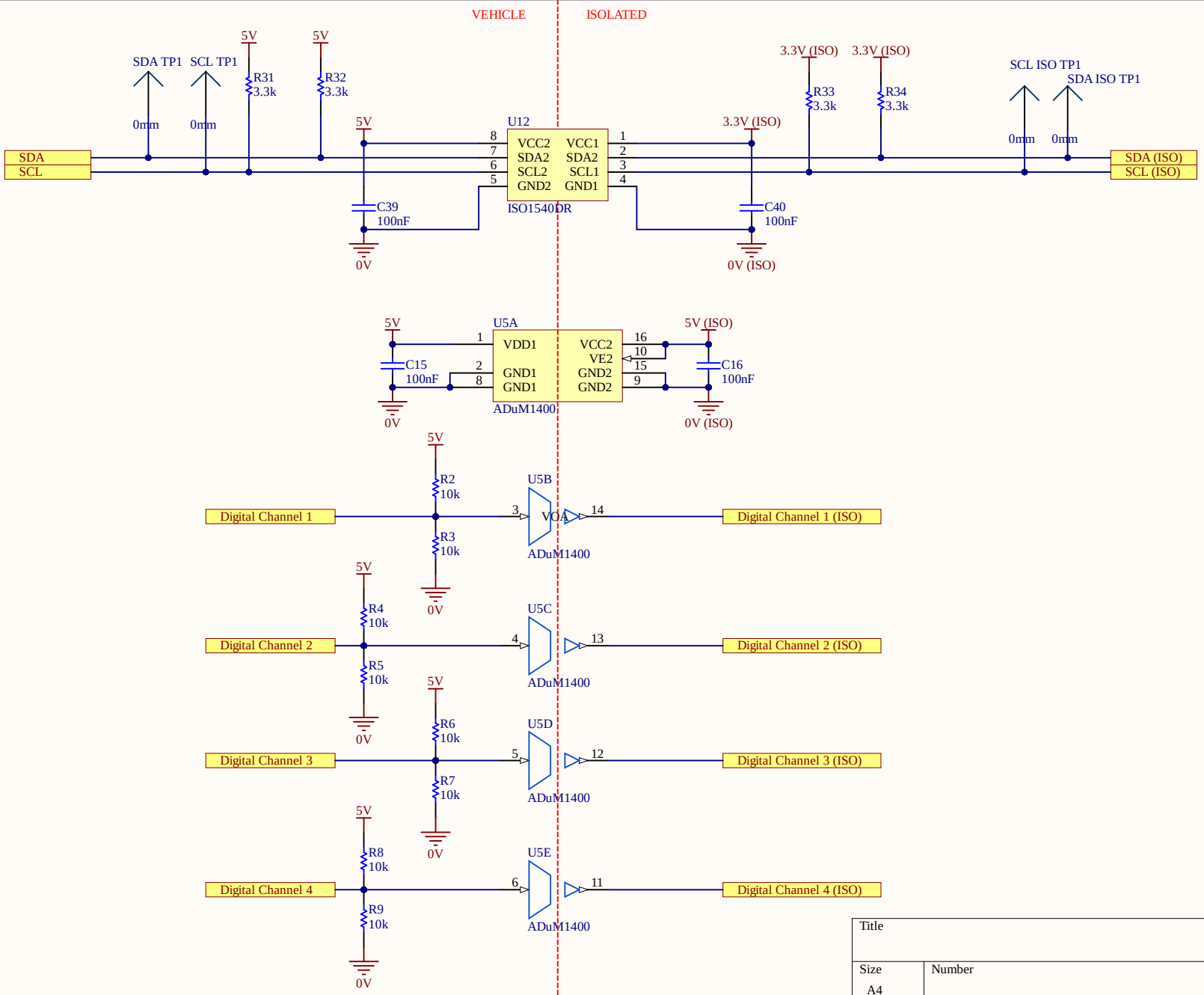
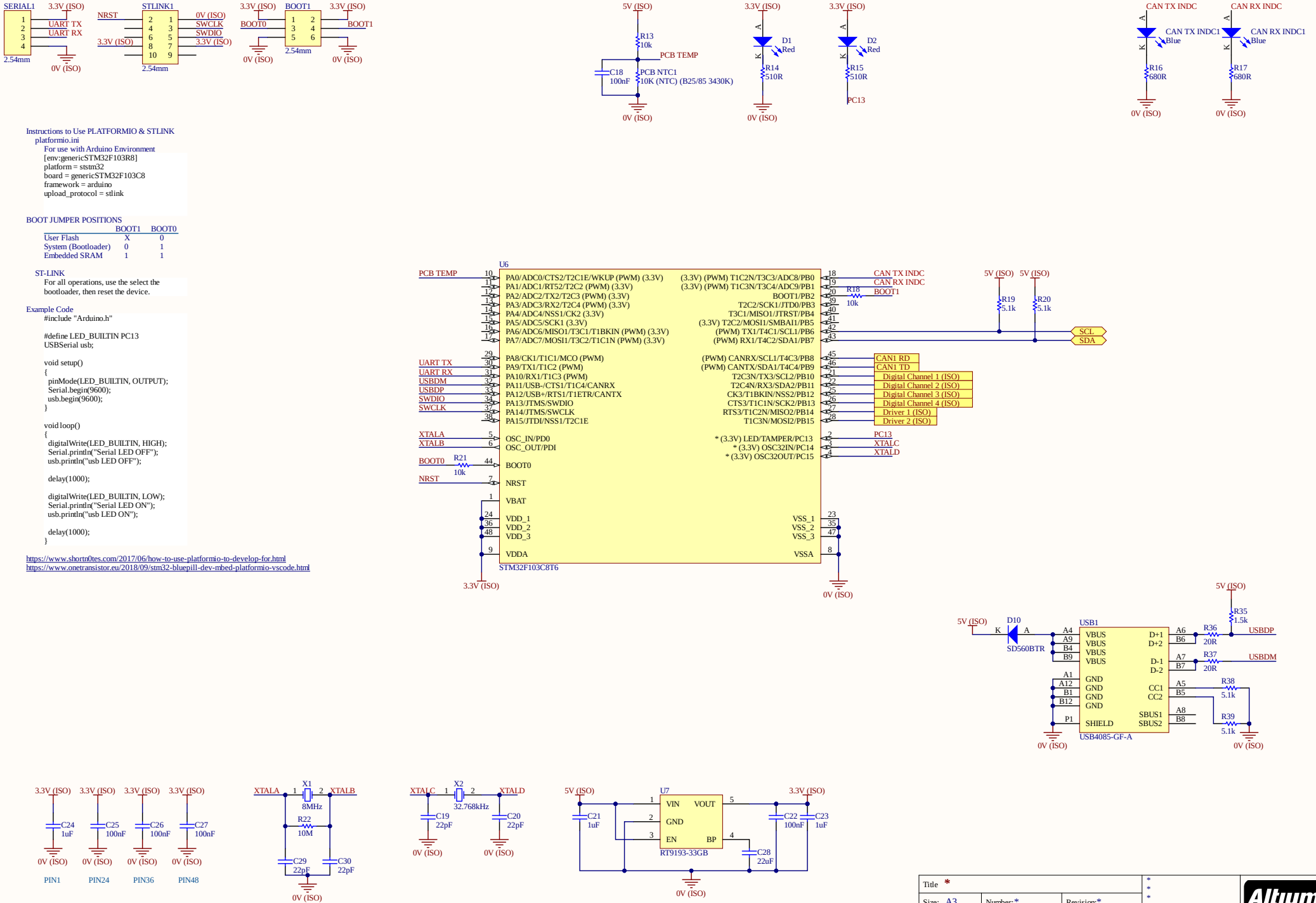
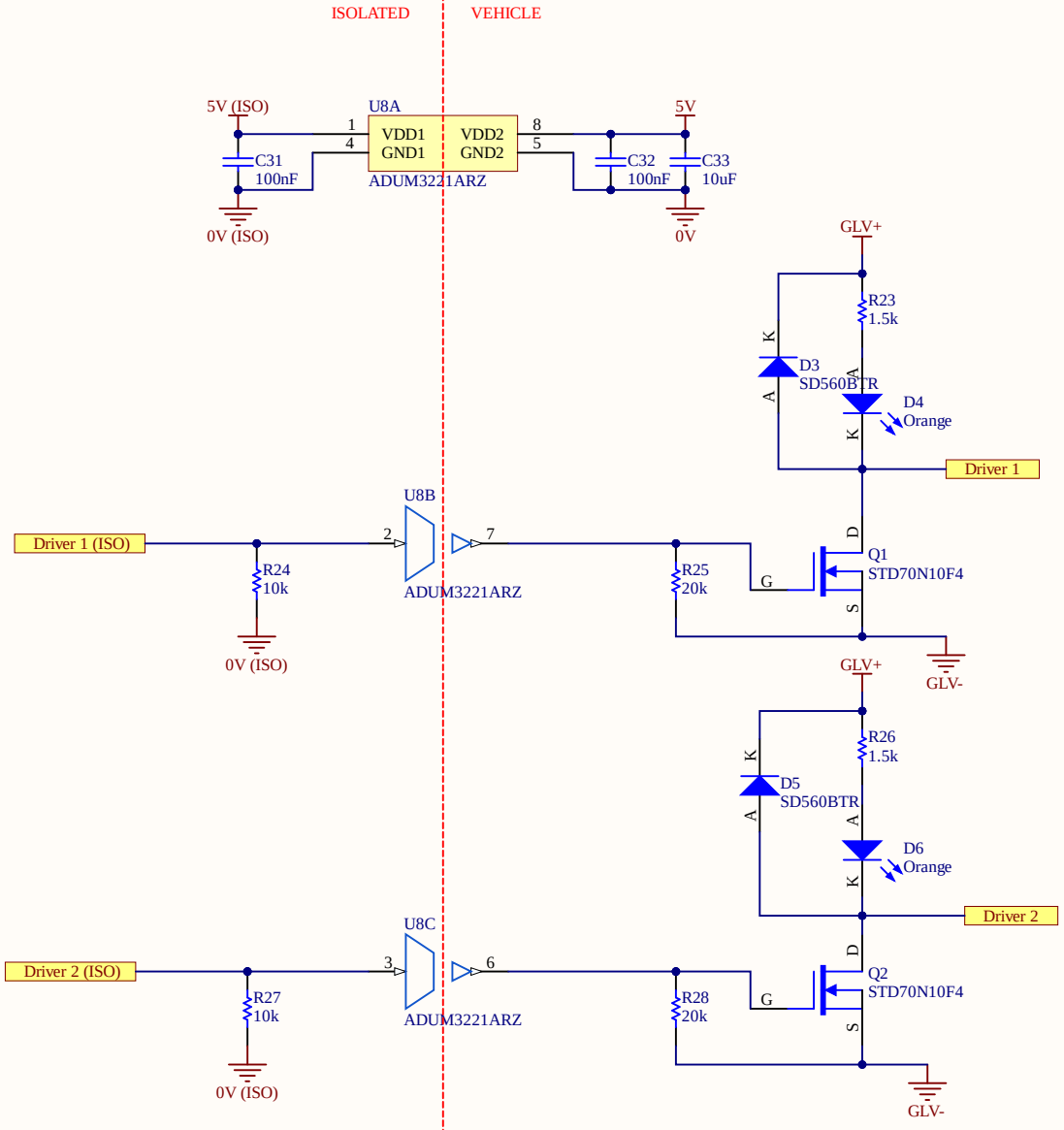

VEHICLE
ISOLATED
SDA TP1
SCL TP1
5V
R31
3.3k
R32
3.3k
0mm
U12
SDA
SCL
VCC2
SDA2
SCL2
GND2
VCC1
SDA2
SCL1
GND1
ISO1540DR
C39
100nF
0V
3.3V (ISO)
R33
3.3k
R34
3.3k
SCL ISO TP1
SDA ISO TP1
SDA (ISO)
SCL (ISO)
C40
100nF
0V (ISO)
U5A
VDD1
GND1
GND1
VCC2
VE2
GND2
GND2
ADuM1400
C15
100nF
C16
100nF
5V (ISO)
R2
10k
R3
10k
U5B
VOA
Digital Channel 1
Digital Channel 1 (ISO)
R4
10k
R5
10k
U5C
Digital Channel 2
Digital Channel 2 (ISO)
R6
10k
R7
10k
