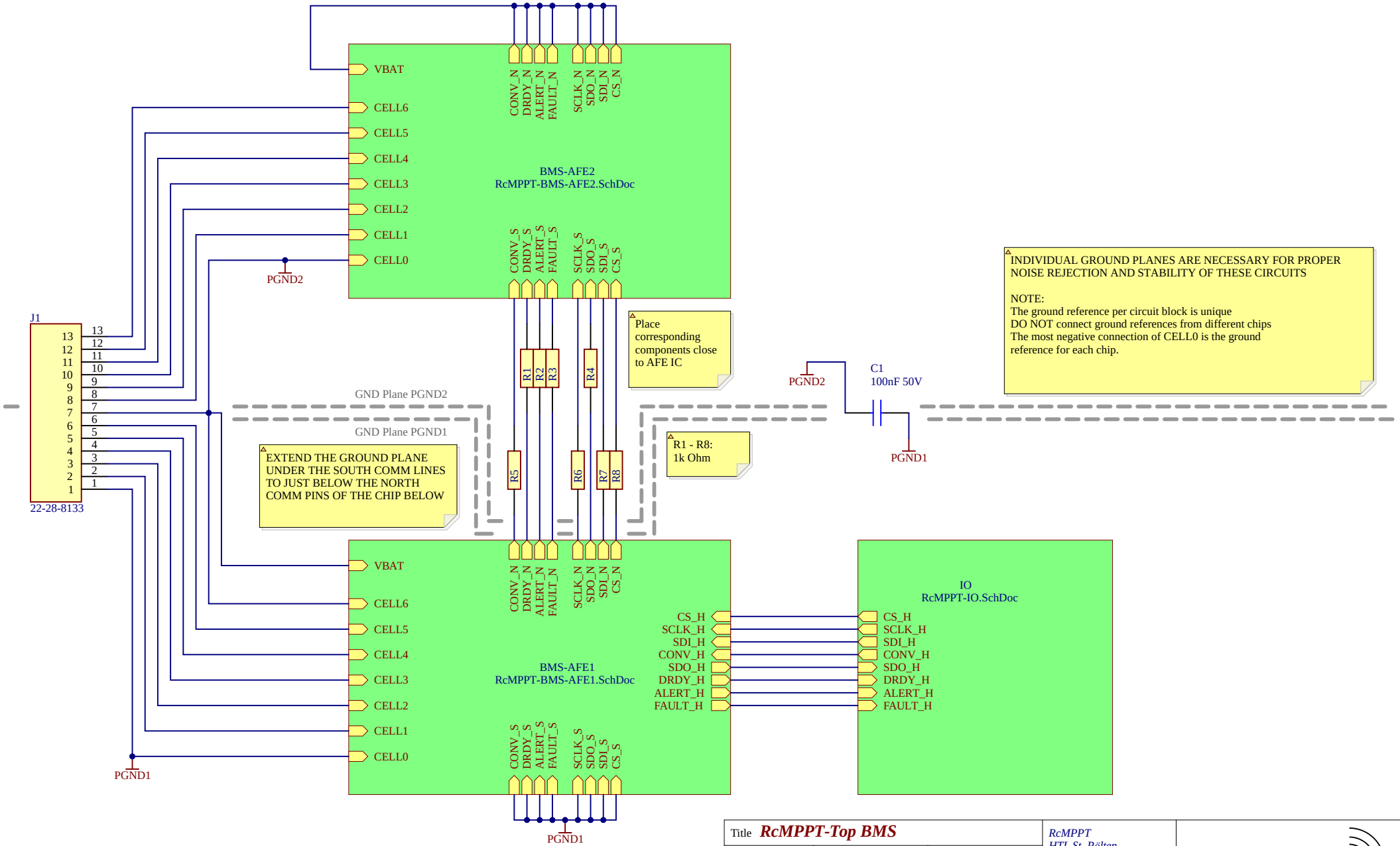

Title	***RcMPPT-Top BMS***	
Size: A4	Number:0	Revision:2.0
Date: 28.03.2022	Time: 14:35:23	Sheet 1 of 5
File: RcMPPT-Top.SchDoc		

