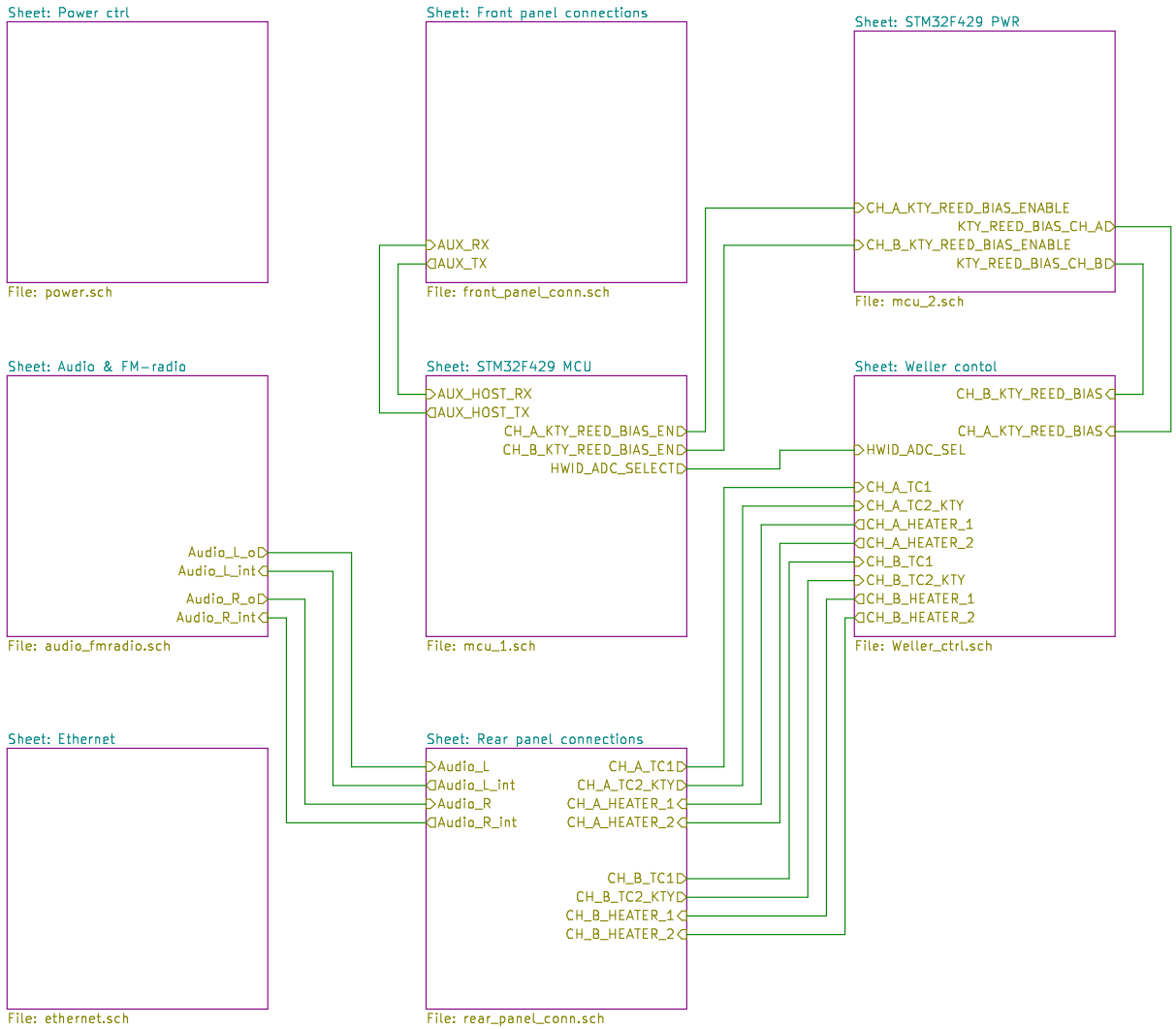


I2C-addresses (on I2C1)

TMP100 (temperature sensors) :

- 1001000 (Front panel, outside left)
- 1001010 (FP, outside right)
- 1001100 (FP, inside left)
- 1001101 (FP, inside middle)
- 1001110 (FP, inside right)
- 1001001 (Main board #1)
- 1001011 (MB #2)
- 1001111 (MB #3)

INA226 (power-channel current sensors) :

- 1000000 (ch A, heater 1)
- 1000001 (ch A, heater 2)
- 1000100 (ch B, heater 1)
- 1000101 (ch B, heater 2)

SI4735 (FM-radio rx) :

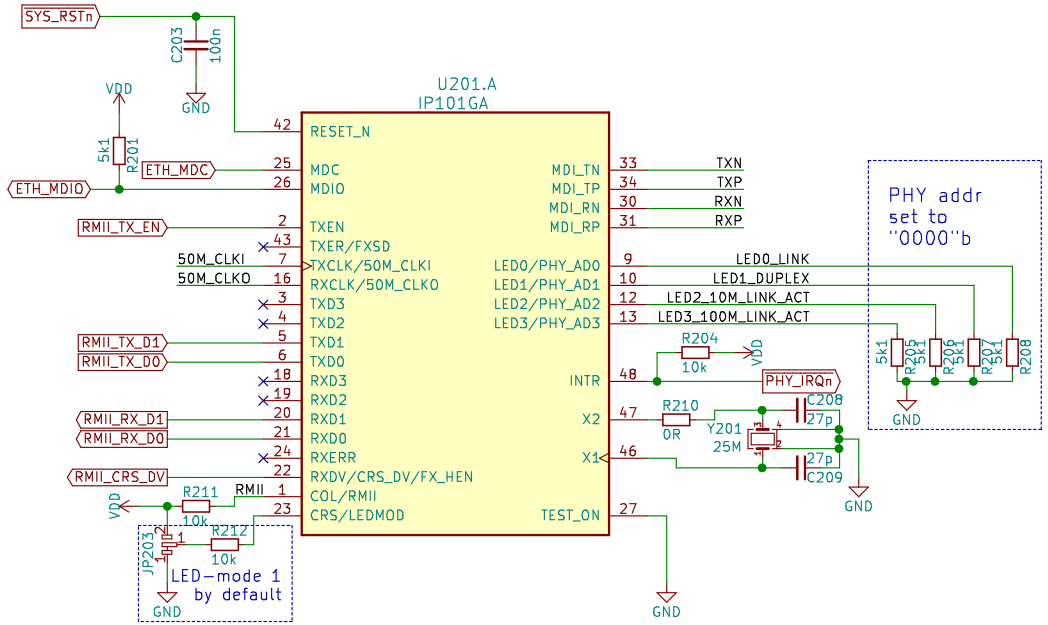
- 0010001 (if $\overline{\text{SEN}}$ pulled low [default])
- 1100011 (alternative, if SEN pulled high)

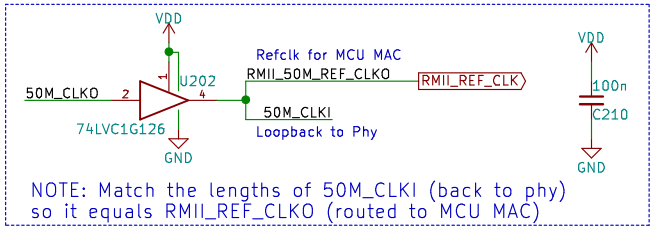
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

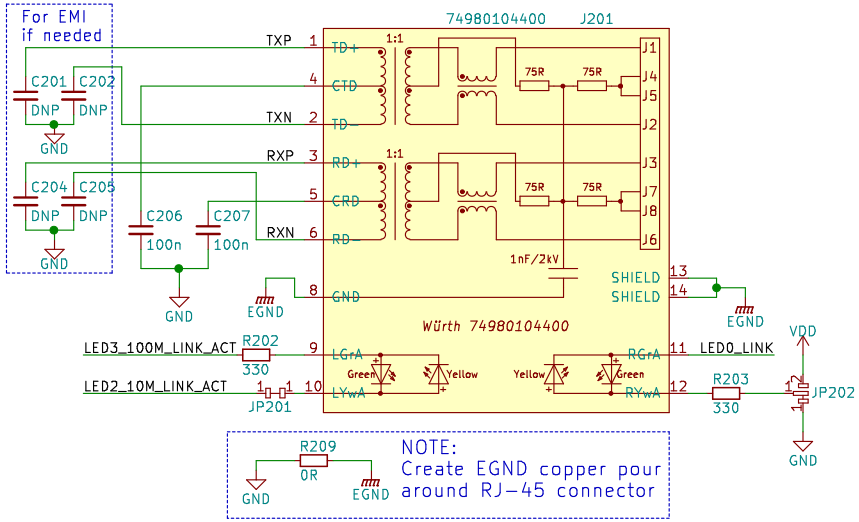
Sheet: /
File: solderstn_mb.sch

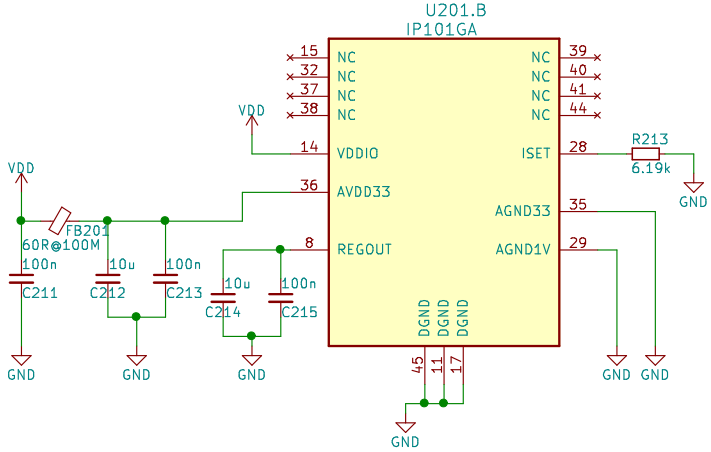
Title: DIY Soldering station, top level

Size: A4	Date: 2020-04-26	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 1/22







