PWR_FLAG GND

PWR_FLAG +5V

PWR_FLAG VBUS

H1 MountingHole

H2 MountingHole

H3 MountingHole

H4 MountingHole

FID1 Fiducial

FID2 Fiducial

FID3 Fiducial

Clamp

D1 SMBJ75A-13

GND

hotplug kondensatoren aus eval board

VBUS

J2 Conn_01x20

1 Cell 16
2 Cell 15/16
3 Cell 15/14
4 Cell 14/13
5 Cell 13/12
6 Cell 12/11
7 Cell 11/10
8 Cell 10/9
9 Cell 9/8
10 Cell 8/7
11 Cell 7/6
12 Cell 6/5
13 Cell 5/4
14 Cell 4/3
15 Cell 3/2
16 Cell 2/1
17 Cell_GND
18
19
20

GND

S16P
C1 220n
S15P
C2 220n
S14P
C3 220n
S13P
C4 220n
S12P
C5 220n
S11P
C6 220n
S10P
C7 220n
S9P
C8 220n
S8P
C9 220n
S7P
C10 220n
S6P
C11 220n
S5P
C12 220n
S4P
C13 220n
S3P
C14 220n
S2P
C15 220n
S1P
C16 220n

GND

VBUS

R1 1k

C17 10n 100V

GND

U1 ADBMS6830B

1 V+
2 C16
3 S16N
S16P 4
5 C16:15
6 S15N
S15P 7
8 C15
9 C14
10 S14N
S14P 11
12 C14:13
13 S13N
S13P 14
15 C13
16 C12
17 S12N
S12P 18
19 C12:11
20 S11N
S11P 21
22 C11
23 C10
24 S10N
S10P 25
26 C10:9
27 S9N
S9P 28
29 C9
30 C8
31 S8N
S8P 32
33 C8:7
34 S7N
S7P 35
36 C7
37 C6
38 S6N
S6P 39
40 C6:5
41 S5N
S5P 42
43 C5
44 C4
45 S4N
S4P 46
47 C4:3
48 S3N
S3P 49
50 C3
51 C2
52 S2N
S2P 53
54 C2:1
55 S1N
S1P 56
57 C1

FilterBalancingNetwork
CellB+
CellA+/CellB−
CellA−
File: FilterBalance.kicad_sch
CBD SBND SBPD CB:AD SAND SAPD CAD

Cell 16
Cell 15/16
Cell 15/14
Cell 14/13
Cell 13/12
Cell 12/11
Cell 11/10
Cell 10/9
Cell 9/8
Cell 8/7
Cell 7/6
Cell 6/5
Cell 5/4
Cell 4/3
Cell 3/2
C2/1_out
Cell_GND

FilterBalancingNetwork1
FilterBalancingNetwork2
FilterBalancingNetwork3
FilterBalancingNetwork4
FilterBalancingNetwork5
FilterBalancingNetwork6
FilterBalancingNetwork7

V− 67
NC 66

GND

DRIVE 65
VREG 69
VREF1 70
VREF2 68
ISOMD 60
GPIO1 80
GPIO2 79
GPIO3 78
GPIO4 77
GPIO5 76
GPIO6 75
GPIO7 74
GPIO8 73
GPIO9 72
GPIO10 71
IPB 63
IMB 62
CSB(IMA) 58
SCK(IPA) 59
SDO 64
SDI 61

R2 10

C18 10n

GND

VBUS

R3 330

C21 10n 100V

GND

Q1 MJD31CAJ

FB1 742792693

+5V

R4 10k

D2 LED

GND

C19 1u

GND

+5V_NTC

C82 1u

GND

C20 1u

GND

Connecting ISOMD to VREG
for 2-wire isoSPI mode

NTC

V_out_1
V_out_2
V_out_3
V_out_4
V_out_5
V_out_6
V_out_7
V_out_8
V_out_9
V_out_10

File: 10_ntc.kicad_sch

isoSPI

IPB
IMB
IMA
IPA

File: isoSPI.kicad_sch

Shield

J3 Conn_01x01_Socket
J4 Conn_01x01_Socket
J5 Conn_01x01_Socket
J6 Conn_01x01_Socket