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Thomas Hofmann

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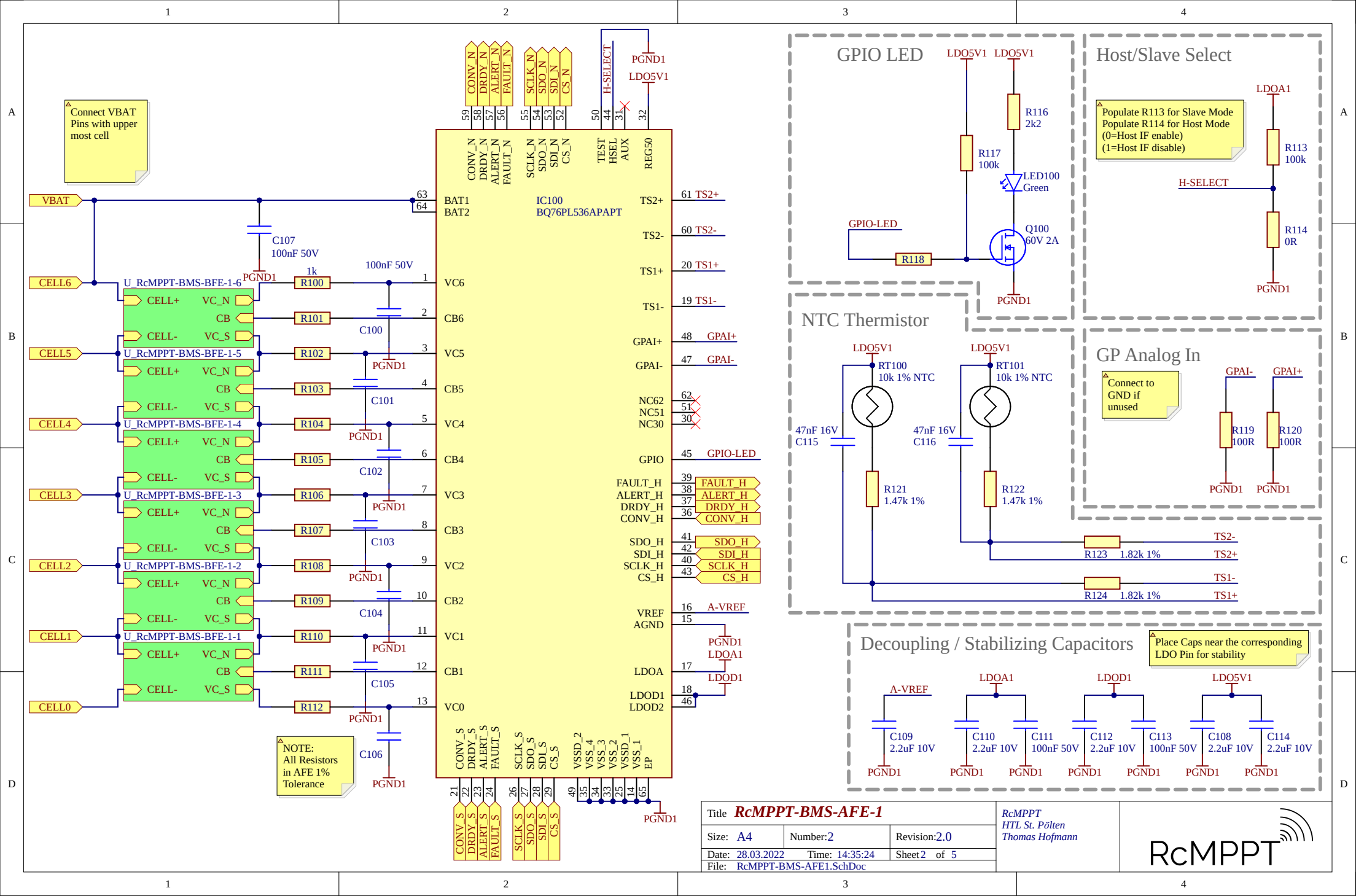
Connect VBAT Pins with upper most cell
IC100
BQ76PL536APAPT
BAT1
BAT2
VC6
VC5
VC4
VC3
VC2
VC1
VC0
CB6
CB5
CB4
CB3
CB2
CB1
TS2+
TS2-
TS1+
TS1-
GPAI+
GPAI-
GPIO
FAULT_H
ALERT_H
DRDY_H
CONV_H
SDO_H
SDI_H
SCLK_H
CS_H
VREF
AGND
LDOA
LDOD1
LDOD2
REG50
TEST
HSEL
AUX
NC62
NC51
NC30
U_RcMPPT-BMS-BFE-1-6
U_RcMPPT-BMS-BFE-1-5
U_RcMPPT-BMS-BFE-1-4
U_RcMPPT-BMS-BFE-1-3
U_RcMPPT-BMS-BFE-1-2
U_RcMPPT-BMS-BFE-1-1
CELL+
CELL-
VC_N
VC_S
CB
CELL6
CELL5
CELL4
CELL3
CELL2
CELL1
CELL0
VBAT
C107 100nF 50V
C100 100nF 50V
C101
C102
C103
C104
C105
C106
R100 1k
R101
R102
R103
R104
R105
R106
R107
R108
R109
R110
R111
R112
PGND1
NOTE: All Resistors in AFE 1% Tolerance
GPIO LED
LDO5V1
R116 2k2
R117 100k
LED100 Green