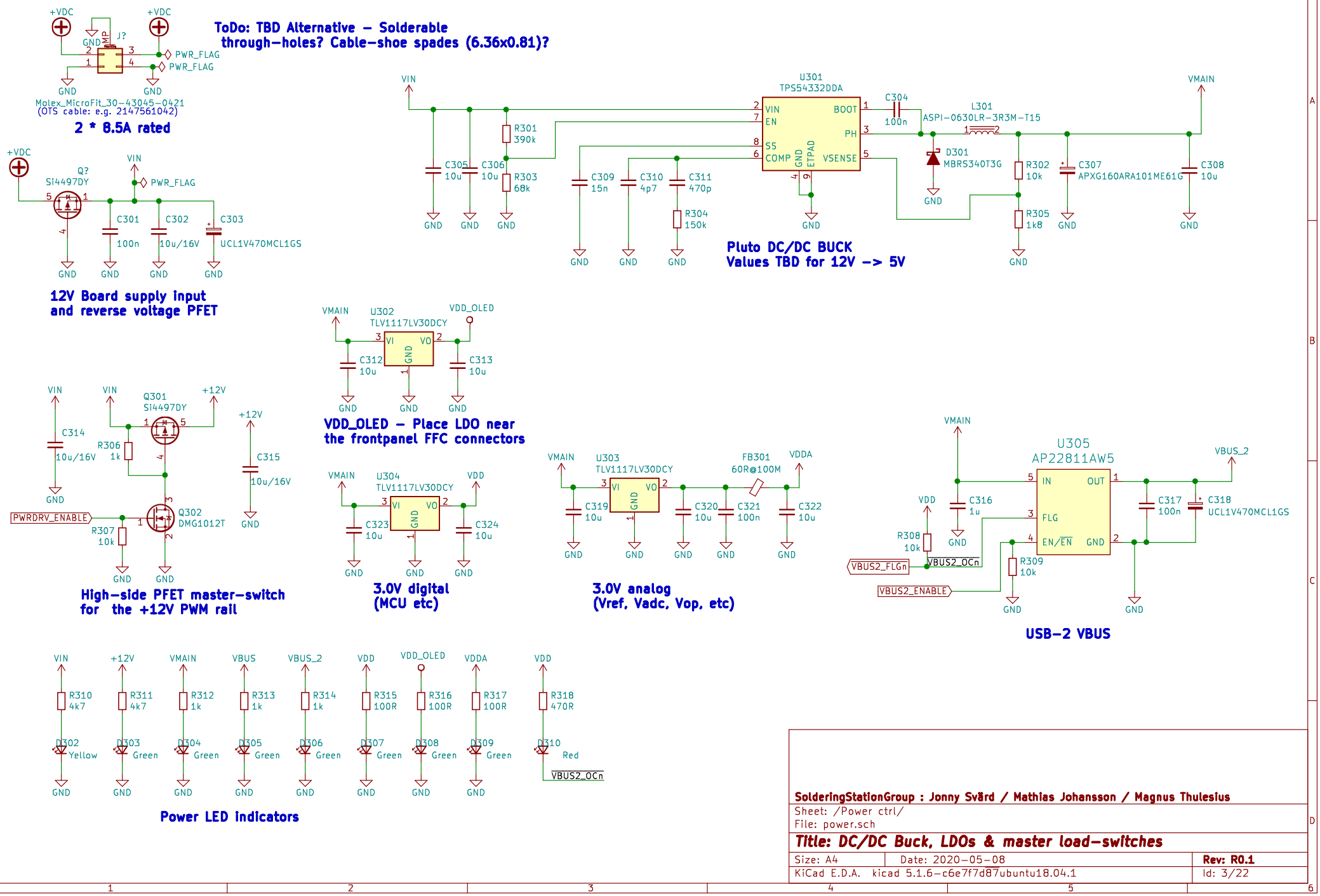


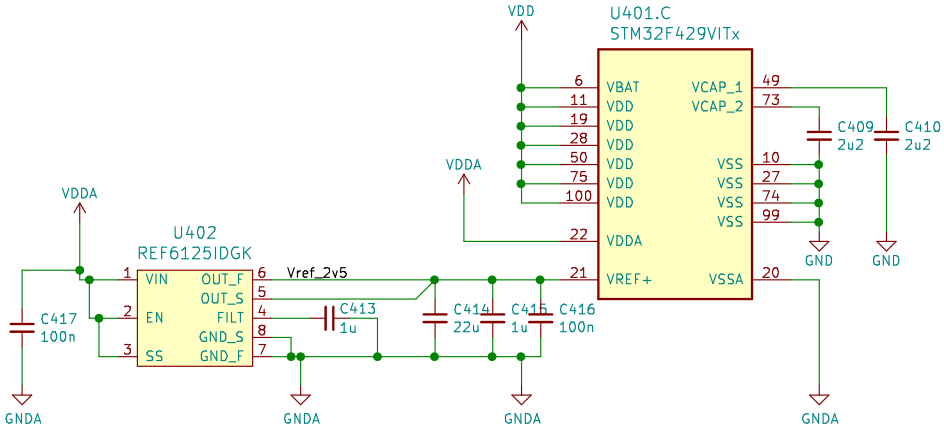
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Ethernet/
File: ethernet.sch

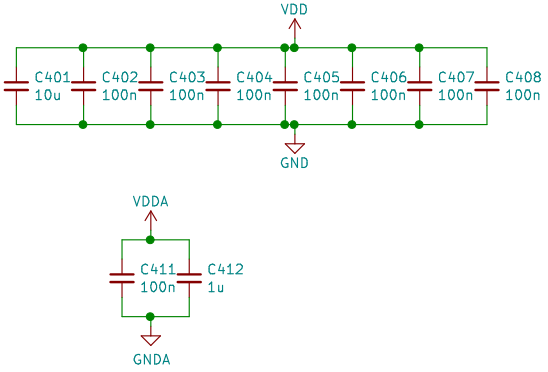
Title: Ethernet PHY & connector

Size: A4	Date: 2020-05-03	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 2/22

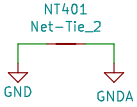

ToDo: TBD Alternative – Solderable through-holes? Cable-shoe spades (6.36x0.81)?
Molex_MicroFit_30-43045-0421
(OTS cable: e.g. 2147561042)
2 * 8.5A rated
12V Board supply input and reverse voltage PFET
Pluto DC/DC BUCK
Values TBD for 12V -> 5V
VDD_OLED – Place LDO near the frontpanel FFC connectors
High-side PFET master-switch for the +12V PWM rail
3.0V digital (MCU etc)
3.0V analog (Vref, Vadc, Vop, etc)
USB-2 VBUS
Power LED Indicators
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Power ctrl/
File: power.sch
Title: DC/DC Buck, LDOs & master load-switches
Size: A4
Date: 2020-05-08
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 3/22

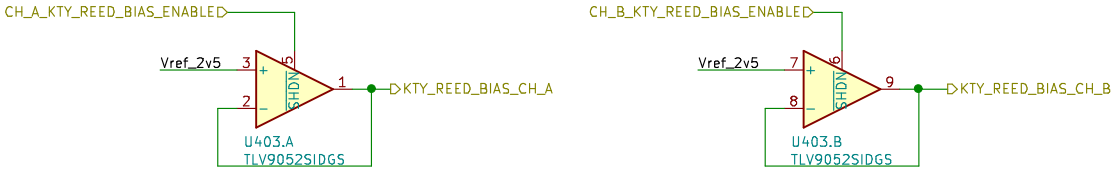


Precisin Vref. Place close to MCU. See REF6125 ds for layout suggestions.



MCU decoupling – place close to MCU power pins





Switchable Vref for biasing KTY sensors (for cold-junction compensation), one per channel. The KTY's can then be meassured through the ordinary TC amps.

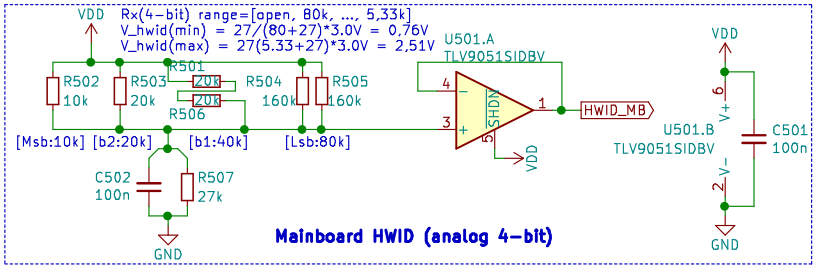
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

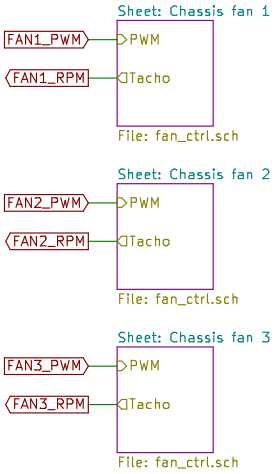
Sheet: /STM32F429 PWR/
File: mcu_2.sch

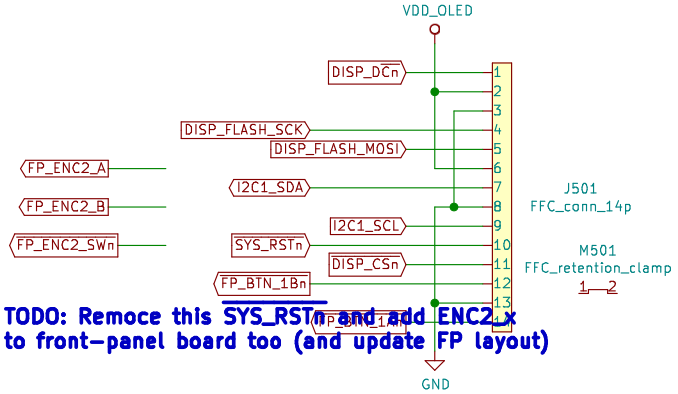
Title: STM32F429 MCU power, decoupling, Vref

Size: A4	Date: 2020-04-26	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 4/22

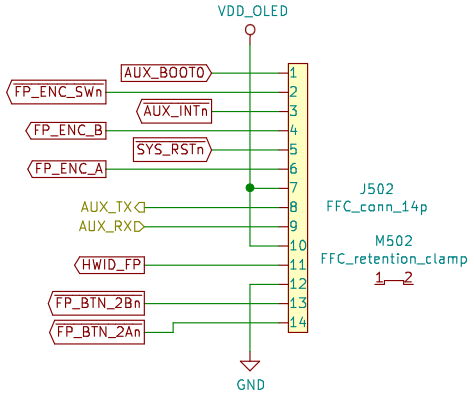
Place vDD_OLED LDO close to FFC connectors
TODO: add 2nd optional rotary encoder to FP board
Ideally it would just be a 3d-printed holder option on
same PCB that supports PwrBtn. Worst-case, air-wire
in the Rotary signals to 5pin header a bit off.
(TODO#2: Need new 3d-printed holder design for left-side Rotary...)