U5D
Digital Channel 3
Digital Channel 3 (ISO)
R8
10k
R9
10k
U5E
Digital Channel 4
Digital Channel 4 (ISO)
Title
Size
A4
Number
Revision
Date:
4/26/2020
Sheet of
File:
C:\Users\..\Digital Inputs.SchDoc
Drawn By:


SERIAL1
3.3V (ISO)
UART TX
UART RX
0V (ISO)
2.54mm
STLINK1
NRST
3.3V (ISO)
0V (ISO)
SWCLK
SWDIO
3.3V (ISO)
2.54mm
3.3V (ISO)
BOOT0
0V (ISO)
BOOT1
3.3V (ISO)
BOOT1
2.54mm
0V (ISO)
5V (ISO)
R13
10k
PCB TEMP
C18
100nF
PCB NTC1
10K (NTC) (B25/85 3430K)
0V (ISO)
3.3V (ISO)
D1
Red
R14
510R
0V (ISO)
3.3V (ISO)
D2
Red
R15
510R
PC13
CAN TX INDC
CAN TX INDC1
Blue
R16
680R
0V (ISO)
CAN RX INDC
CAN RX INDC1
Blue
R17
680R
0V (ISO)
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
U6
PCB TEMP
PA0/ADC0/CTS2/T2C1E/WKUP (PWM) (3.3V)
PA1/ADC1/RT52/T2C2 (PWM) (3.3V)
PA2/ADC2/TX2/T2C3 (PWM) (3.3V)
PA3/ADC3/RX2/T2C4 (PWM) (3.3V)
PA4/ADC4/NSS1/CK2 (3.3V)
PA5/ADC5/SCK1 (3.3V)
PA6/ADC6/MISO1/T3C1/T1BKIN (PWM) (3.3V)
PA7/ADC7/MOSI1/T3C2/T1C1N (PWM) (3.3V)
(3.3V) (PWM) T1C2N/T3C3/ADC8/PB0
(3.3V) (PWM) T1C3N/T3C4/ADC9/PB1
BOOT1/PB2
T2C2/SCK1/JTD0/PB3
T3C1/MISO1/JTRST/PB4
(3.3V) T2C2/MOSI1/SMBAI1/PB5
(PWM) TX1/T4C1/SCL1/PB6