Q100 60V 2A
R118
GPIO-LED
Host/Slave Select
Populate R113 for Slave Mode
Populate R114 for Host Mode
(0=Host IF enable)
(1=Host IF disable)
LDOA1
R113 100k
R114 0R
H-SELECT
NTC Thermistor
RT100 10k 1% NTC
RT101 10k 1% NTC
47nF 16V C115
47nF 16V C116
R121 1.47k 1%
R122 1.47k 1%
R123 1.82k 1%
R124 1.82k 1%
TS2-
TS2+
TS1-
TS1+
GP Analog In
Connect to GND if unused
R119 100R
R120 100R
GPAI-
GPAI+
Decoupling / Stabilizing Capacitors
Place Caps near the corresponding LDO Pin for stability
A-VREF
LDOA1
LDOD1
LDO5V1
C109 2.2uF 10V
C110 2.2uF 10V
C111 100nF 50V
C112 2.2uF 10V
C113 100nF 50V
C108 2.2uF 10V
C114 2.2uF 10V
Title RcMPPT-BMS-AFE-1
Size: A4
Number:2
Revision:2.0
Date: 28.03.2022
Time: 14:35:24
Sheet 2 of 5
File: RcMPPT-BMS-AFE1.SchDoc
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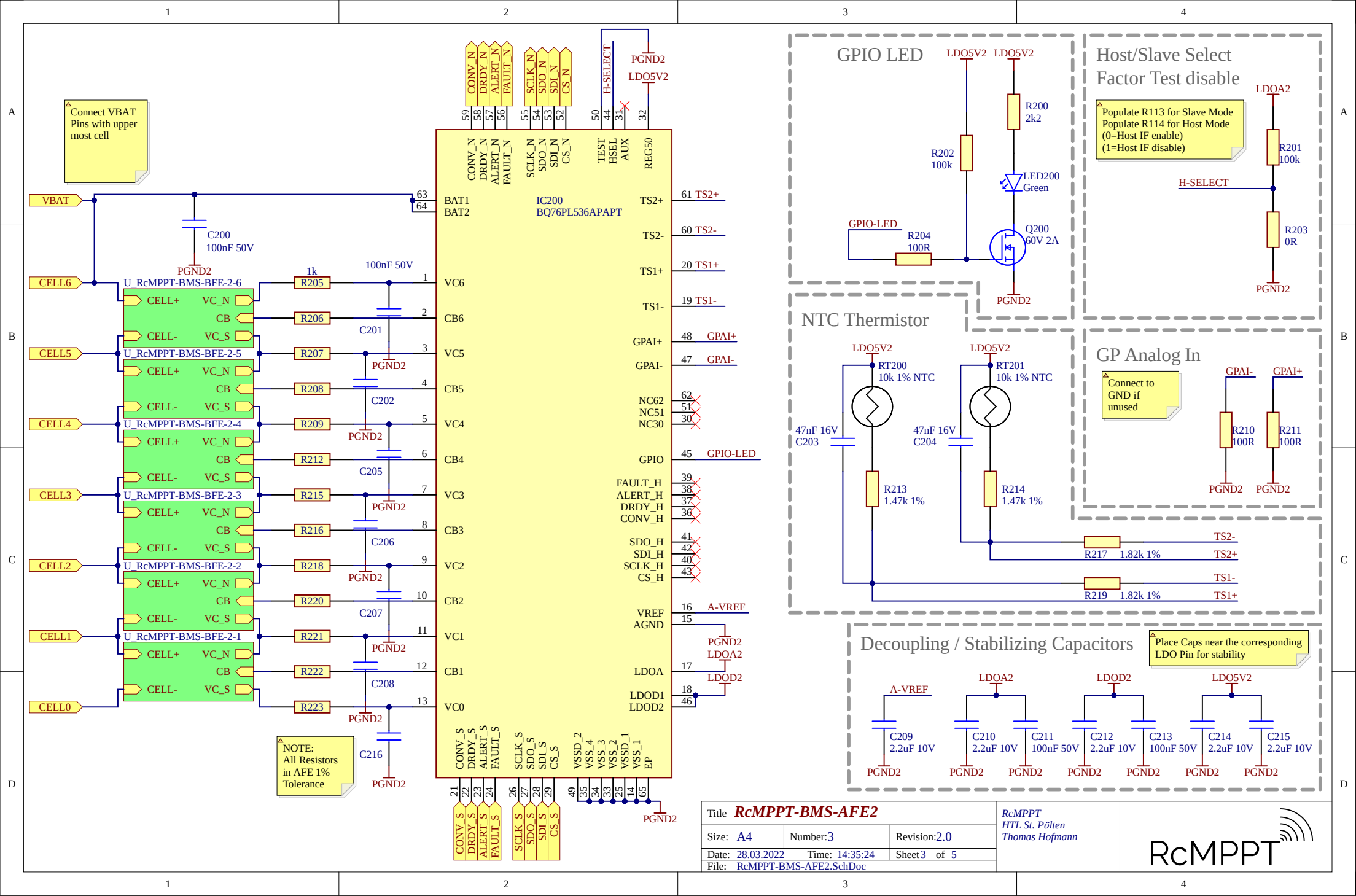
RcMPPT