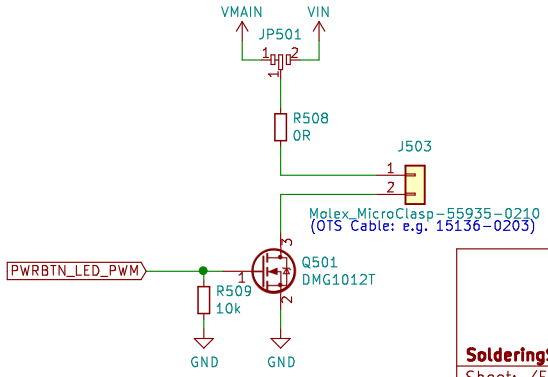


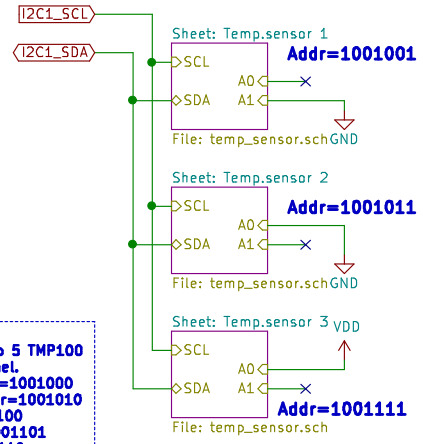




TODO: Remoce this SYS_RSTn and add ENC2_x
to front-panel board too (and update FP layout)







Note:
There're additional up-to 5 TMP100
sensors on the front panel.
Display-side, left : addr=1001000
Display-side, right : addr=1001010
Inside, left : addr=1001100
Inside, middle : addr=1001101
Inside, right: addr=1001110

Ambient temperature sensors (TMP100)

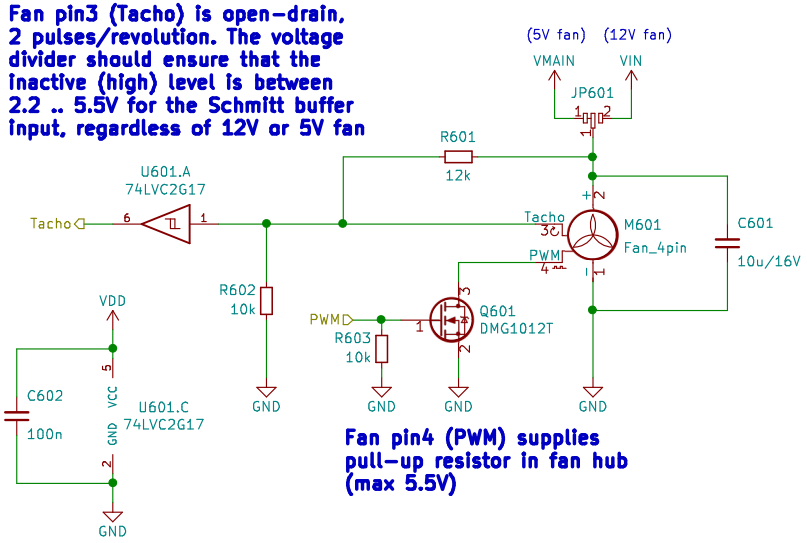
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/
File: front_panel_conn.sch

Title: Front-side and internal connectors

Size: A4	Date: 2020-08-03	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 5/22

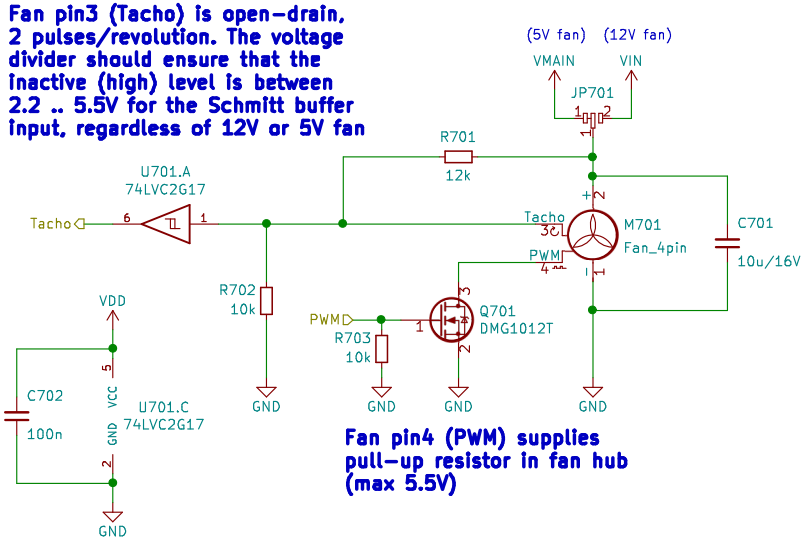
Fan pin3 (Tacho) is open-drain,
2 pulses/revolution. The voltage
divider should ensure that the
inactive (high) level is between
2.2 .. 5.5V for the Schmitt buffer
input, regardless of 12V or 5V fan



Fan pin4 (PWM) supplies
pull-up resistor in fan hub
(max 5.5V)

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /Front panel connections/Chassis fan 1/ File: fan_ctrl.sch		
Title: Fan controller		
Size: A4	Date: 2020-08-09	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 6/22

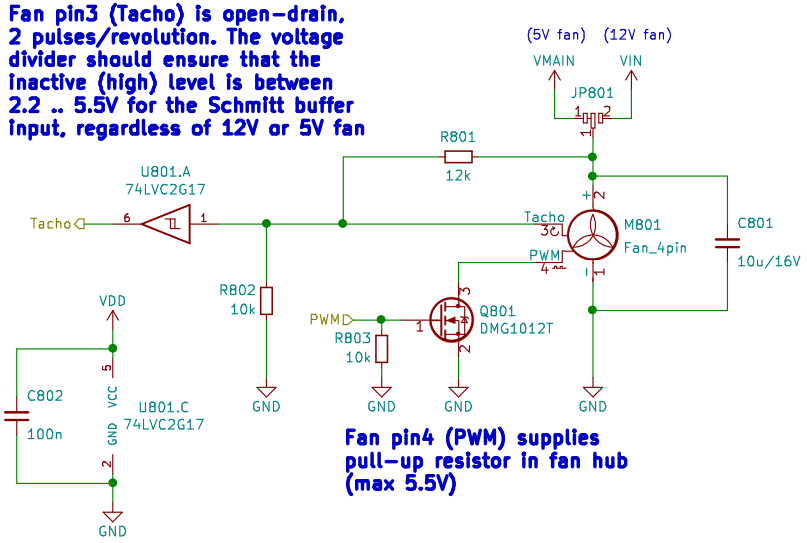
Fan pin3 (Tacho) is open-drain,
2 pulses/revolution. The voltage
divider should ensure that the
inactive (high) level is between
2.2 .. 5.5V for the Schmitt buffer
input, regardless of 12V or 5V fan



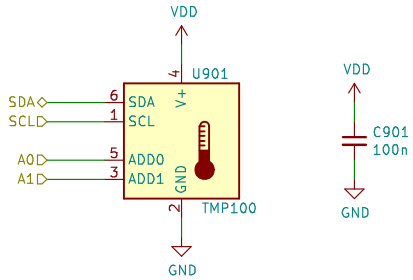
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius	
Sheet: /Front panel connections/Chassis fan 2/	
File: fan_ctrl.sch	
Title: Fan controller	
Size: A4	Date: 2020-08-09
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1	Id: 7/22

Rev: R0.1

Fan pin3 (Tacho) is open-drain,
2 pulses/revolution. The voltage
divider should ensure that the
inactive (high) level is between
2.2 .. 5.5V for the Schmitt buffer
input, regardless of 12V or 5V fan



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /Front panel connections/Chassis fan 3/		
File: fan_ctrl.sch		
Title: Fan controller		
Size: A4	Date: 2020-08-09	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 8/22

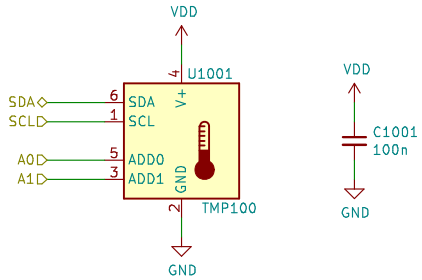


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 1/
File: temp_sensor.sch

Title:

Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 9/22

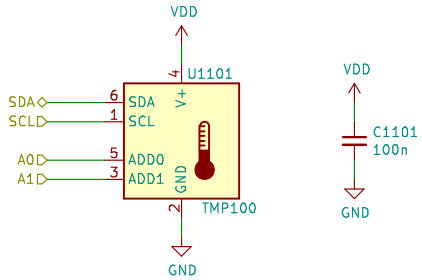


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 2/
File: temp_sensor.sch

Title:

Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 10/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

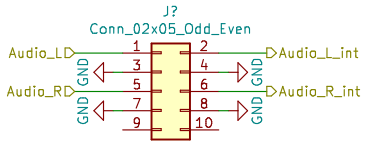
Sheet: /Front panel connections/Temp.sensor 3/
File: temp_sensor.sch

Title:

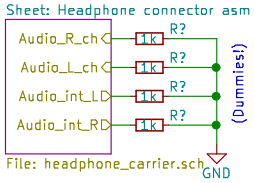
Size: A4	Date:	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 11/22

Notes:
RJ45 ethernet – located on ethernet page

Audiojack 3.5mm (sub-PCB)
DBGUART / SWD (dsub-9?)
FM-ant? (AM-ferrit extern..?)
USB1 (device)
USB2 (host)
Force Bootloader/rst
2x Amphenol Weller-jacks!