GND

WE DIY shield

J7 RFShield_OnePiece

Untitled Sheet

File: untitled.kicad_sch

S101 ADEN02TTU04

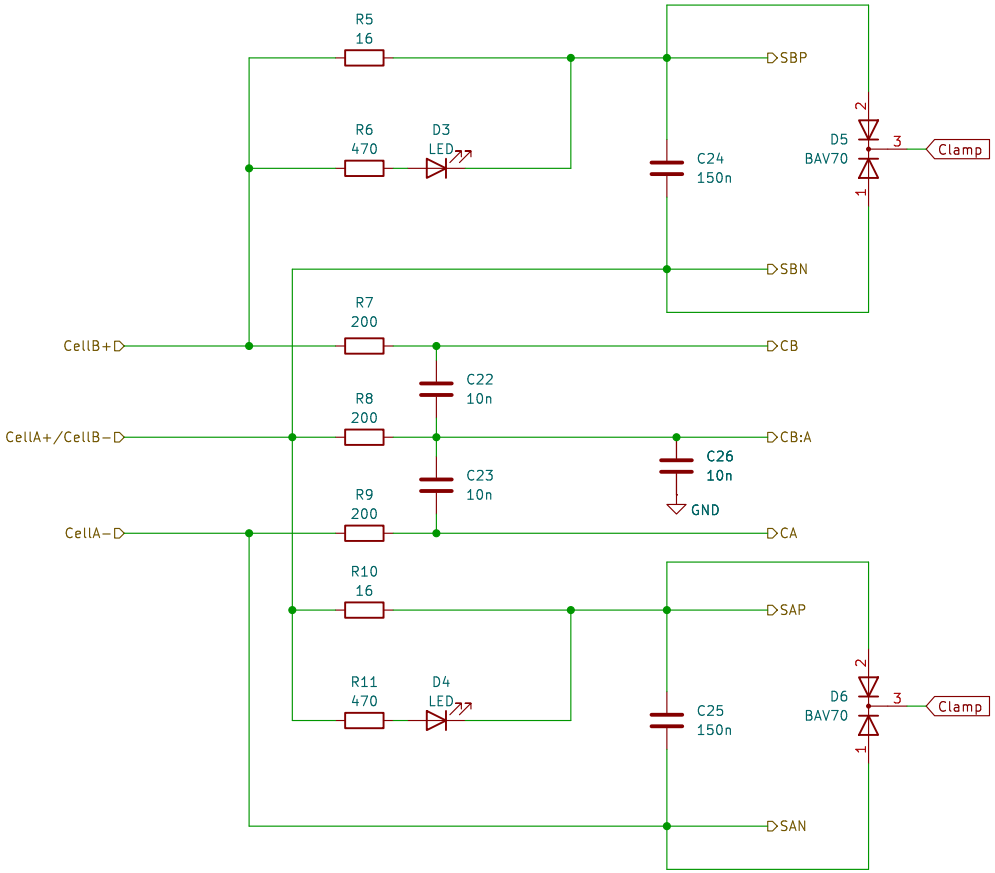
NTC10 4 3 Cell 2/1
NTC10_out 1 2 C2/1_out

disconnect 1 cell voltage measurement
disconnect 1 temp measurement
– EV 5.8.11

Sheet: /
File: FT25_AMS_Slave.kicad_sch

Title:

Size: A3 | Date: | **Rev:**
KiCad E.D.A. 9.0.1 | Id: 1/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