Connect VBAT Pins with upper most cell
VBAT
C200 100nF 50V
PGND2
IC200
BQ76PL536APAPT
BAT1
BAT2
CELL6
CELL5
CELL4
CELL3
CELL2
CELL1
CELL0
U_RcMPPT-BMS-BFE-2-6
U_RcMPPT-BMS-BFE-2-5
U_RcMPPT-BMS-BFE-2-4
U_RcMPPT-BMS-BFE-2-3
U_RcMPPT-BMS-BFE-2-2
U_RcMPPT-BMS-BFE-2-1
CELL+
CELL-
VC_N
VC_S
CB
R205 1k
R206
R207
R208
R209
R212
R215
R216
R218
R220
R221
R222
R223
100nF 50V
C201
C202
C205
C206
C207
C208
C216
VC6
CB6
VC5
CB5
VC4
CB4
VC3
CB3
VC2
CB2
VC1
CB1
VC0
TS2+
TS2-
TS1+
TS1-
GPAI+
GPAI-
NC62
NC51
NC30
GPIO
FAULT_H
ALERT_H
DRDY_H
CONV_H
SDO_H
SDI_H
SCLK_H
CS_H
VREF
AGND
LDOA
LDOD1
LDOD2
REG50
TEST
HSEL
AUX
CONV_N
DRDY_N
ALERT_N
FAULT_N
SCLK_N
SDO_N
SDI_N
CS_N
H-SELECT
LDO5V2
A-VREF
LDOA2
LDOD2
CONV_S
DRDY_S
ALERT_S
FAULT_S
SCLK_S
SDO_S
SDI_S
CS_S
VSSD_2
VSS_4
VSS_3
VSS_2
VSSD_1
VSS_1
EP
NOTE: All Resistors in AFE 1% Tolerance
GPIO LED
R200 2k2
R202 100k
LED200 Green
Q200 60V 2A
GPIO-LED
R204 100R
Host/Slave Select Factor Test disable
Populate R113 for Slave Mode
Populate R114 for Host Mode
(0=Host IF enable)
(1=Host IF disable)
R201 100k
R203 0R
NTC Thermistor
RT200 10k 1% NTC
RT201 10k 1% NTC
47nF 16V C203
47nF 16V C204
R213 1.47k 1%
R214 1.47k 1%
R217 1.82k 1%
R219 1.82k 1%
GP Analog In
Connect to GND if unused
R210 100R
R211 100R
Decoupling / Stabilizing Capacitors
Place Caps near the corresponding LDO Pin for stability
C209 2.2uF 10V
C210 2.2uF 10V
C211 100nF 50V
C212 2.2uF 10V
C213 100nF 50V
C214 2.2uF 10V
C215 2.2uF 10V
Title RcMPPT-BMS-AFE2
Size: A4
Number:3
Revision:2.0
Date: 28.03.2022
Time: 14:35:24
Sheet 3 of 5
File: RcMPPT-BMS-AFE2.SchDoc
RcMPPT
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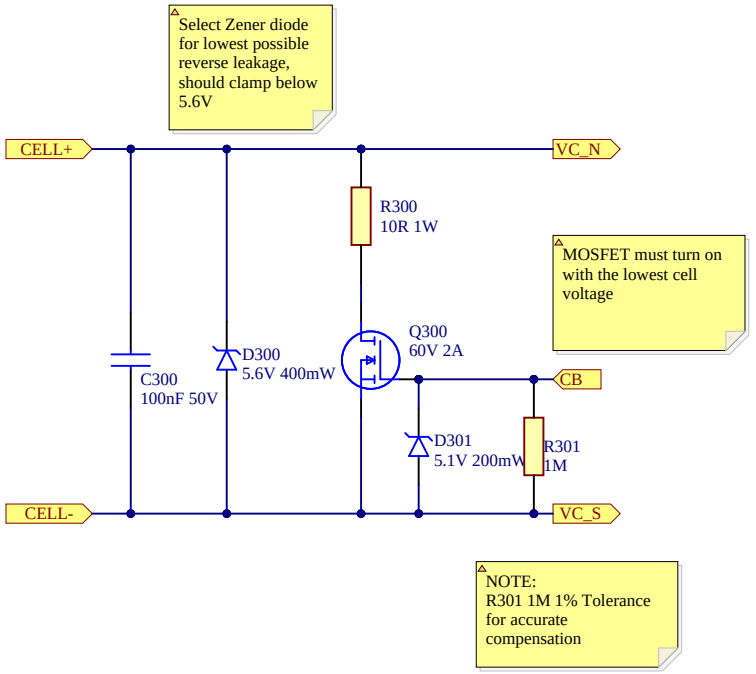
Thomas Hofmann
RcMPPT