Headphone 3.5mm connector on a break-away sub-PCB.
Audio signals get routed out to the 3.5mm connector, through the plug-switches and optionally back to internal speakers conns if there's no plug inserted



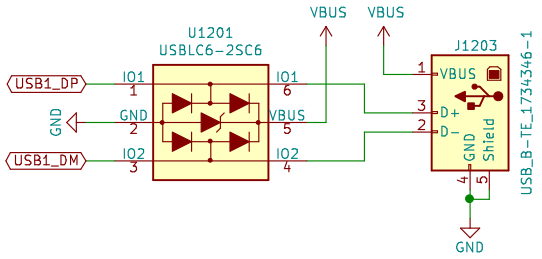
ToDo:

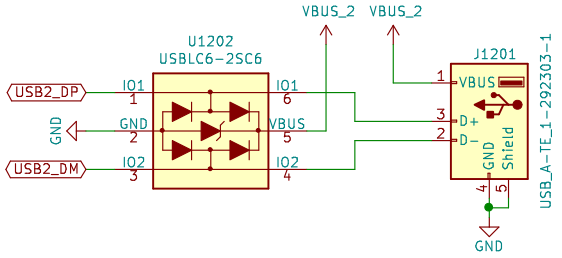
CH_A_HEATER_1
CH_A_HEATER_2
4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

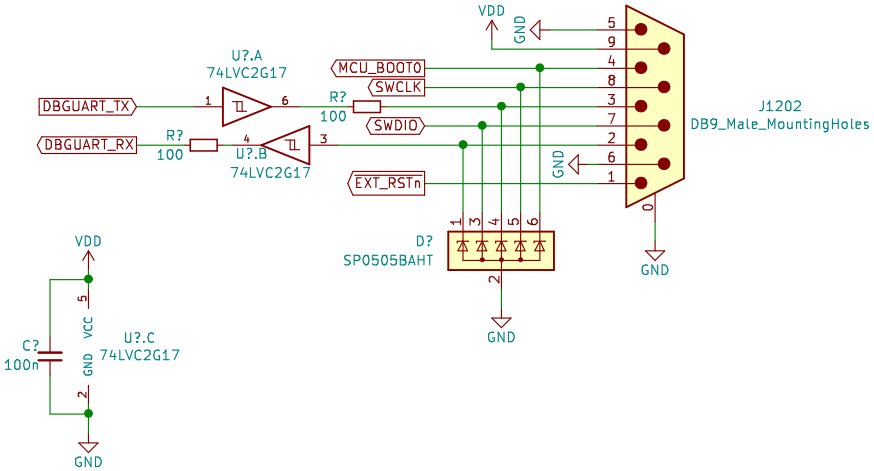
CH_A_TC1
CH_A_TC2_KTY
5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)

CH_B_HEATER_1
CH_B_HEATER_2
4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

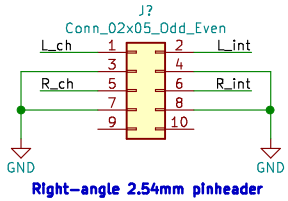
CH_B_TC1
CH_B_TC2_KTY
5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)

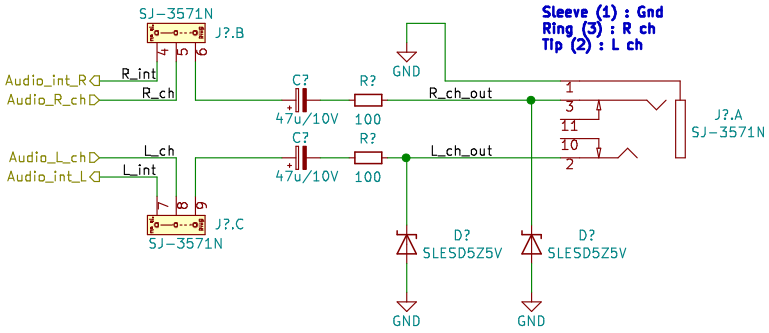






SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius		
Sheet: /Rear panel connections/ File: rear_panel_conn.sch		
Title: Backside connectors		
Size: A4	Date: 2020-08-14	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 12/22

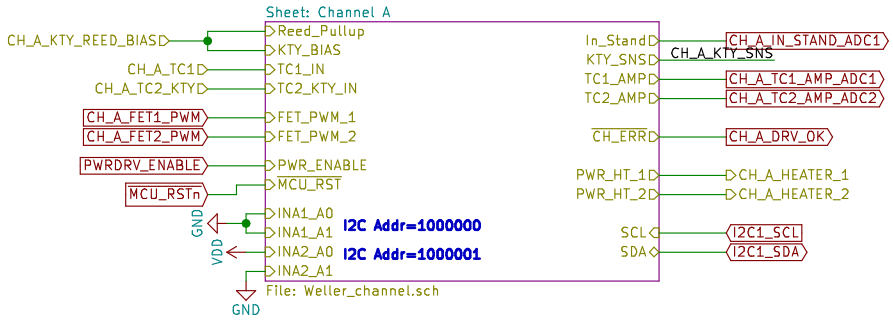


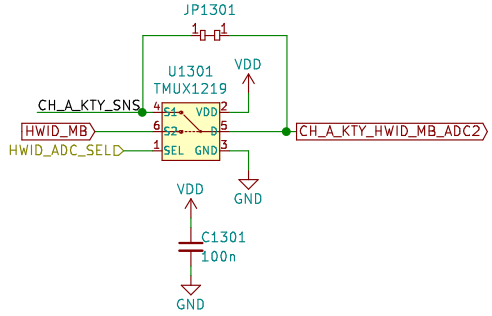


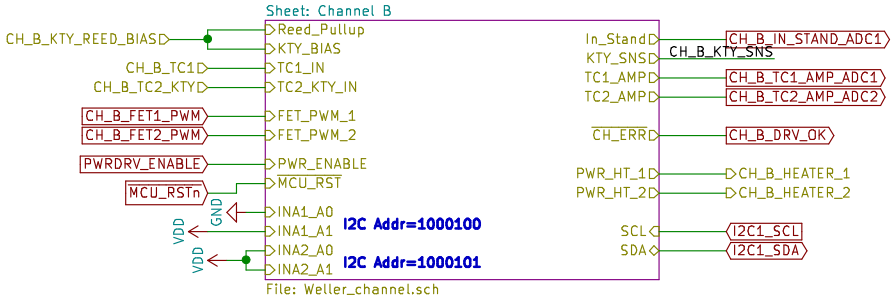
Sheet: /Rear panel connections/Headphone connector asm/
File: headphone_carrier.sch

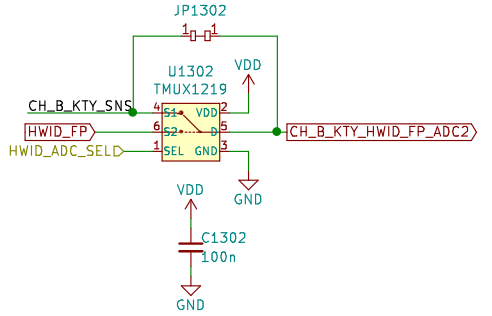
Title: Rearpanel headphone assembly

Size: A4	Date: 2020-08-19	**Rev:**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 13/22