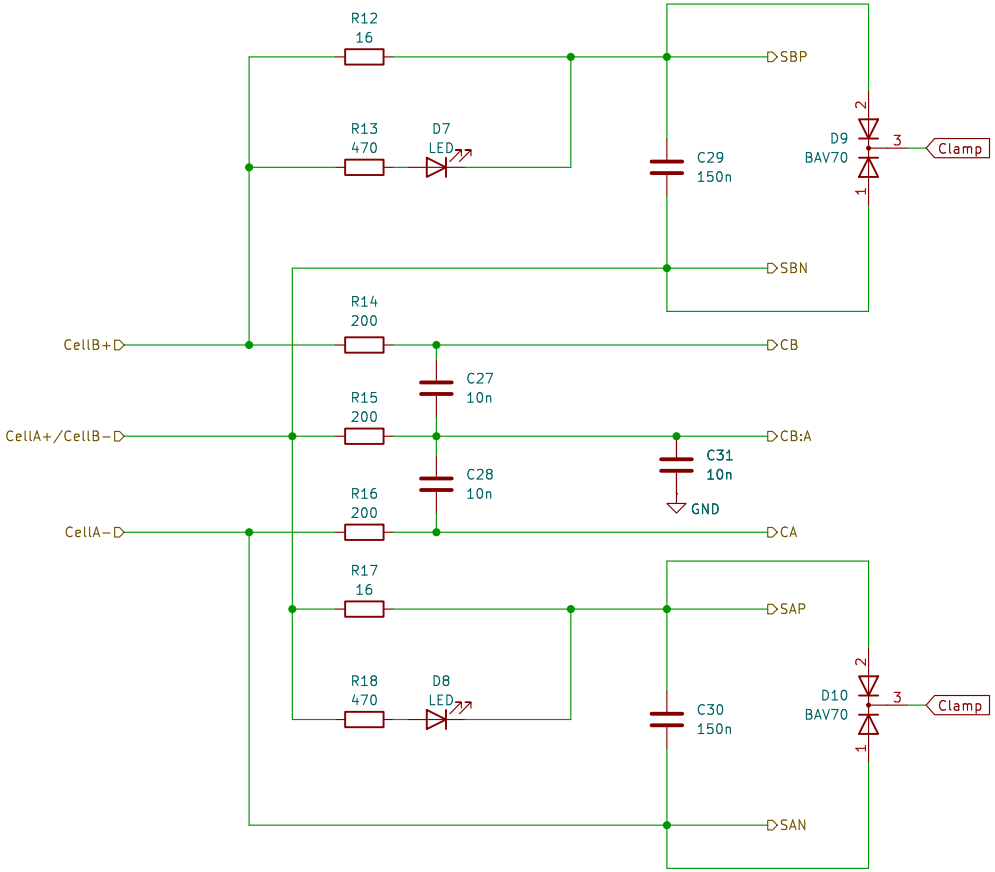
4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork/ File: FilterBalance.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 2/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
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Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork1/ File: FilterBalance.kicad_sch		