Title	***RcMPPT-BMS-BFE***		
Size: A4	Number:4	Revision:2.0	
Date: 28.03.2022	Time: 14:35:25	Sheet 4 of 5	
File: RcMPPT-BMS-BFE.SchDoc			

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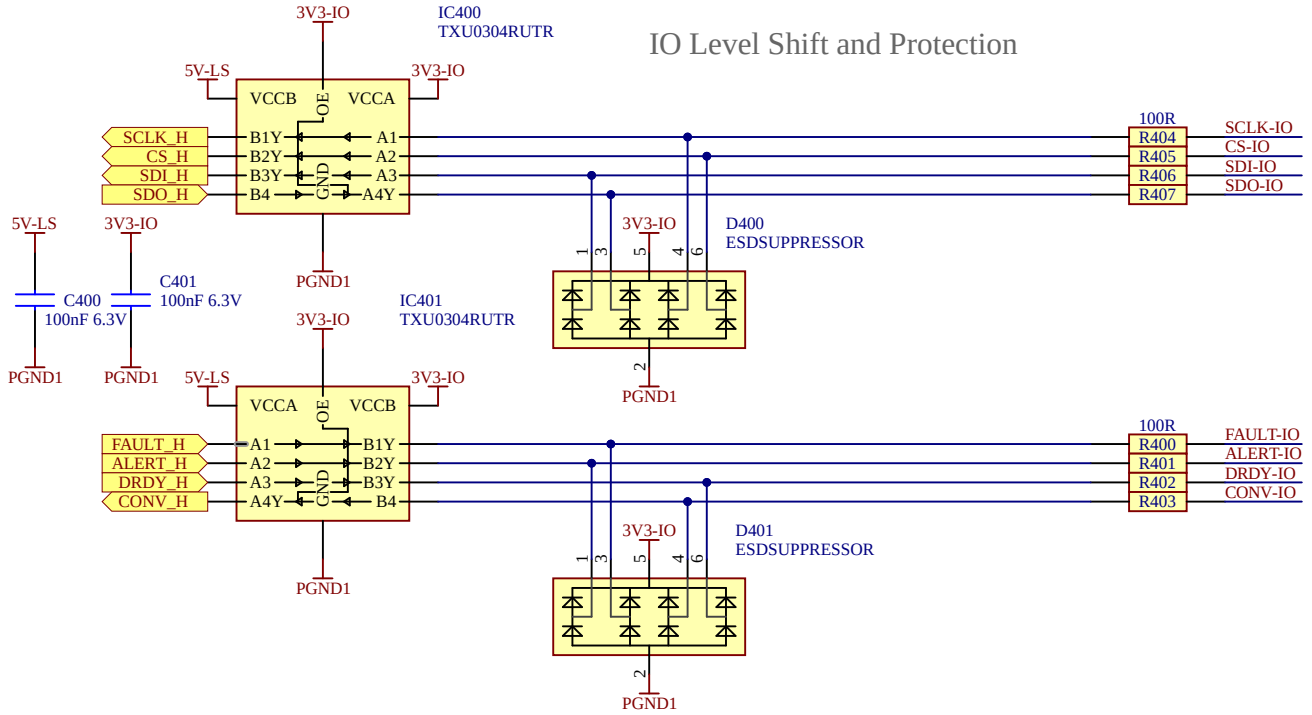
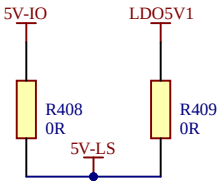
IO Level Shift and Protection



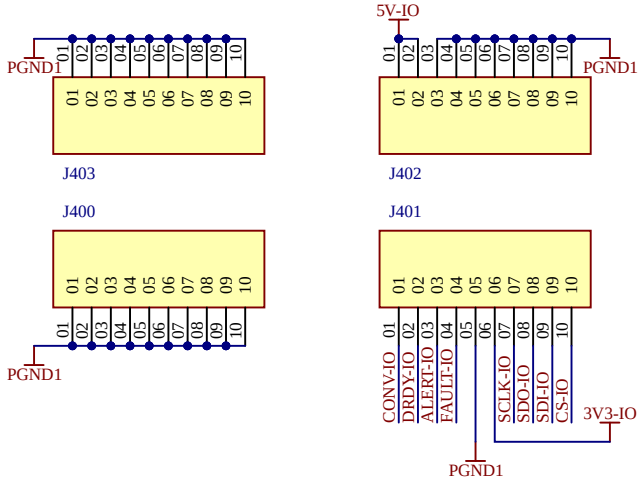
Level Shifter IO Voltage selection



Choose between on-Board 5V LDO and external 5V supply.

External 5V supply might be necessery because of the internal LDO shutting down in SLEEP Mode -> no wakeup

IO Connector Population



May be modified due to changes in layout

Title	***RcMPPT-BMS-IO***		
Size: A4	Number:5	Revision:2.0	
Date: 28.03.2022	Time: 14:35:25	Sheet 5 of 5	
File: RcMPPT-IO.SchDoc			