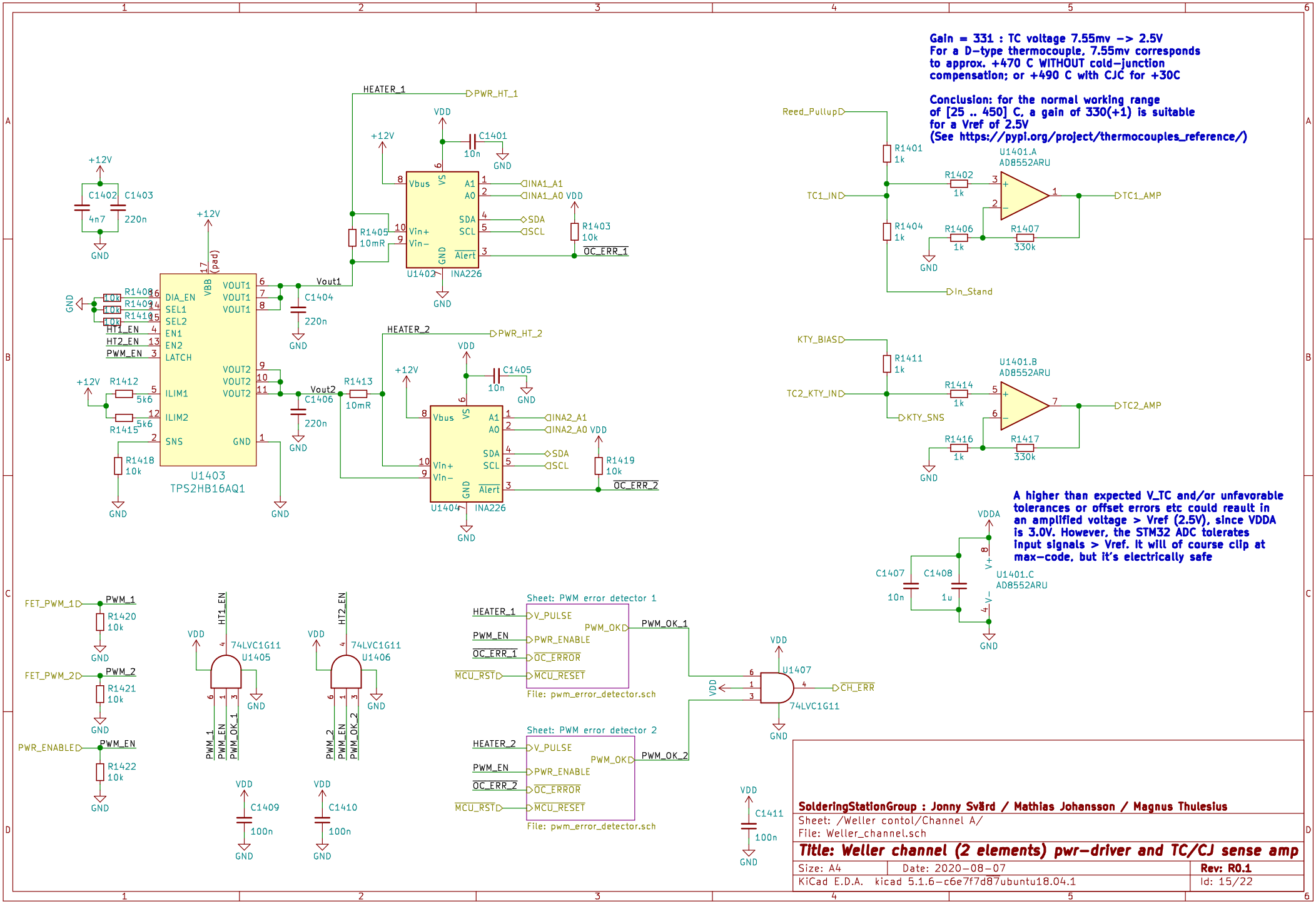


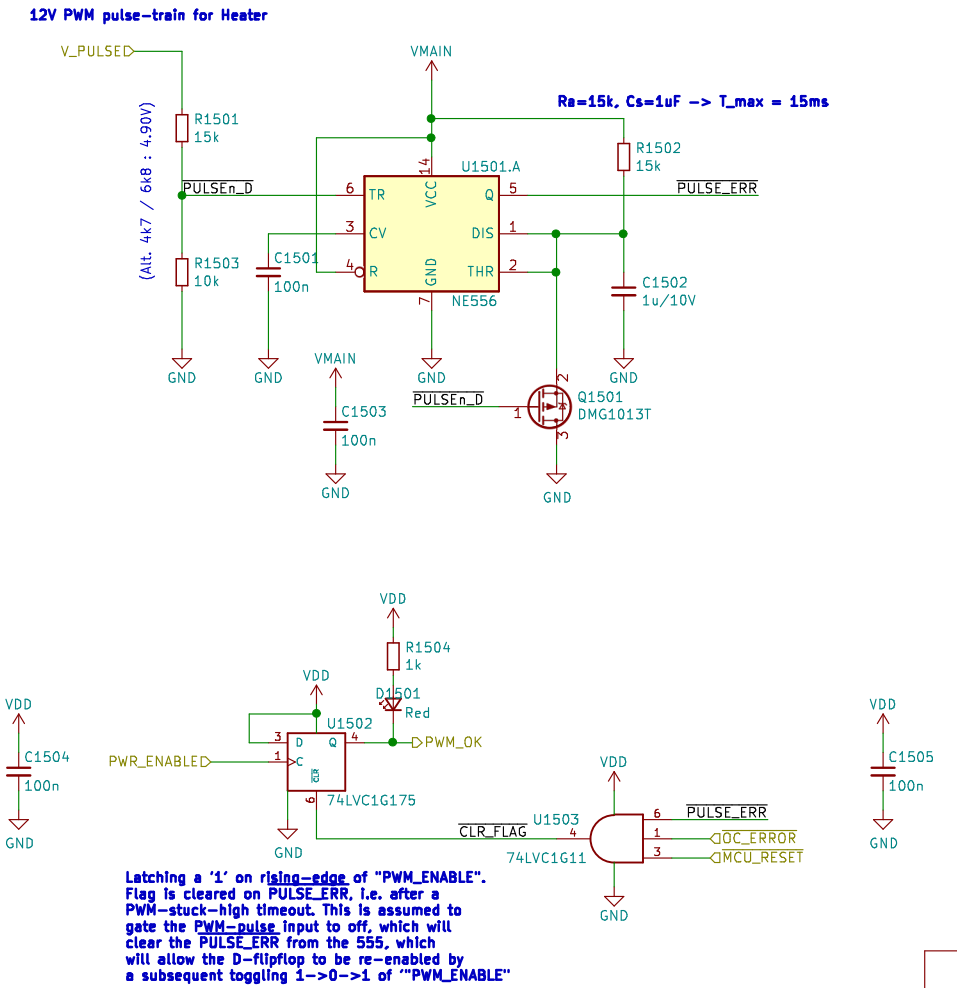
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/
File: Weller_ctrl.sch

Title: Dual Weller WMRP or WMRT capable channels

Size: A4	Date: 2020-08-07	**Rev: R0.1**
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 14/22


Gain = 331 : TC voltage 7.55mv -> 2.5V
For a D-type thermocouple, 7.55mv corresponds to approx. +470 C WITHOUT cold-junction compensation; or +490 C with CJC for +30C
Conclusion: for the normal working range of [25 .. 450] C, a gain of 330(+1) is suitable for a Vref of 2.5V
(See https://pypi.org/project/thermocouples_reference/)
A higher than expected V_TC and/or unfavorable tolerances or offset errors etc could reault in an amplified voltage > Vref (2.5V), since VDDA is 3.0V. However, the STM32 ADC tolerates input signals > Vref. It will of course clip at max-code, but it's electrically safe
U1403
TPS2HB16AQ1
U1402
INA226
U1404
INA226
U1401.A
AD8552ARU
U1401.B
AD8552ARU
U1401.C
AD8552ARU
U1405
74LVC1G11
U1406
74LVC1G11
U1407
74LVC1G11
Sheet: PWM error detector 1
File: pwm_error_detector.sch
Sheet: PWM error detector 2
File: pwm_error_detector.sch
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Weller contol/Channel A/
File: Weller_channel.sch
Title: Weller channel (2 elements) pwr-driver and TC/CJ sense amp
Size: A4
Date: 2020-08-07
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 15/22



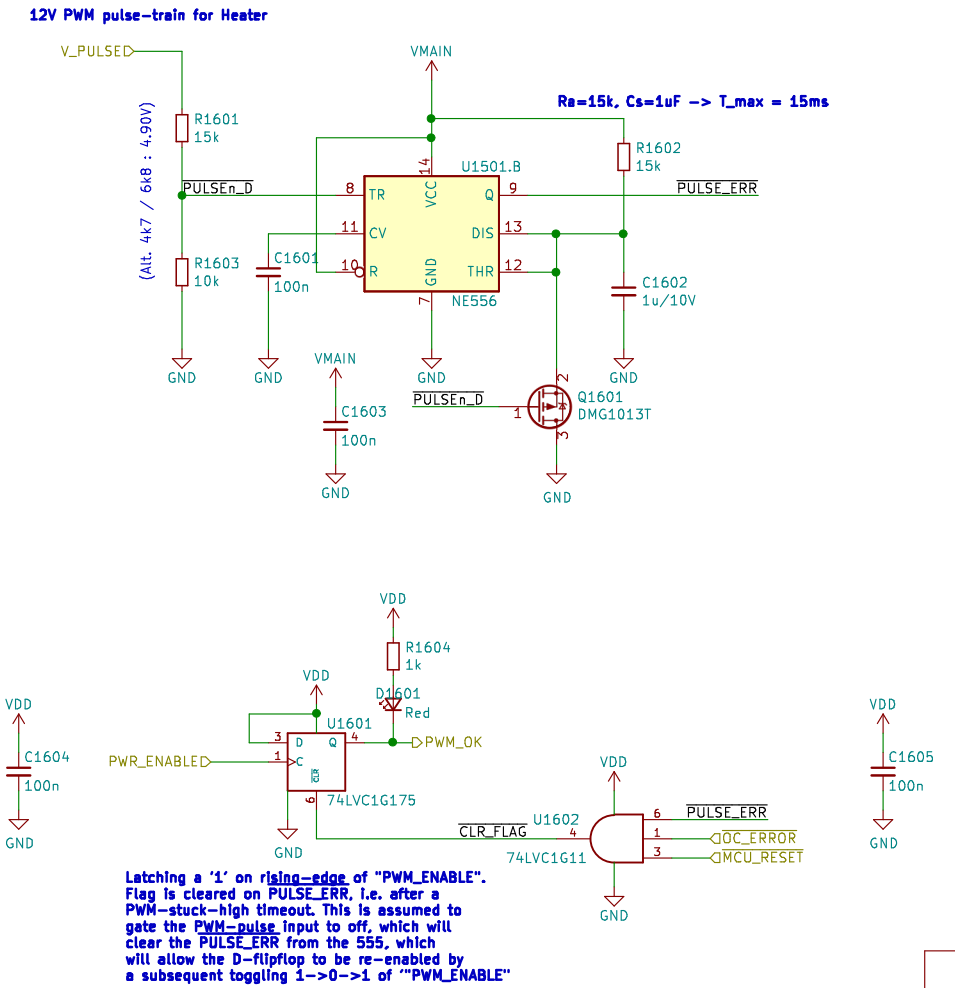
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel A/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 16/22