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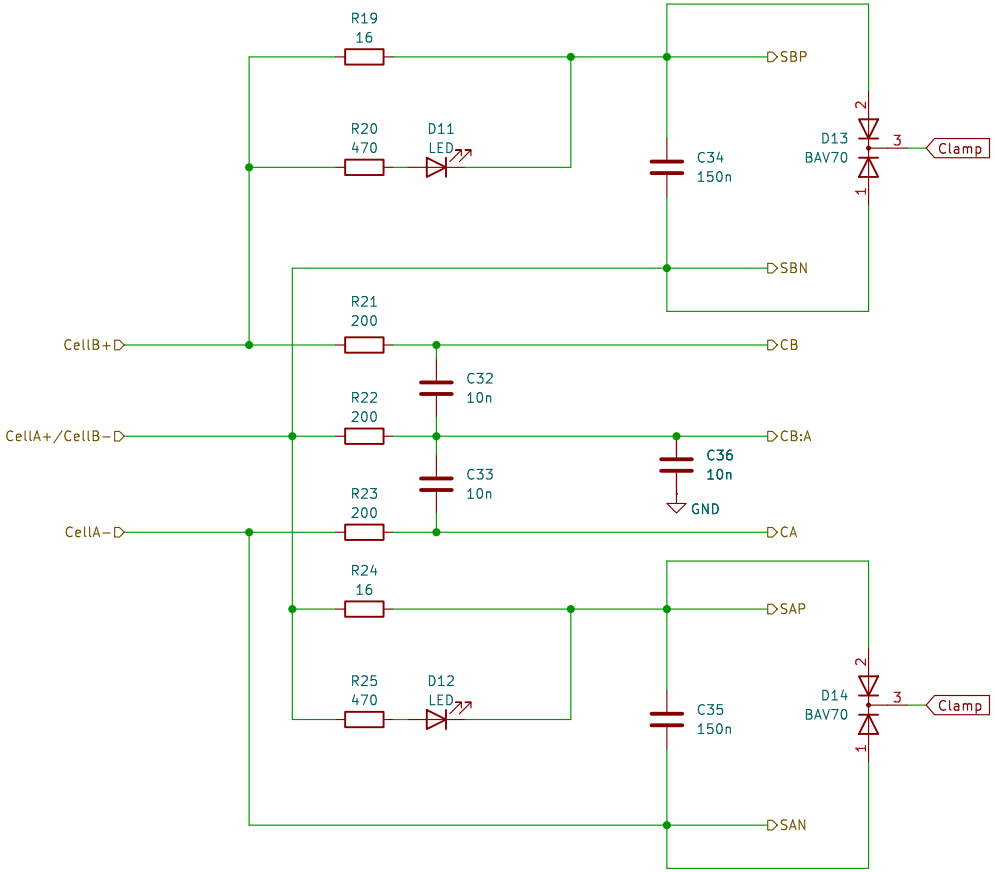
KiCad E.D.A. 9.0.1		Id: 3/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork2/		
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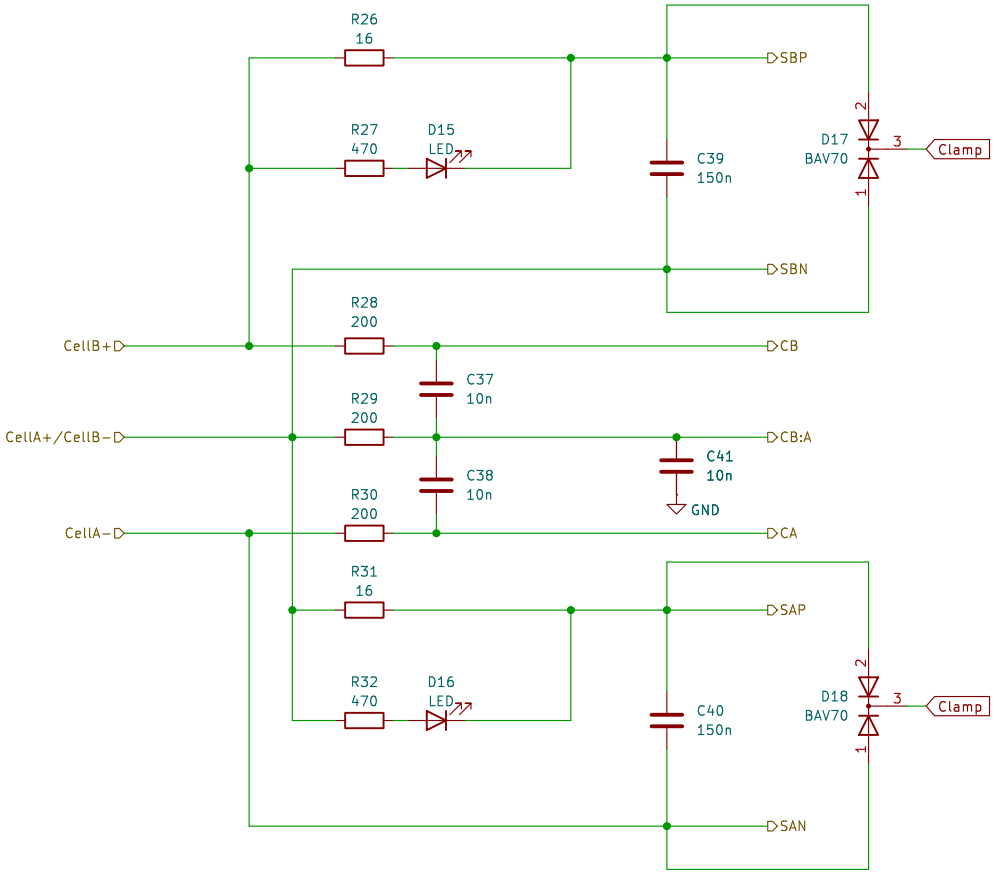
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 4/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