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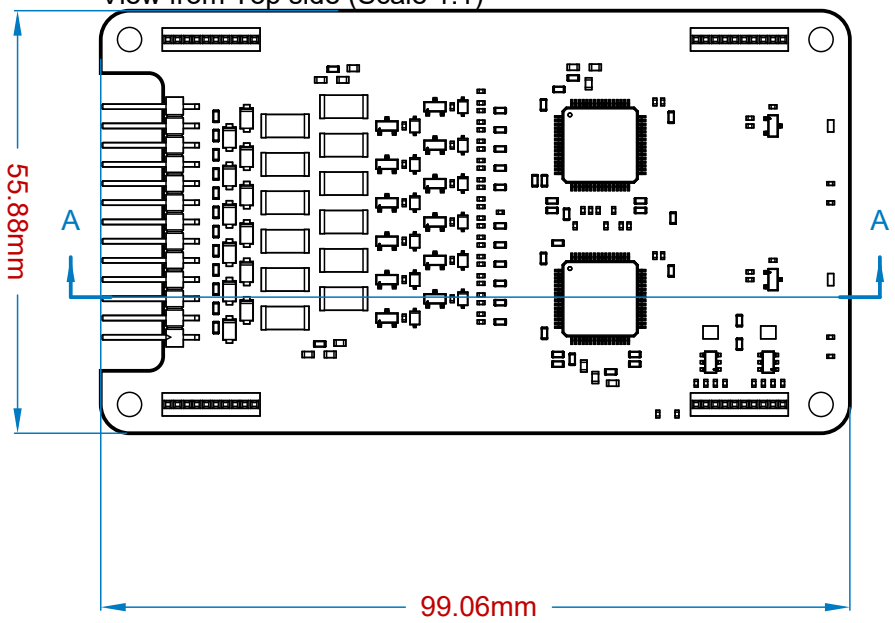
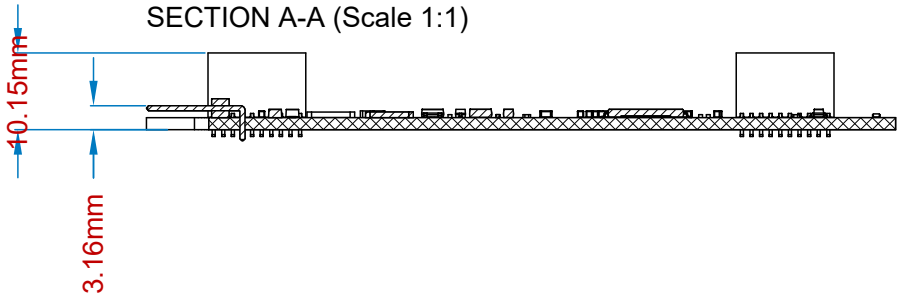
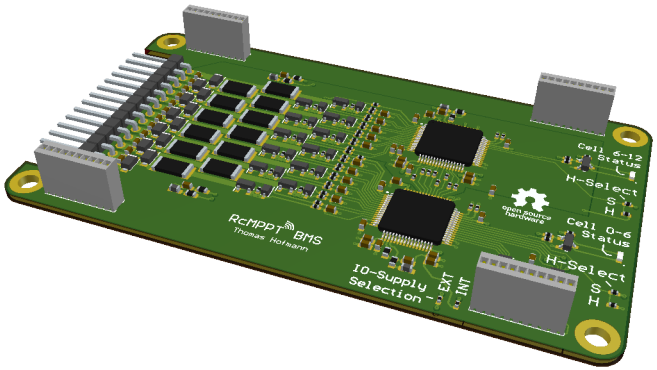
View from Top side (Scale 1:1)



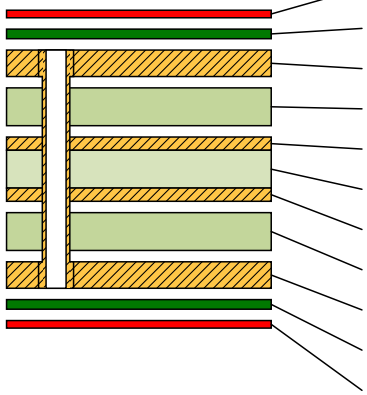
SECTION A-A (Scale 1:1)