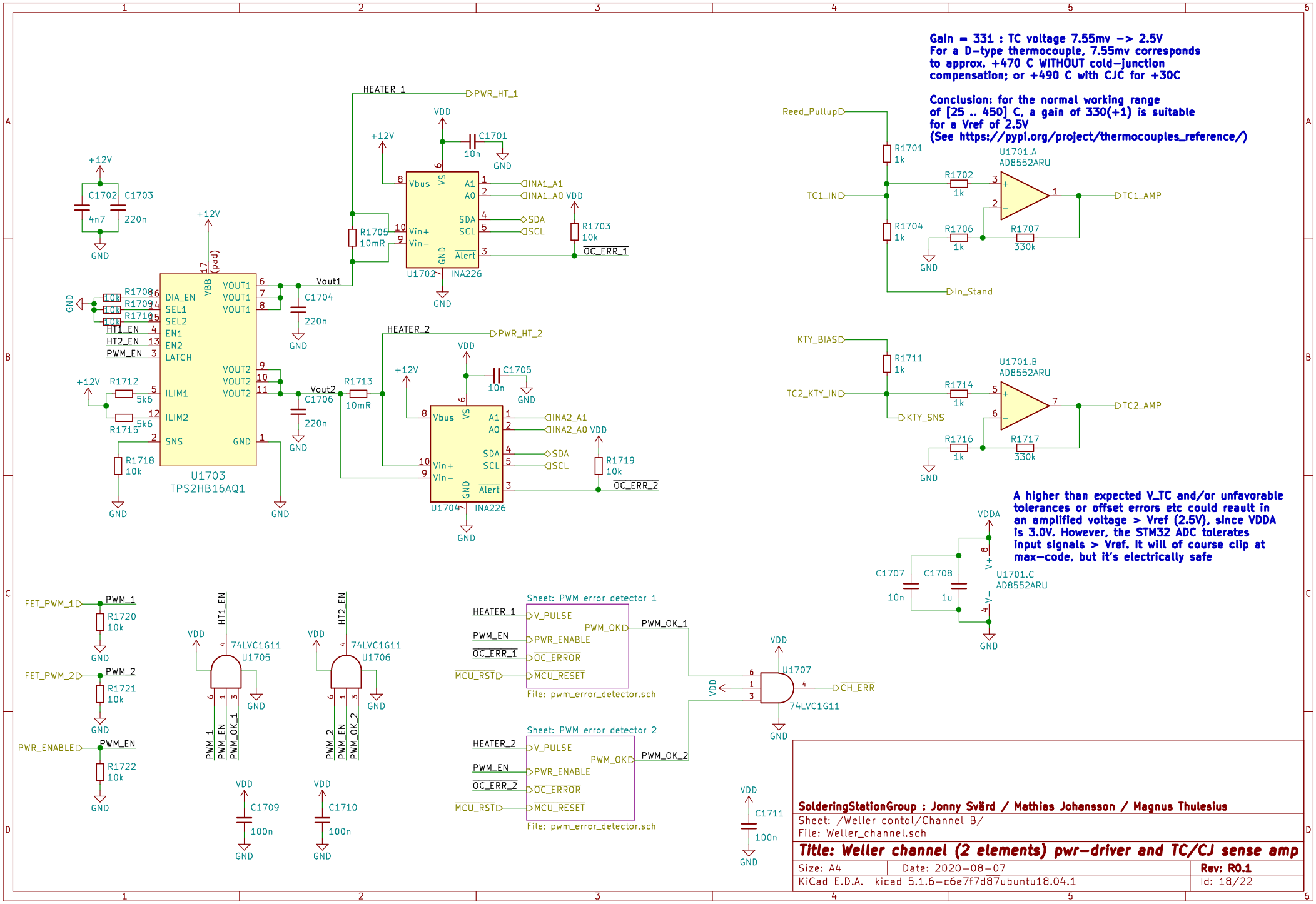
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

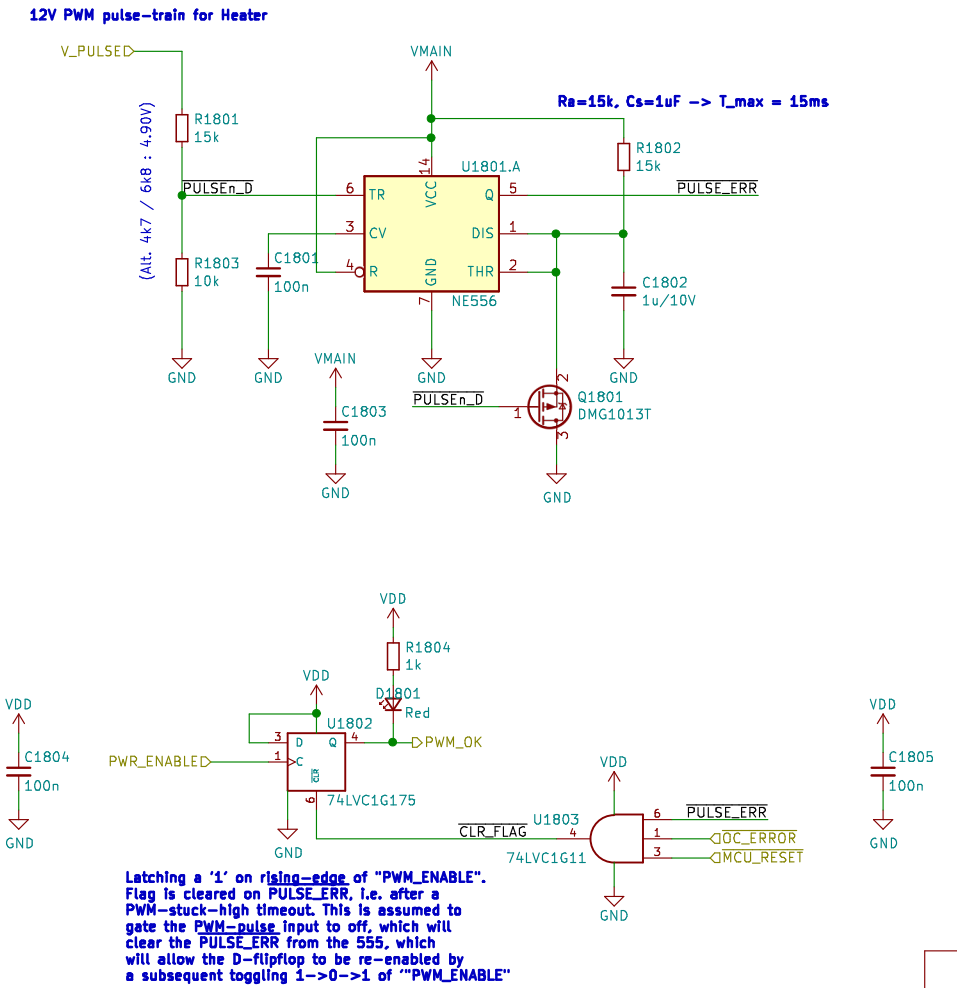
Sheet: /Weller contol/Channel A/PWM error detector 2/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 17/22


Gain = 331 : TC voltage 7.55mv -> 2.5V
For a D-type thermocouple, 7.55mv corresponds to approx. +470 C WITHOUT cold-junction compensation; or +490 C with CJC for +30C
Conclusion: for the normal working range of [25 .. 450] C, a gain of 330(+1) is suitable for a Vref of 2.5V
(See https://pypi.org/project/thermocouples_reference/)
A higher than expected V_TC and/or unfavorable tolerances or offset errors etc could reault in an amplified voltage > Vref (2.5V), since VDDA is 3.0V. However, the STM32 ADC tolerates input signals > Vref. It will of course clip at max-code, but it's electrically safe
U1703
TPS2HB16AQ1
U1702
INA226
U1704
INA226
U1701.A
AD8552ARU
U1701.B
AD8552ARU
U1701.C
AD8552ARU
U1705
74LVC1G11
U1706
74LVC1G11
U1707
74LVC1G11
Sheet: PWM error detector 1
File: pwm_error_detector.sch
Sheet: PWM error detector 2
File: pwm_error_detector.sch
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Weller contol/Channel B/
File: Weller_channel.sch
Title: Weller channel (2 elements) pwr-driver and TC/CJ sense amp
Size: A4
Date: 2020-08-07
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 18/22



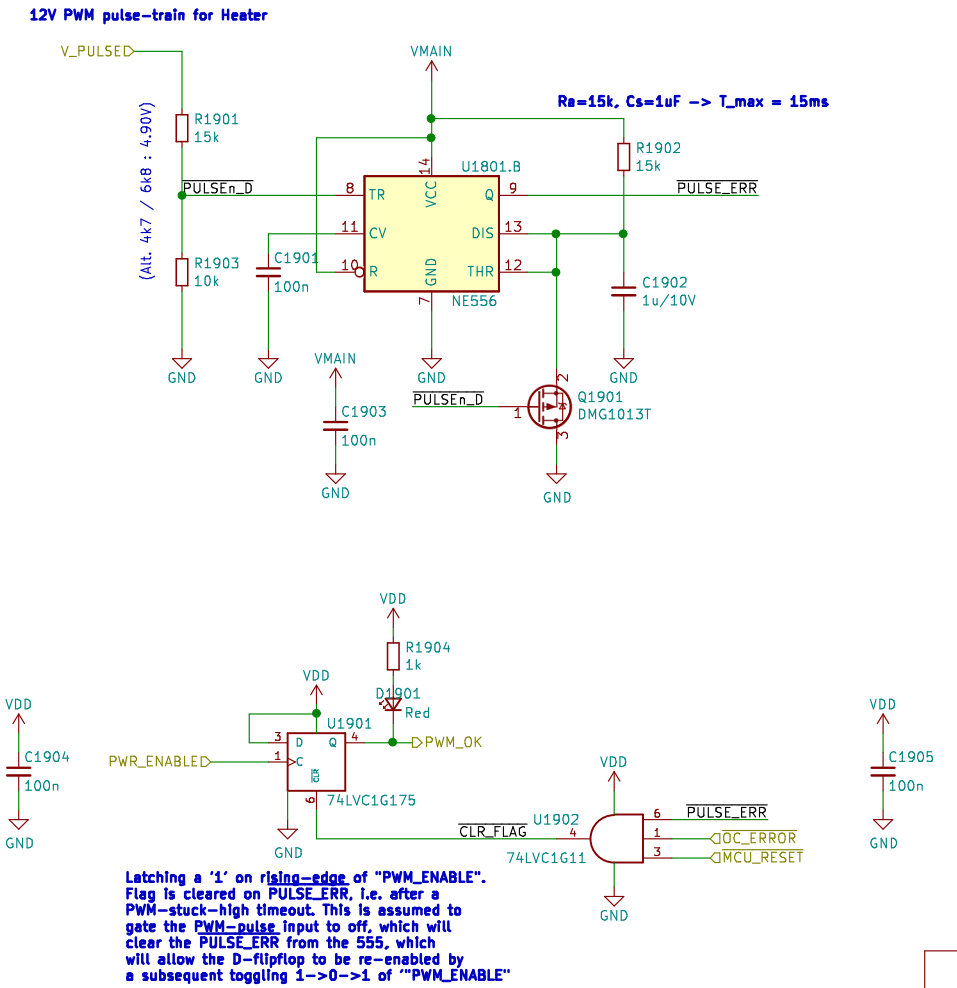
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 19/22



