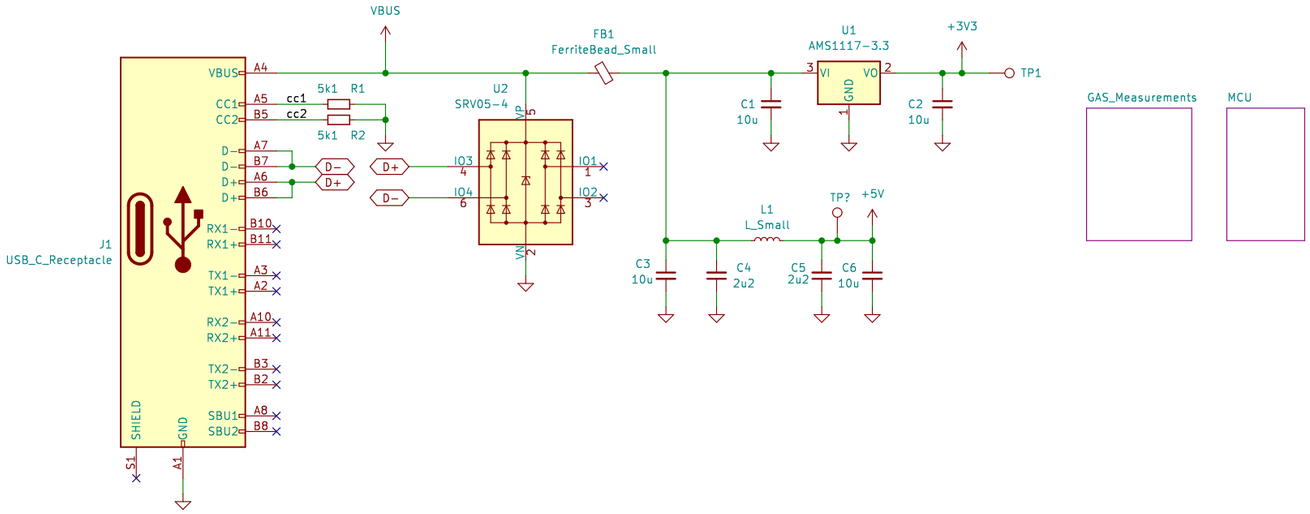

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File: GMWPY.kicad_sch

Title: Gas_sensor_board

Size: A3	Date:	**Rev: 1**
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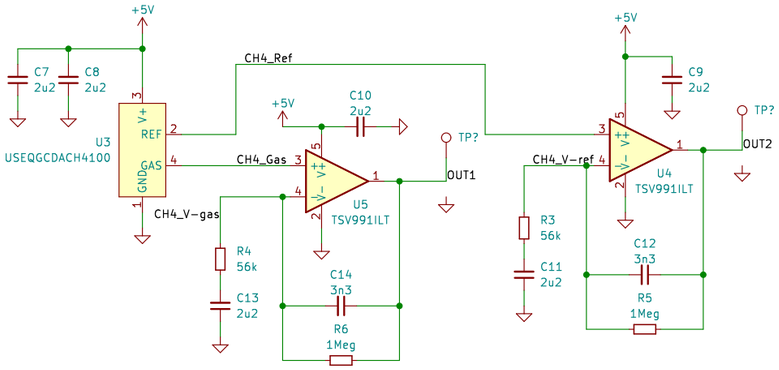
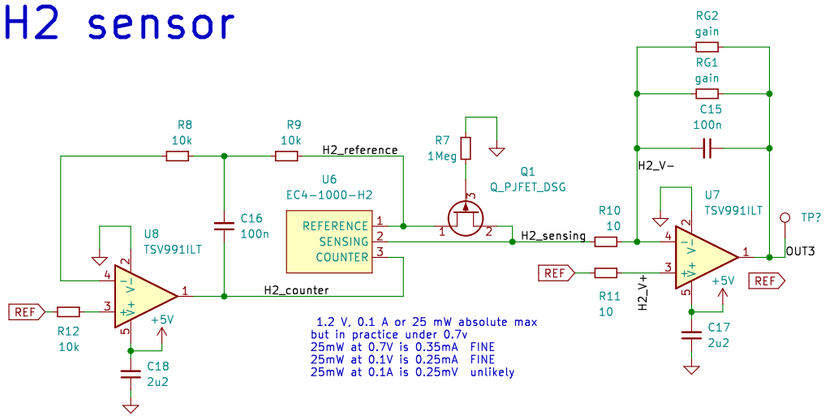
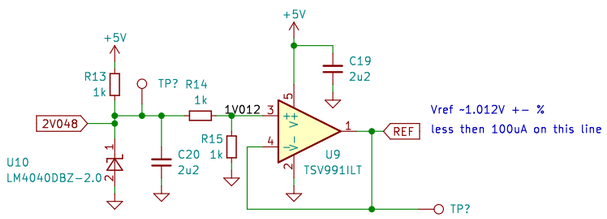
CH4 sensor