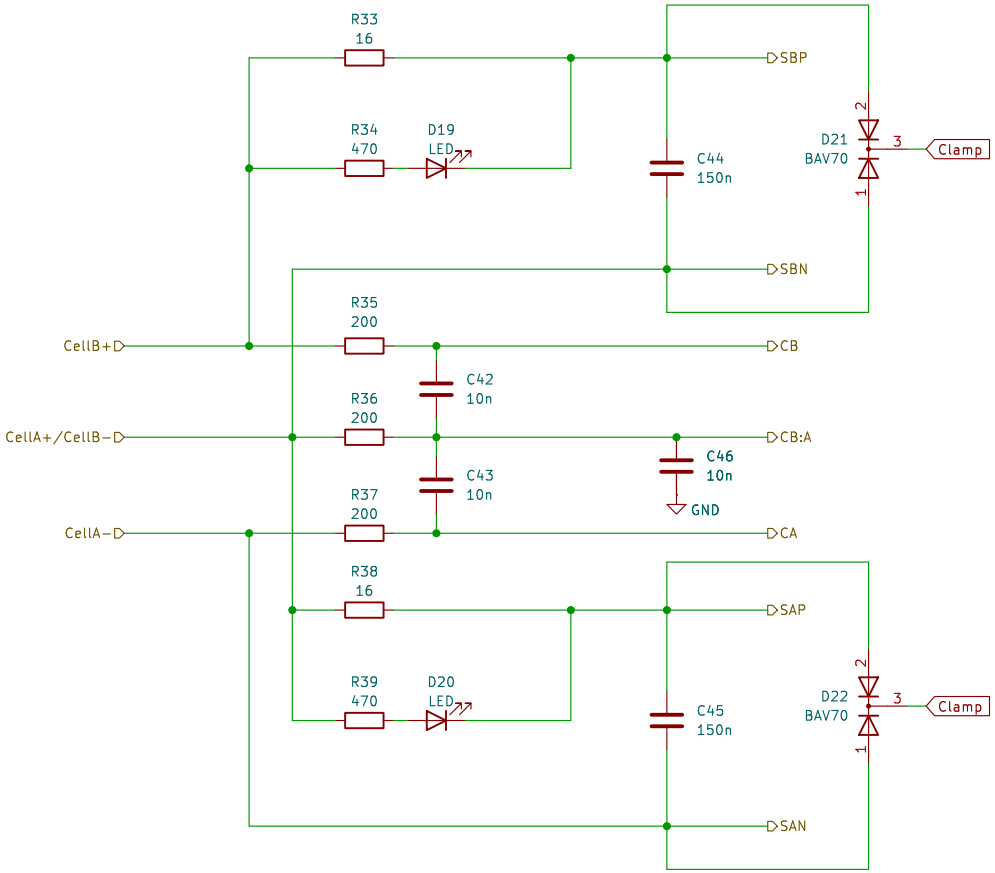
4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork3/ File: FilterBalance.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 5/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork4/ File: FilterBalance.kicad_sch		
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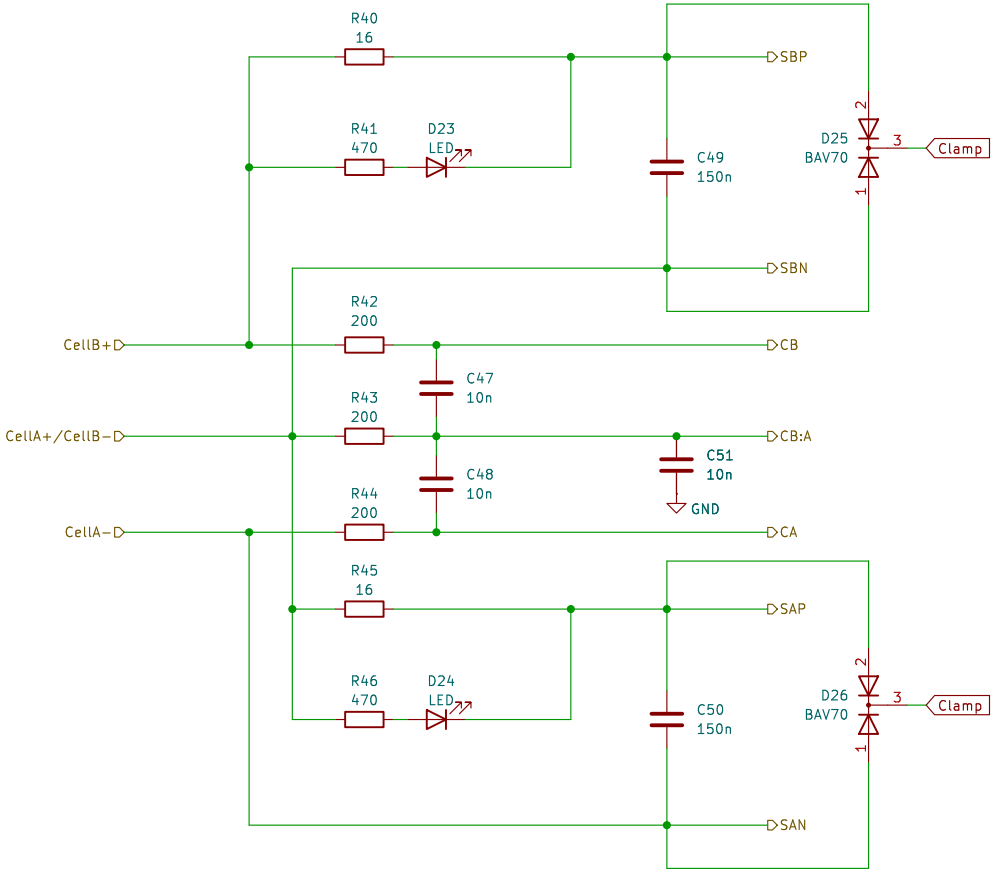
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 6/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork5/		
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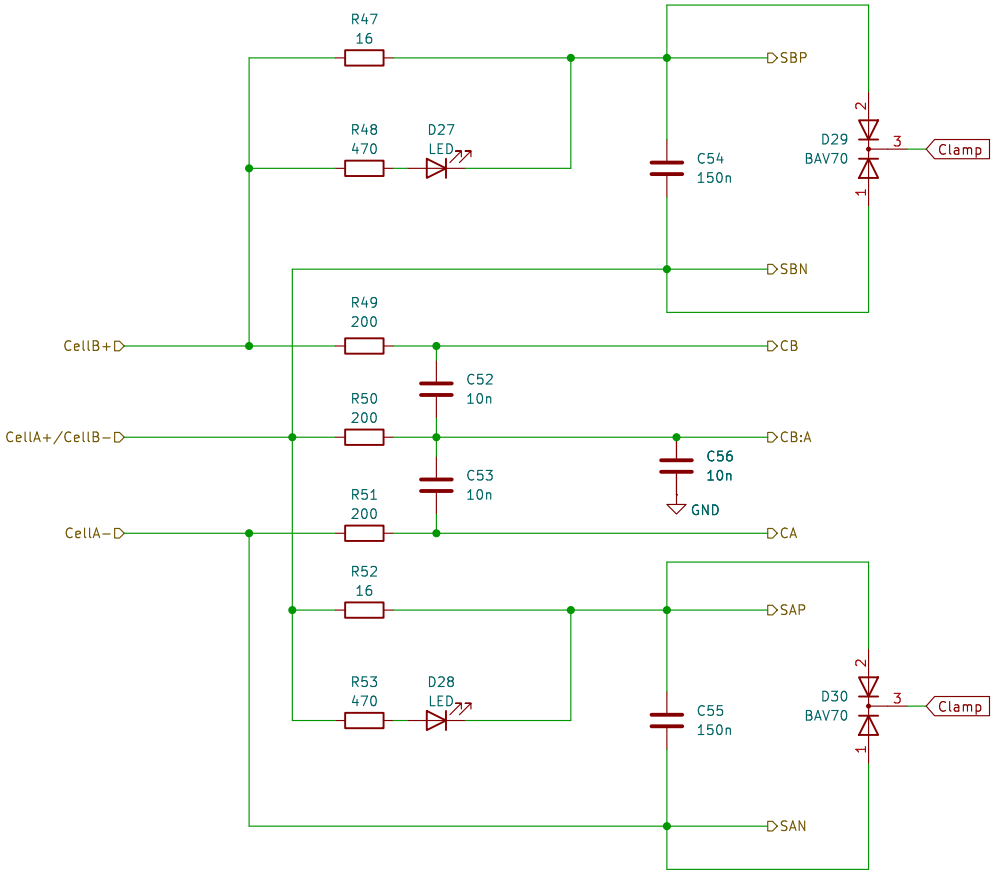
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 7/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