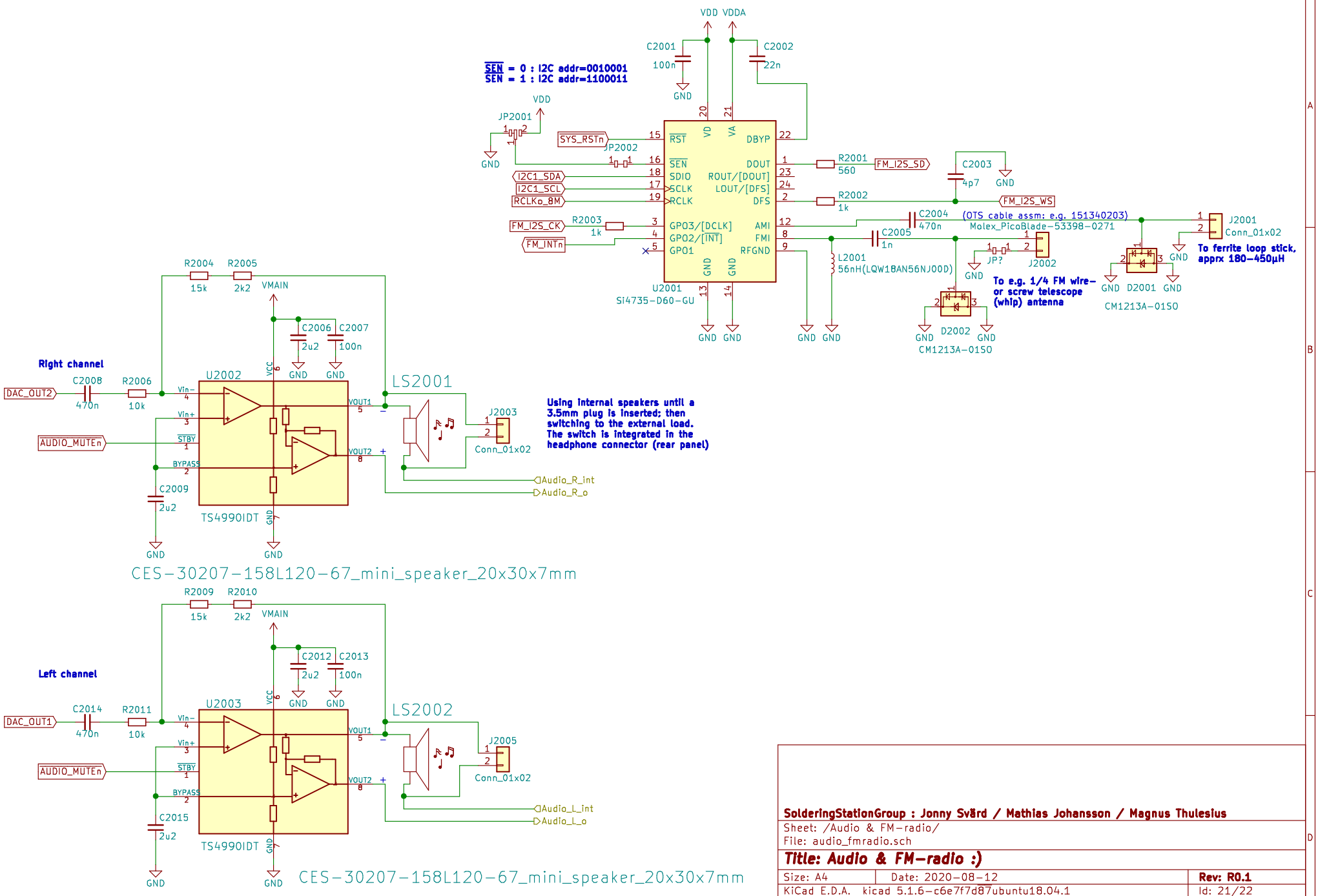
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 2/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

Size: A4	Date: 2020-08-12	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 20/22


SEN = 0 : I2C addr=0010001
SEN = 1 : I2C addr=1100011
VDD VDDA
C2001 100n
C2002 22n
JP2001
SYS_RSTn
JP2002
I2C1_SDA
I2C1_SCL
RCLKo_8M
FM_I2S_CK
FM_INTn
R2003 1k
U2001 Si4735-D60-GU
R2001 560
FM_I2S_SD
C2003 4p7
R2002 1k
FM_I2S_WS
C2004 470n
C2005 1n
L2001 56nH(LQW18AN56NJ00D)
(OTS cable assm: e.g. 151340203)
Molex_PicoBlade-53398-0271
JP?
J2002
To e.g. 1/4 FM wire- or screw telescope (whip) antenna
D2002 CM1213A-01SO
D2001 CM1213A-01SO
J2001 Conn_01x02
To ferrite loop stick, apprx 180-450µH
R2004 15k
R2005 2k2
VMAIN
C2006 2u2
C2007 100n
Right channel
C2008 470n
R2006 10k
DAC_OUT2
AUDIO_MUTEn
U2002 TS4990IDT
LS2001
J2003 Conn_01x02
Using internal speakers until a 3.5mm plug is inserted; then switching to the external load. The switch is integrated in the headphone connector (rear panel)
Audio_R_int
Audio_R_o
C2009 2u2
CES-30207-158L120-67_mini_speaker_20x30x7mm
R2009 15k
R2010 2k2
C2012 2u2
C2013 100n
Left channel
C2014 470n
R2011 10k
DAC_OUT1
U2003 TS4990IDT
LS2002
J2005 Conn_01x02
Audio_L_int
Audio_L_o
C2015 2u2
CES-30207-158L120-67_mini_speaker_20x30x7mm
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius
Sheet: /Audio & FM-radio/
File: audio_fmradio.sch
Title: Audio & FM-radio :)
Size: A4
Date: 2020-08-12
Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1
Id: 21/22

U401.A
STM32F429VITx

PA0/WKUP/TIM2_CH1/TIM2_ETR/TIM5_CH1/TIM8_ETR/USART2_CTS/UART4_TX/ETH_MII_CRS/ADC123_IN0 — 23 — CH_A_KTY_HWID_MB_ADC2
PA1/TIM2_CH2/TIM5_CH2/USART2_RTS/UART4_RX/ETH_MII_RX_CLK/ETH_RMII_REF_CLK/ADC123_IN1 — 24 — RMII_REF_CLK
PA2/TIM2_CH3/TIM5_CH3/TIM9_CH1/USART2_TX/ETH_MDIO/ADC123_IN2 — 25 — ETH_MDIO
PA3/TIM2_CH4/TIM5_CH4/TIM9_CH2/USART2_RX/OTG_HS_ULPI_D0/ETH_MII_COL/LCD_B5/ADC123_IN3 — 26 — CH_B_KTY_HWID_FP_ADC2
PA4(3V)/SPI1_NSS/SPI3_NSS/I2S3_WS/USART2_CK/OTG_HS_SOF/DCMI_HSYNC/LCD_VSYNC/ADC12_IN4/DAC_OUT1 — 29 — DAC_OUT1
PA5(3V)/TIM2_CH1/TIM2_ETR/TIM8_CH1N/SPI1_SCK/OTG_HS_ULPI_CK/ADC12_IN5/DAC_OUT2 — 30 — DAC_OUT2
PA6/TIM1_BKIN/TIM3_CH1/TIM8_BKIN/SPI1_MISO/TIM13_CH1/DCMI_PIXCLK/LCD_G2/ADC12_IN6 — 31 — CH_B_IN_STAND_ADC1
PA7/TIM1_CH1N/TIM3_CH2/TIM8_CH1N/SPI1_MOSI/TIM14_CH1/ETH_MII_RX_DV/ETH_RMII_CRS_DV/ADC12_IN7 — 32 — RMII_CRS_DV
PA8/MCO1/TIM1_CH1/I2C3_SCL/USART1_CK/OTG_FS_SOF/LCD_R6 — 67 — RCLKo_8M
PA9/TIM1_CH2/I2C3_SMBA/USART1_TX/DCMI_D0/OTG_FS_VBUS — 68 — DBGUART_TX
PA10/TIM1_CH3/USART1_RX/OTG_FS_ID/DCMI_D1 — 69 — DBGUART_RX
PA11/TIM1_CH4/USART1_CTS/CAN1_RX/LCD_R4/OTG_FS_DM — 70 — USB1_DM
PA12/TIM1_ETR/USART1_RTS/CAN1_TX/LCD_R5/OTG_FS_DP — 71 — USB1_DP
PA13/JTMS-SWDIO — 72 — SWDIO
PA14/JTCK-SWCLK — 76 — SWCLK
PA15/JTDI/TIM2_CH1/TIM2_ETR/SPI1_NSS/SPI3_NSS/I2S3_WS — 77 — FM_I2S_WS