H2 sensor





GAIN MATH:
Transimpedance gain is RG in ohm
H2 10-30nA/ppm so (1-3)*10^-8 0-1000ppm with 2000ppm Maximum overload
Then :
IF RG =10k then (10^4)*(10^-8) V/ppm => 0.1-0.3 mV/ppm with 1-3V@ 1000ppm & 2-6v@ 2000ppm

Sheet: /GAS_Measurements/		
File: Measurements.kicad_sch		
Title:		
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DANGER PINS

GPIO_3
GPIO_45
GPIO_46

U11
ESP32-S3-WROOM-1

ESP_BOOT 27
ESP_EN 3

GPIO_1 39
GPIO_2 38
GPIO_3 15
GPIO_4 4
GPIO_5 5
GPIO_6 6
GPIO_7 7
GPIO_8 12
GPIO_9 17
GPIO_10 18
GPIO_11 19
GPIO_12 20
GPIO_13 21
GPIO_14 22
GPIO_15 8
GPIO_16 9
GPIO_17 10
GPIO_18 11

+3V3
2

C23 10u
C24 10u
C25 10u

GPIO0/BOOT
EN
GPIO1/TOUCH1/ADC1_CH0
GPIO2/TOUCH2/ADC1_CH1
GPIO3/TOUCH3/ADC1_CH2
GPIO4/TOUCH4/ADC1_CH3
GPIO5/TOUCH5/ADC1_CH4
GPIO6/TOUCH6/ADC1_CH5
GPIO7/TOUCH7/ADC1_CH6
GPIO8/TOUCH8/ADC1_CH7/SUBSPICS1
GPIO9/TOUCH9/ADC1_CH8/FSPIHD/SUBSPIHD
GPIO10/TOUCH10/ADC1_CH9/FSPICS0/FSPIIO4/SUBSPICS0
GPIO11/TOUCH11/ADC2_CH0/FSPID/FSPIIO5/SUBSPID
GPIO12/TOUCH12/ADC2_CH1/FSPICLK/FSPIIO6/SUBSPICLK
GPIO13/TOUCH13/ADC2_CH2/FSPIQ/FSPIIO7/SUBSPIQ
GPIO14/TOUCH14/ADC2_CH3/FSPIWP/FSPIDQS/SUBSPIWP
GPIO15/U0RTS/ADC2_CH4/XTAL_32K_P
GPIO16/U0CTS/ADC2_CH5/XTAL_32K_NH5
GPIO17/U1TXD/ADC2_CH6
GPIO18/U1RXD/ADC2_CH7/CLK_OUT3

3V3

ESP32-S3-WROOM-1

GPIO20/U1CTS/ADC2_CH9/CLK_OUT1/USB_D+ 14
GPIO19/U1RTS/ADC2_CH8/CLK_OUT2/USB_D- 13

D+
D-

U0TXD/GPIO43/CLK_OUT1 37
U0RXD/GPIO44/CLK_OUT2 36
GPIO21 23
GPIO45 26
GPIO46 16
GPIO48/SPICLK_N/SUBSPICLK_N_DIFF 25
GPIO47/SPICLK_P/SUBSPICLK_P_DIFF 24

GPIO_43
GPIO_44
GPIO_21
GPIO_45
GPIO_46
GPIO_48
GPIO_47

SPIIO6/GPIO35/FSPID/SUBSPID 28
SPIIO7/GPIO36/FSPICLK/SUBSPICLK 29
SPIDQS/GPIO37/FSPIQ/SUBSPIQ 30
GPIO38/FSPIWP/SUBSPIWP 31
MTCK/GPIO39/CLK_OUT3/SUBSPICS1 32
MTDO/GPIO40/CLK_OUT2 33
MTDI/GPIO41/CLK_OUT1 34
MTMS/GPIO42 35

GPIO_35
GPIO_36
GPIO_37
GPIO_38
GPIO_39
GPIO_40
GPIO_41
GPIO_42

GND 1

+3V3 R16 10k
ESP_EN
100n C21
SW1 MCU_RESET

+3V3 R17 10k
ESP_BOOT
C22 2u2
SW2 MCU_RESET

J3
Conn_01x10

10
9
8
7
6
5 I2C_2_SCL
4 I2C_2_SDA
3
2 VBUS
1

J2
Micro_SD_Card_Det

+3V3
C26 10u
C27 100n

DATA_2 1
DATA_3 2
CMD 3
4
CLK 5
6
DATA_0 7
DATA_1 8
CARD_DETECT 10
9

DAT2
DAT3/CD
CMD
VDD
CLK
VSS
DAT0
DAT1
DET_A
DET_B
SHIELD 11

+3V3

R24 10k
R25 10k
R26 10k
R27 10k
R28 10k
R29 10k
R30 10k

GPIO_42 10 R18 DATA_0
GPIO_41 10 R19 DATA_1
GPIO_1 10 R20 DATA_2
GPIO_2 10 R21 DATA_3
GPIO_43 10 R22 CMD
GPIO_44 10 R23 CLK
GPIO_40 CARD_DETECT

Sheet: /MCU/
File: MCU.kicad_sch

Title:

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