(PWM) RX1/T4C2/SDA1/PB7
CAN TX INDC
CAN RX INDC
R18
10k
BOOT1
5V (ISO)
R19
5.1k
5V (ISO)
R20
5.1k
SCL
SDA
UART TX
UART RX
USBDM
USBDP
SWDIO
SWCLK
PA8/CK1/T1C1/MCO (PWM)
PA9/TX1/T1C2 (PWM)
PA10/RX1/T1C3 (PWM)
PA11/USB-/CTS1/T1C4/CANRX
PA12/USB+/RTS1/T1ETR/CANTX
PA13/JTMS/SWDIO
PA14/JTMS/SWCLK
PA15/JTDI/NSS1/T2C1E
(PWM) CANRX/SCL1/T4C3/PB8
(PWM) CANTX/SDA1/T4C4/PB9
T2C3N/TX3/SCL2/PB10
T2C4N/RX3/SDA2/PB11
CK3/T1BKIN/NSS2/PB12
CTS3/T1C1N/SCK2/PB13
RTS3/T1C2N/MISO2/PB14
T1C3N/MOSI2/PB15
CAN1 RD
CAN1 TD
Digital Channel 1 (ISO)
Digital Channel 2 (ISO)
Digital Channel 3 (ISO)
Digital Channel 4 (ISO)
Driver 1 (ISO)
Driver 2 (ISO)
XTALA
XTALB
OSC_IN/PD0
OSC_OUT/PDI
* (3.3V) LED/TAMPER/PC13
* (3.3V) OSC32IN/PC14
* (3.3V) OSC32OUT/PC15
PC13
XTALC
XTALD
BOOT0
R21
10k
BOOT0
NRST
NRST
VBAT
VDD_1
VDD_2
VDD_3
VDDA
VSS_1
VSS_2
VSS_3
VSSA
3.3V (ISO)
0V (ISO)
STM32F103C8T6
5V (ISO)
D10
SD560BTR
USB1
VBUS
VBUS
VBUS
VBUS
GND
GND
GND
GND
SHIELD
D+1
D+2
D-1
D-2
CC1
CC2
SBUS1
SBUS2
R35
1.5k
R36
20R
USBDP
R37
20R
USBDM
R38
5.1k
R39
5.1k
USB4085-GF-A
0V (ISO)
3.3V (ISO)
C24
1uF
C25
100nF
C26
100nF
C27
100nF
0V (ISO)
PIN1
PIN24
PIN36