Realistic View



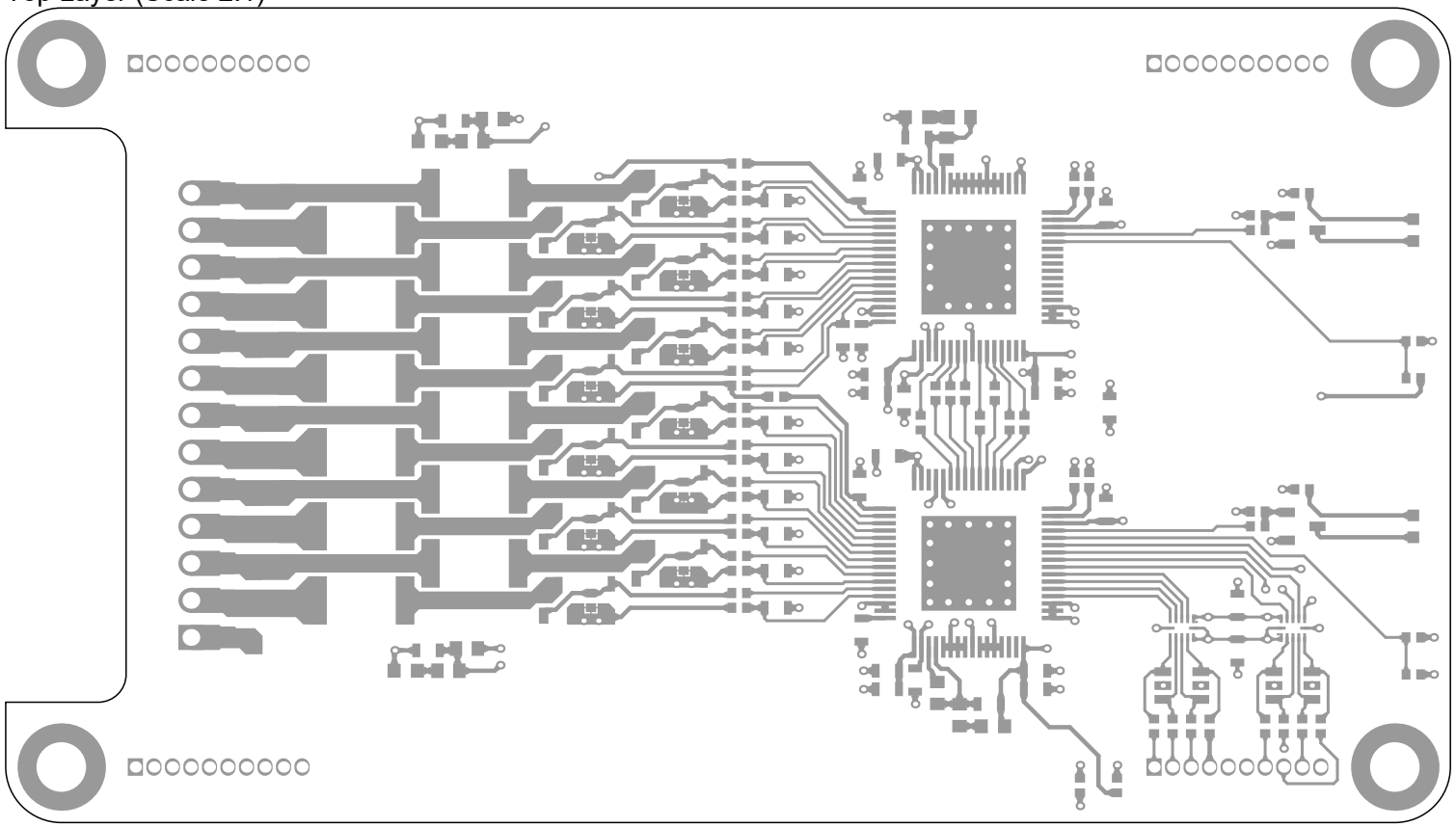
Layer Stack Legend



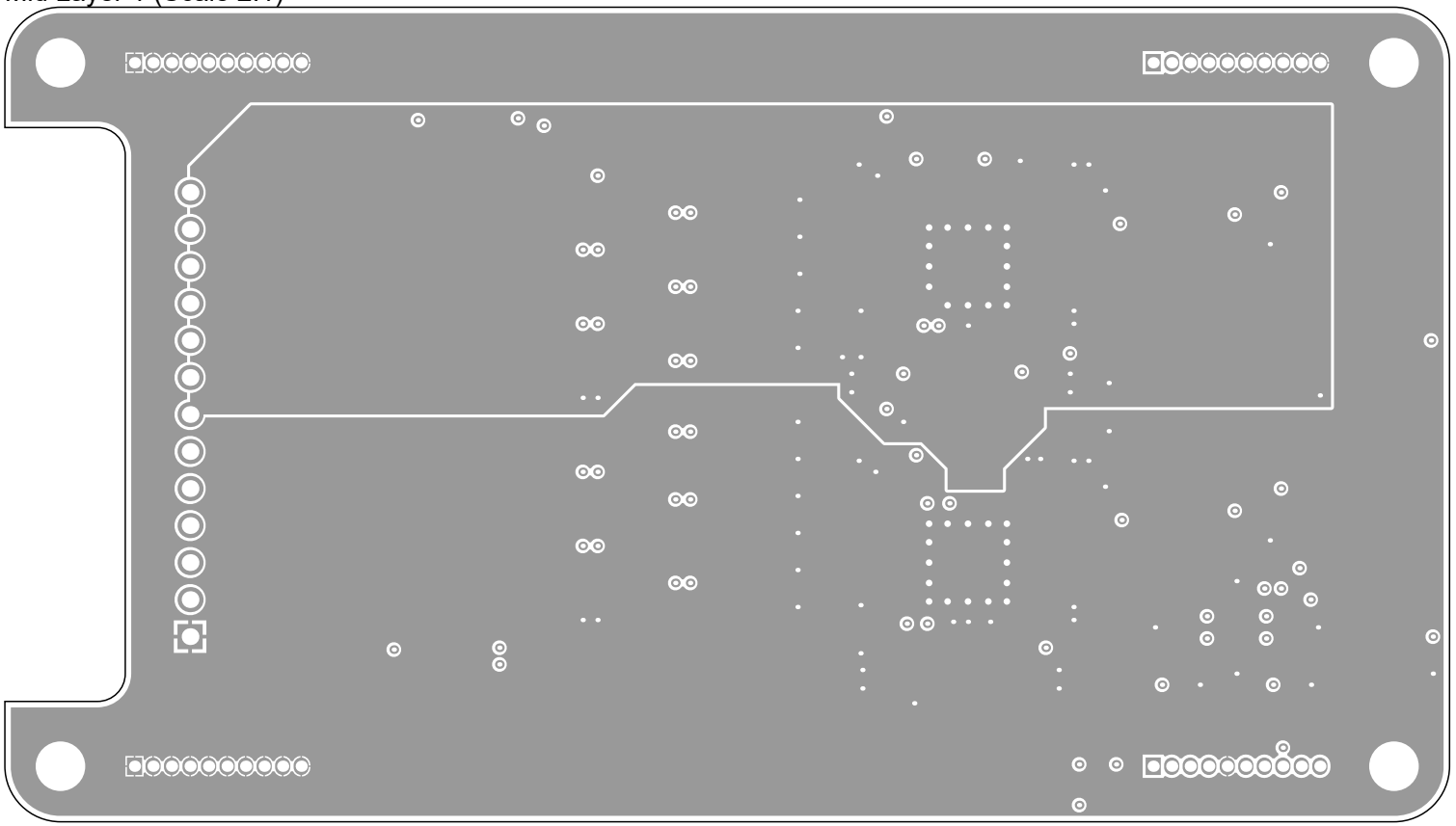
Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.01mm	SM-001	Solder Mask	GTS
Copper	**Top Layer**	**0.04mm**		**Signal**	**GTL**
Prepreg		*0.21mm*	*PP-022*	*Dielectric*	
Copper	**Mid Layer 1**	**0.02mm**		**Signal**	**G1**
Core		*1.06mm*	*Core-040*	*Dielectric*	
Copper	**Mid Layer 2**	**0.02mm**		**Signal**	**G2**
Prepreg		*0.21mm*	*PP-022*	*Dielectric*	
Copper	**Bottom Layer**	**0.04mm**		**Signal**	**GBL**
Surface Material	Bottom Solder	0.01mm	SM-001	Solder Mask	GBS
	Bottom Overlay			Legend	GBO