PB0/TIM1_CH2N/TIM3_CH3/TIM8_CH2N/LCD_R3/OTG_HS_ULPI_D1/ETH_MII_RXD2/ADC12_IN8 — 35 — CH_B_TC1_AMP_ADC1
PB1/TIM1_CH3N/TIM3_CH4/TIM8_CH3N/LCD_R6/OTG_HS_ULPI_D2/ETH_MII_RXD3/ADC12_IN9 — 36 — CH_B_TC2_AMP_ADC2
PB2/BOOT1 — 37 — SYS_RSTn
PB3/JTDO/TRACESWO/TIM2_CH2/SPI1_SCK/SPI3_SCK/I2S3_CK — 89 — FAN3_PWM (TIM2, TIM3)
PB4/NJTRST/TIM3_CH1/SPI1_MISO/SPI3_MISO/I2S3ext_SD — 90 — FAN1_PWM
PB5/TIM3_CH2/I2C1_SMBA/SPI1_MOSI/SPI3_MOSI/I2S3_SD/CAN2_RX/OTG_HS_ULPI_D7/ETH_PPS_OUT/FMC_SDCKE1/DCMI_D10 — 91 — FAN2_PWM
PB6/TIM4_CH1/I2C1_SCL/USART1_TX/CAN2_TX/FMC_SDNE1/DCMI_D5 — 92 — I2C1_SCL (SCL)
PB7/TIM4_CH2/I2C1_SDA/USART1_RX/FMC_NL/DCMI_VSYNC — 93 — I2C1_SDA (SDA)
PB8/TIM4_CH3/TIM10_CH1/I2C1_SCL/CAN1_RX/ETH_MII_TXD3/SDIO_D4/DCMI_D6/LCD_B6 — 95 — PWRBTN_LED_PWM (TIM10)
PB9/TIM4_CH4/TIM11_CH1/I2C1_SDA/SPI2_NSS/I2S2_WS/CAN1_TX/SDIO_D5/DCMI_D7/LCD_B7 — 96 — FAN3_RPM (TIM11)
PB10/TIM2_CH3/I2C2_SCL/SPI2_SCK/I2S2_CK/USART3_TX/OTG_HS_ULPI_D3/ETH_MII_RX_ER/LCD_G4 — 47
PB11/TIM2_CH4/I2C2_SDA/USART3_RX/OTG_HS_ULPI_D4/ETH_MII_TX_EN/ETH_RMII_TX_EN/LCD_G5 — 48 — RMII_TX_EN
PB12/TIM1_BKIN/I2C2_SMBA/SPI2_NSS/I2S2_WS/USART3_CK/CAN2_RX/OTG_HS_ULPI_D5/ETH_MII_TXD0/ETH_RMII_TXD0/OTG_HS_ID — 51 — RMII_TX_D0
PB13/TIM1_CH1N/SPI2_SCK/I2S2_CK/USART3_CTS/CAN2_TX/OTG_HS_ULPI_D6/ETH_MII_TXD1/ETH_RMII_TXD1/OTG_HS_VBUS — 52 — RMII_TX_D1
PB14/TIM1_CH2N/TIM8_CH2N/SPI2_MISO/I2S2ext_SD/USART3_RTS/TIM12_CH1/OTG_HS_DM — 53 — USB2_DM
PB15/RTC_REFIN/TIM1_CH3N/TIM8_CH3N/SPI2_MOSI/I2S2_SD/TIM12_CH2/OTG_HS_DP — 54 — USB2_DP

ADC123_IN10/OTG_HS_ULPI_STP/FMC_SDNWE/PC0 — 15 — CH_A_IN_STAND_ADC1
ADC123_IN11/ETH_MDC/PC1 — 16 — ETH_MDC
ADC123_IN12/SPI2_MISO/I2S2ext_SD/OTG_HS_ULPI_DIR/ETH_MII_TXD2/FMC_SDNE0/PC2 — 17 — CH_A_TC1_AMP_ADC1
ADC123_IN13/SPI2_MOSI/I2S2_SD/OTG_HS_ULPI_NXT/ETH_MII_TX_CLK/FMC_SDCKE0/PC3 — 18 — CH_A_TC2_AMP_ADC2
ADC12_IN14/ETH_MII_RXD0/ETH_RMII_RXD0/PC4 — 33 — RMII_RX_D0
ADC12_IN15/ETH_MII_RXD1/ETH_RMII_RXD1/PC5 — 34 — RMII_RX_D1
TIM3_CH1/TIM8_CH1/I2S2_MCK/USART6_TX/SDIO_D6/DCMI_D0/LCD_HSYNC/PC6 — 63 — CH_A_FET1_PWM
TIM3_CH2/TIM8_CH2/I2S3_MCK/USART6_RX/SDIO_D7/DCMI_D1/LCD_G6/PC7 — 64 — CH_A_FET2_PWM
TIM3_CH3/TIM8_CH3/USART6_CK/SDIO_D0/DCMI_D2/PC8 — 65 — CH_B_FET1_PWM
MCO2/TIM3_CH4/TIM8_CH4/I2C3_SDA/I2S_CKIN/SDIO_D1/DCMI_D3/PC9 — 66 — CH_B_FET2_PWM (TIM8)
SPI3_SCK/I2S3_CK/USART3_TX/UART4_TX/SDIO_D2/DCMI_D8/LCD_R2/PC10 — 78 — FM_I2S_CK
I2S3ext_SD/SPI3_MISO/USART3_RX/UART4_RX/SDIO_D3/DCMI_D4/PC11 — 79 — FM_INTn
SPI3_MOSI/I2S3_SD/USART3_CK/UART5_TX/SDIO_CK/DCMI_D9/PC12 — 80 — FM_I2S_SD
TAMP_1/PC13 — 7 — DLED_WDT (R2101 1k, C2101 10p, D2101 LED_Small, GND)
OSC32_IN/PC14 — 8 — R2102 0R TBD! (C2101 32768, C2102 10p, GND)
OSC32_OUT/PC15 — 9

CAN1_RX/FMC_D2/PD0 — 81 — FP_BTN_1An
CAN1_TX/FMC_D3/PD1 — 82 — FP_BTN_1Bn
TIM3_ETR/UART5_RX/SDIO_CMD/DCMI_D11/PD2 — 83 — FP_BTN_2An
SPI2_SCK/I2S2_CK/USART2_CTS/FMC_CLK/DCMI_D5/LCD_G7/PD3 — 84 — FP_BTN_2Bn
USART2_RTS/FMC_NOE/PD4 — 85 — FP_ENC_SWn
USART2_TX/FMC_NWE/PD5 — 86 — FP_ENC2_SWn
SPI3_MOSI/I2S3_SD/SAI1_SD_A/USART2_RX/FMC_NWAIT/DCMI_D10/LCD_B2/PD6 — 87 — CH_A_DRV_OK
USART2_CK/FMC_NE1/FMC_NCE2/PD7 — 88 — CH_B_DRV_OK
USART3_TX/FMC_D13/PD8 — 55 — AUX_INTn
USART3_RX/FMC_D14/PD9 — 56 — VBUS2_FLGn
USART3_CK/FMC_D15/LCD_B3/PD10 — 57 — VBUS2_ENABLE
USART3_CTS/FMC_A16/PD11 — 58 — PWRDRV_ENABLE
TIM4_CH1/USART3_RTS/FMC_A17/PD12 — 59 — FP_ENC2_A (TIM4 (ENC))
TIM4_CH2/FMC_A18/PD13 — 60 — FP_ENC2_B (TIM4 (ENC))
TIM4_CH3/FMC_D0/PD14 — 61 — CH_A_KTY_REED_BIAS_EN
TIM4_CH4/FMC_D1/PD15 — 62 — CH_B_KTY_REED_BIAS_EN

BOOT modes

BOOT1	BOOT0	Mode
x	0	Main flash
0	1	ROM/bootldr
1	1	Int. SRAM

VDD — R2104 4k7 — SCL
VDD — R2105 4k7 — SDA

EXT_RSTn — C2103 100n — SW2101 — DLED_WDT — U2101 MCP1316T-26LE-OT (MR, RST, WDI) — MCU_RSTn
RESET

U2102 W25Q64FV (CS, SO, SCK, HOLD, SI, WP, VCC, GND)
Flash_CSn — Flash_MISO — Flash_SCK — Flash_MOSI
SPI flash

Force bootloader — SW2102 — MCU_BOOT0 — BOOT0 — R2106 10k — C2104 100n

STM32F429VITx U401.B

BOOT0 — 94
NRST — 14 — MCU_RSTn — C2105 100n
PH0/OSC_IN — 12 — Y2102 16MHz (C2106 10p, C2107 10p)
PH1/OSC_OUT — 13 — R2107 0R TBD!

TIM4_ETR/UART8_RX/FMC_NBL0/DCMI_D2/PE0 — 97 — AUX_HOST_RX
UART8_Tx/FMC_NBL1/DCMI_D3/PE1 — 98 — AUX_HOST_TX
TRACECLK/SPI4_SCK/SAI1_MCLK_A/ETH_MII_TXD3/FMC_A23/PE2 — 1 — AUX_BOOT0
TRACED0/SAI1_SD_B/FMC_A19/PE3 — 2 — HWID_ADC_SELECT
TRACED1/SPI4_NSS/SAI1_FS_A/FMC_A20/DCMI_D4/LCD_B0/PE4 — 3 — AUDIO_MUTEn
TRACED2/TIM9_CH1/SPI4_MISO/SAI1_SCK_A/FMC_A21/DCMI_D6/LCD_G0/PE5 — 4 — FAN1_RPM
TRACED3/TIM9_CH2/SPI4_MOSI/SAI1_SD_A/FMC_A22/DCMI_D7/LCD_G1/PE6 — 5 — FAN2_RPM (TIM9)
TIM1_ETR/UART7_Rx/FMC_D4/PE7 — 38 — DISP_DCn
TIM1_CH1N/UART7_Tx/FMC_D5/PE8 — 39 — DISP_CSn
TIM1_CH1/FMC_D6/PE9 — 40 — FP_ENC_A
TIM1_CH2N/FMC_D7/PE10 — 41 — PHY_IRQn
TIM1_CH2/SPI4_NSS/FMC_D8/LCD_G3/PE11 — 42 — FP_ENC_B (TIM1 (ENC))
TIM1_CH3N/SPI4_SCK/FMC_D9/LCD_B4/PE12 — 43 — Flash_SCK — DISP_FLASH_SCK
TIM1_CH3/SPI4_MISO/FMC_D10/LCD_DE/PE13 — 44 — Flash_MISO
TIM1_CH4/SPI4_MOSI/FMC_D11/LCD_CLK/PE14 — 45 — Flash_MOSI — DISP_FLASH_MOSI
TIM1_BKIN/FMC_D12/LCD_R7/PE15 — 46 — Flash_CSn

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /STM32F429 MCU/
File: mcu_1.sch

Title: STM22F429 MCU pinout, clks, reset

Size: A4	Date: 2020-04-26	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 22/22