PIN48
X1
8MHz
XTALA
XTALB
R22
10M
C29
22pF
C30
22pF
X2
32.768kHz
XTALC
XTALD
C19
22pF
C20
22pF
5V (ISO)
U7
VIN
GND
EN
VOUT
BP
RT9193-33GB
C21
1uF
C22
100nF
C23
1uF
C28
22uF
3.3V (ISO)
Title *
Size: A3
Number:*
Revision:*
Date: 26/04/2020
Time: 3:31:15 PM
Sheet * of *
File: C:\Users\ccben\Desktop\TS_20\ts_20-pcb-development\ts_20-Universial-Control-Module\200221 UCM R0\Microcontroller.SchDo
Altium



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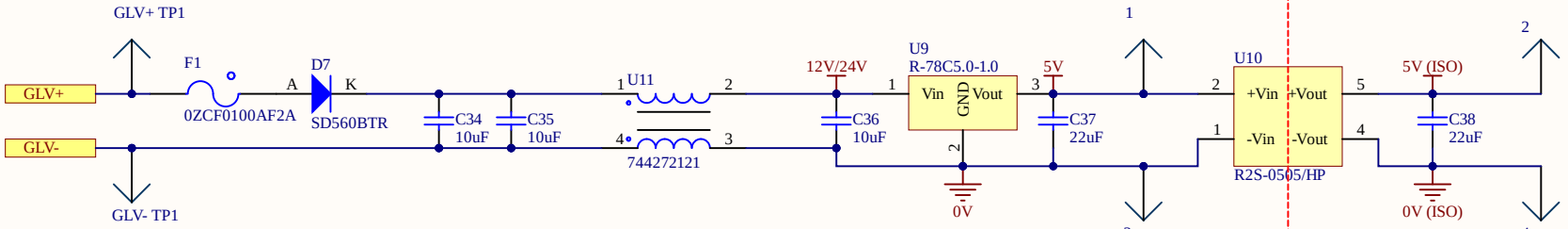
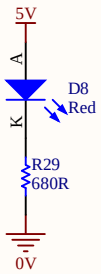
Size: A4	Number	Revision