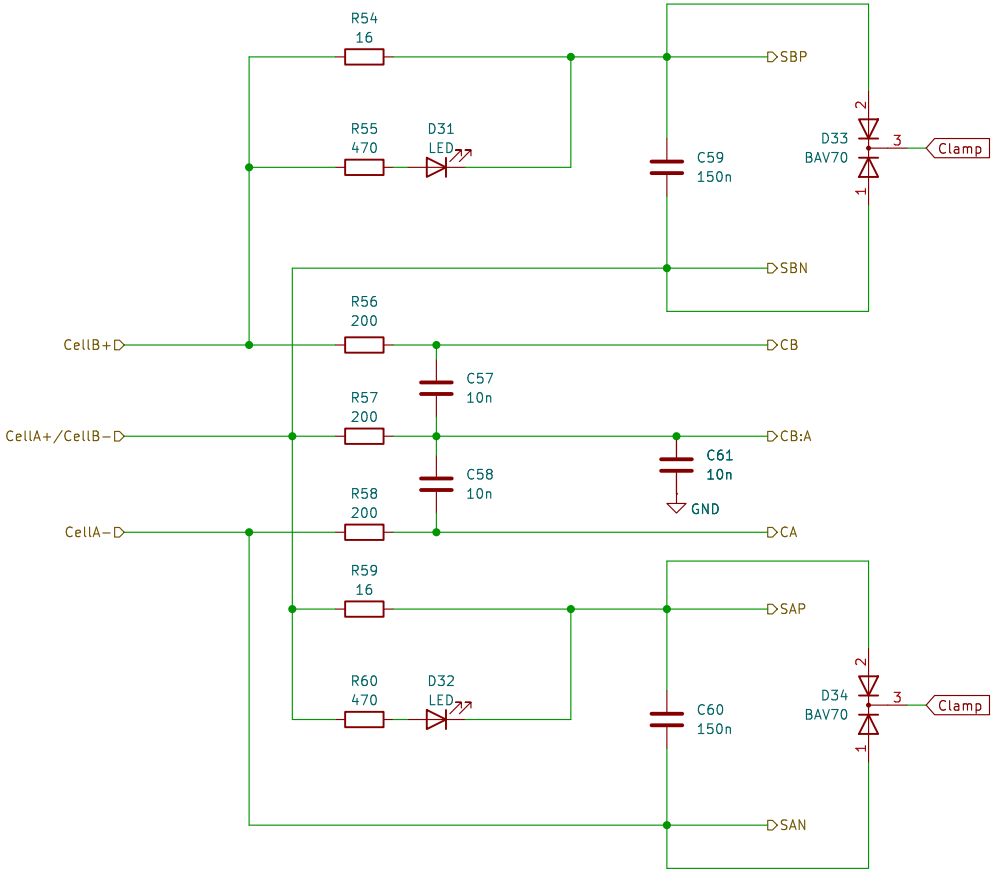
4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork6/		
File: FilterBalance.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 8/12