Total thickness: 1.61mm

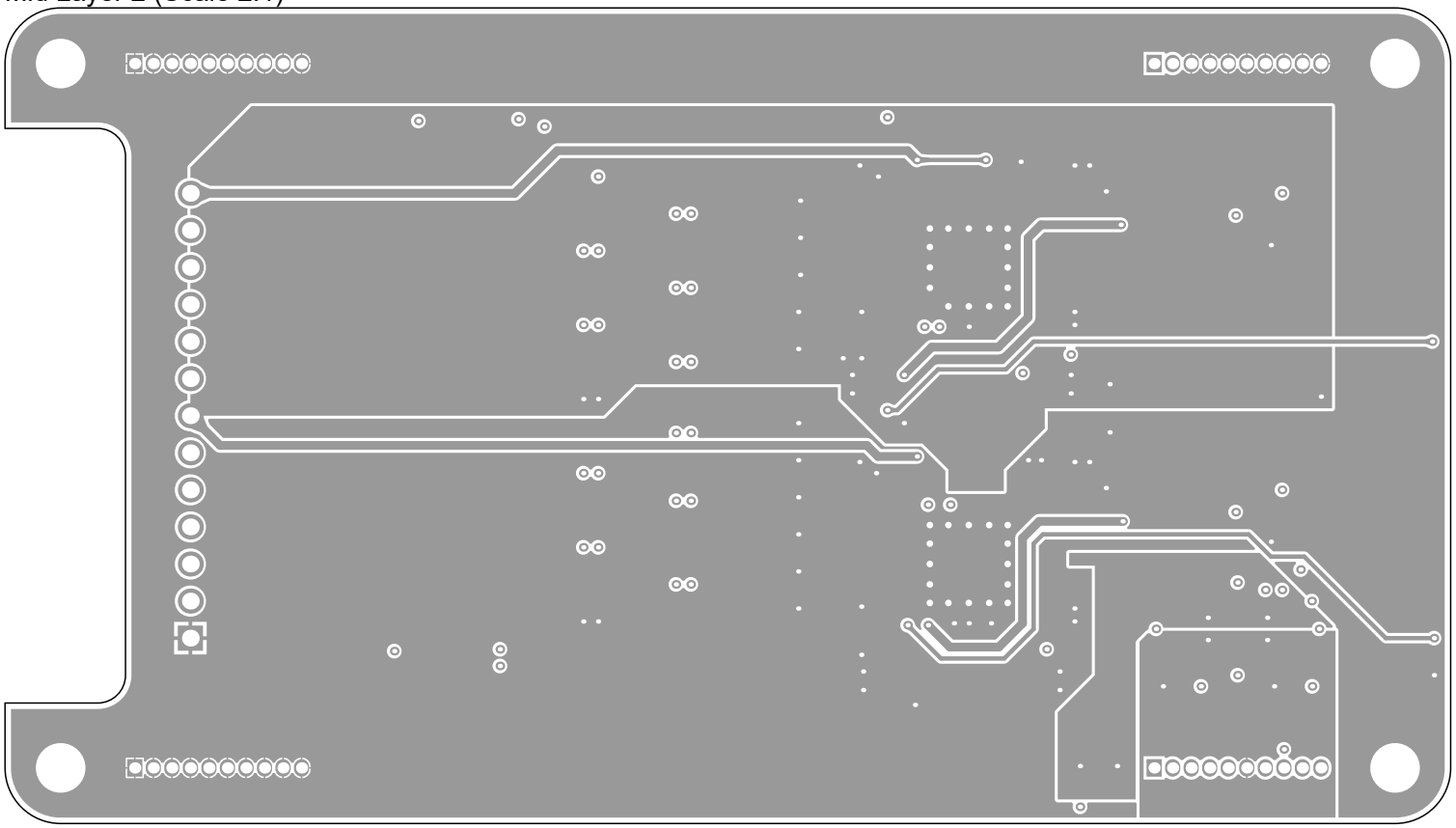
Top Layer (Scale 2:1)



Mid Layer 1 (Scale 2:1)



Mid Layer 2 (Scale 2:1)



Bottom Layer (Scale 2:1)