Date: 4/26/2020	Sheet of	
File: C:\Users\..\Output Driver.SchDoc	Drawn By:	

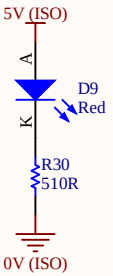
VEHICLE

ISOLATED

2W: POWER OUTPUT







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Date: 4/26/2020	Sheet of	
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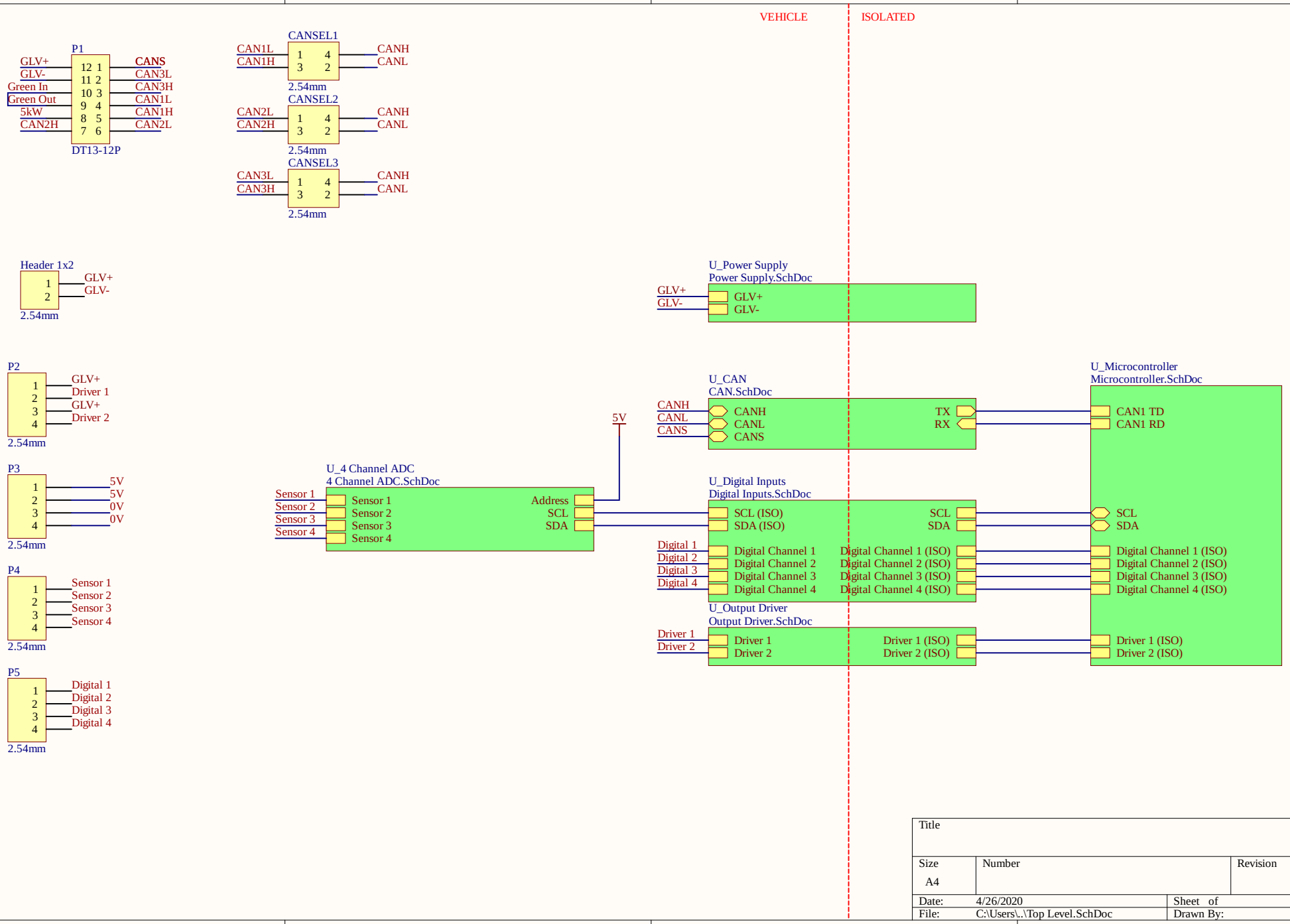

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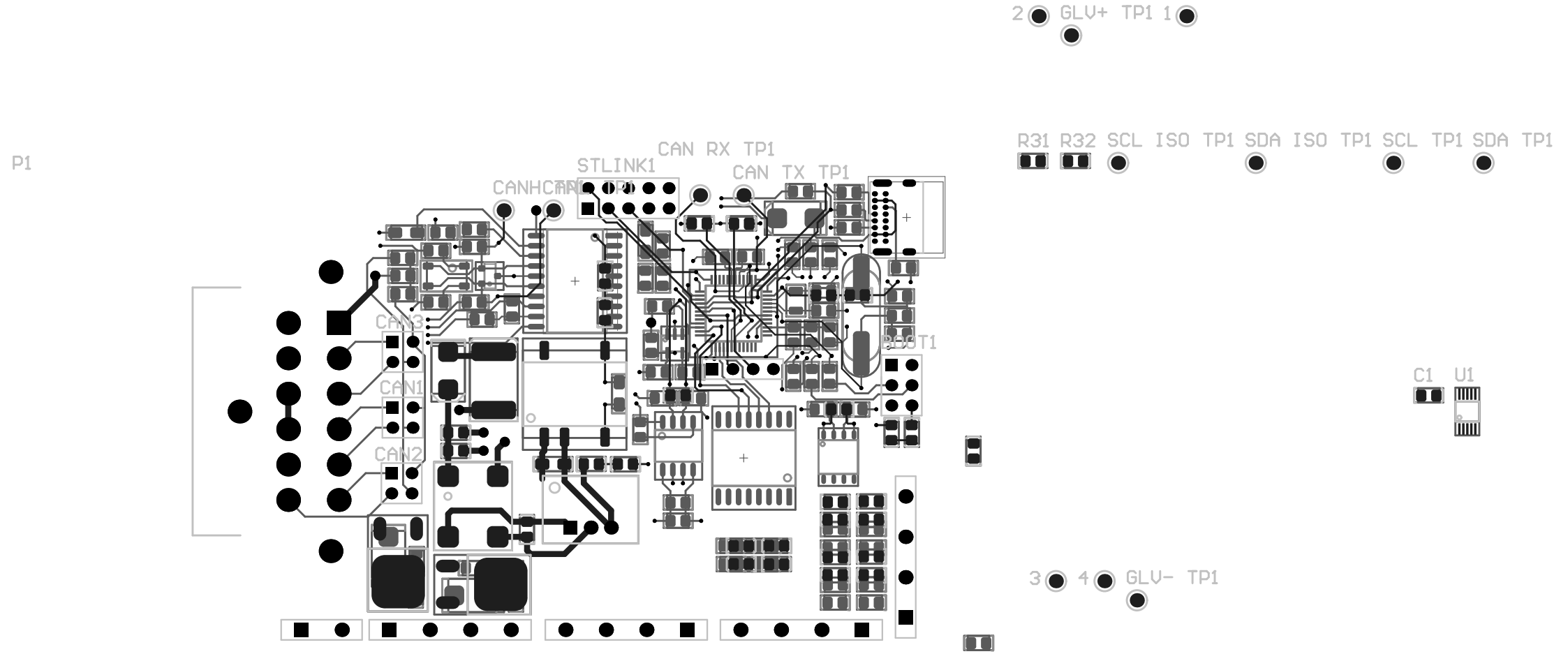
P1
CAN RX TP1
STLINK1
CAN TX TP1
CANH
CAN3
CAN1
CAN2
2
GLV+ TP1
1
R31
R32
SCL ISO TP1
SDA ISO TP1
SCL TP1
SDA TP1
C1
U1
3
4
GLV- TP1