Discharge Resistor = Nominal Cell Voltage / Balance Current

3.6V / 300 mA = 12 Ohm

4.2V / 300 mA = 14 Ohm

4.2V / 16 Ohm = 262 mA
262 mA + 30 mA (Nomial Current from LED 150060VS75000) = 292 mA

Discharge capacitor
muss the same cutoff frequency as a 200 Ohm, 10nF Low-pass Filter. (80000Hz)

a 150nF is chosen because the total R of R_{dis} and R_{LED} is about 14 Ohm.

Sheet: /FilterBalancingNetwork7/
File: FilterBalance.kicad_sch

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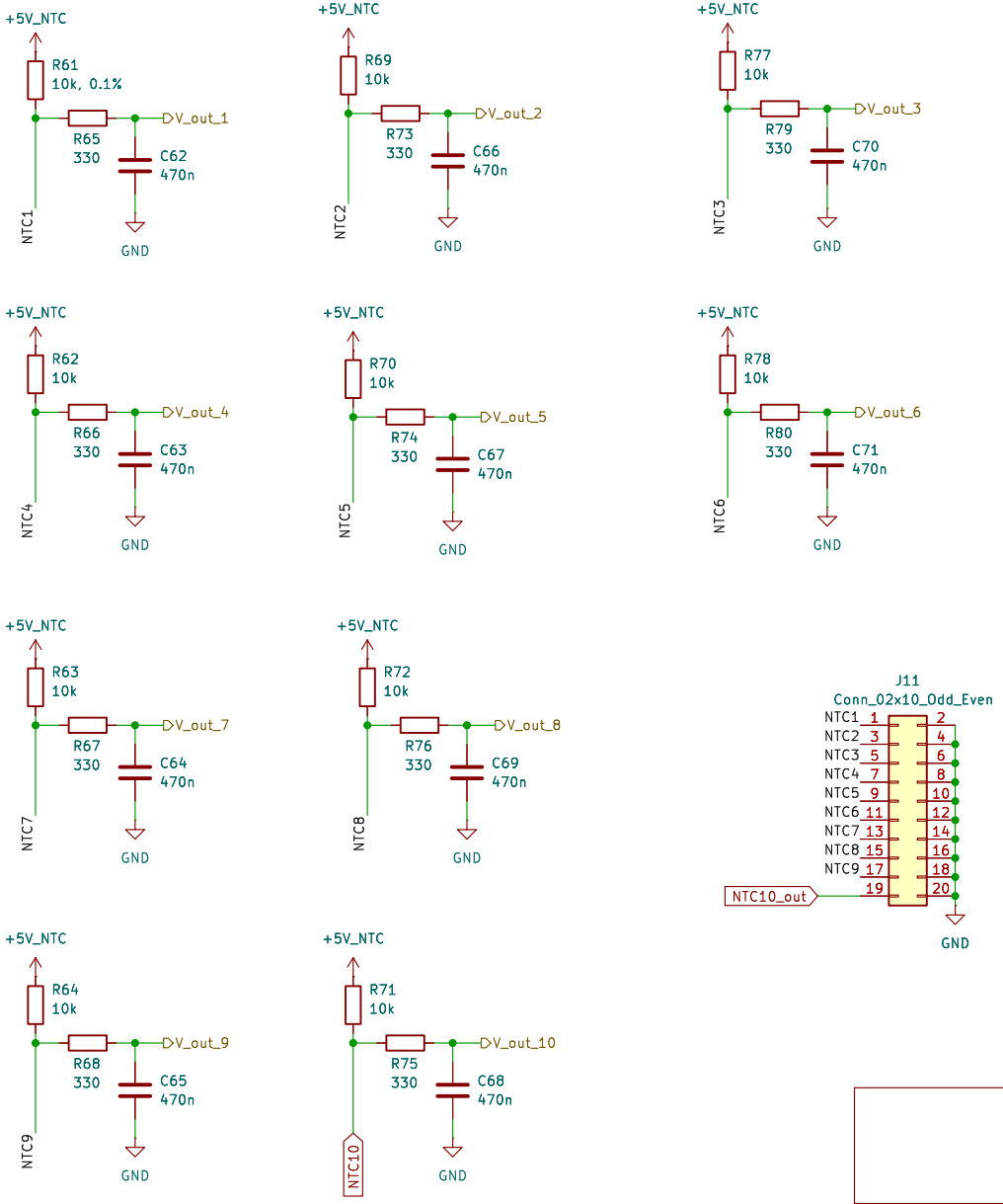
Size: A4 | Date: | **Rev:**
KiCad E.D.A. 9.0.1 | Id: 9/12



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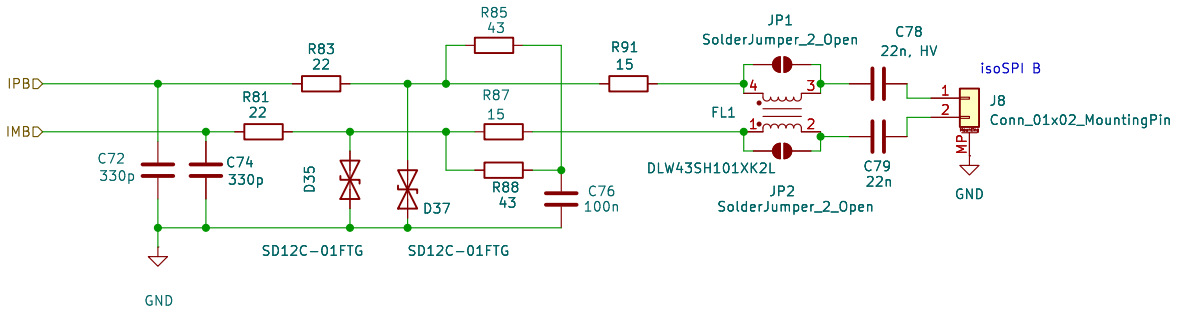
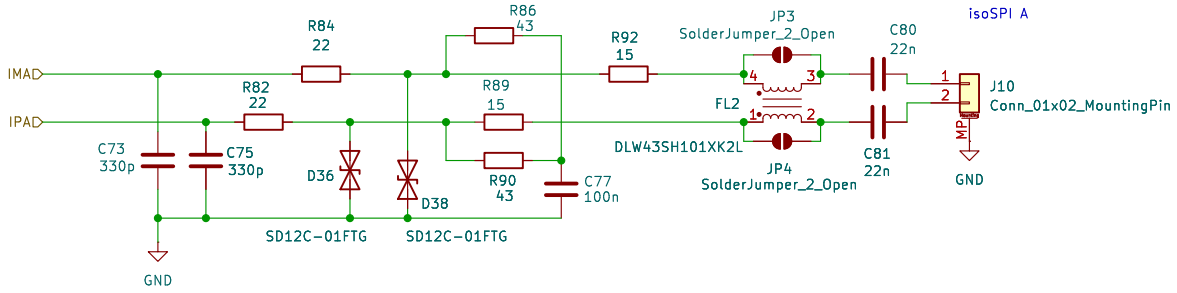
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 10/12

https://www.analog.com/en/resources/technical-articles/low-cost-isospi-coupling-circuitry-for-high-voltage-high-capacity-battery-systems.html

doppelt kondensatoren auf beiden seiten der daisy chain geht fit, siehe Abbildung 5 & laut HELLA BMS





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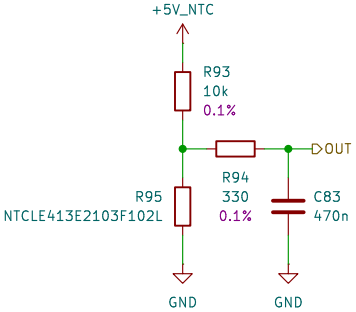
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.1		Id: 11/12



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