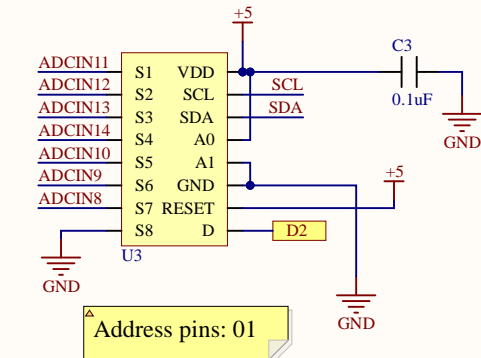
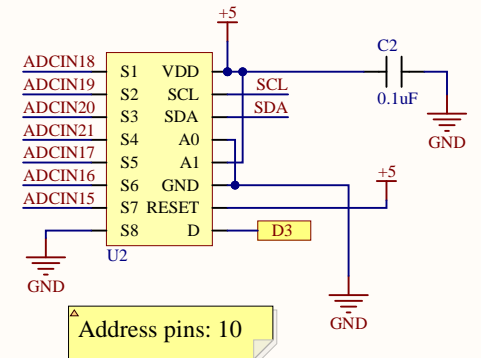
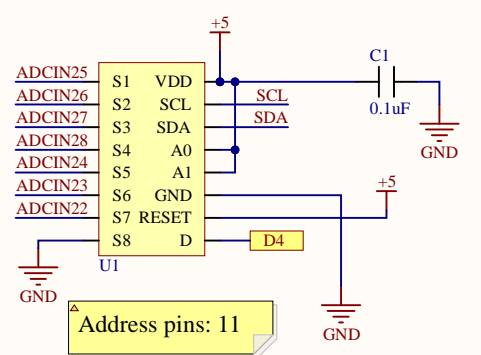
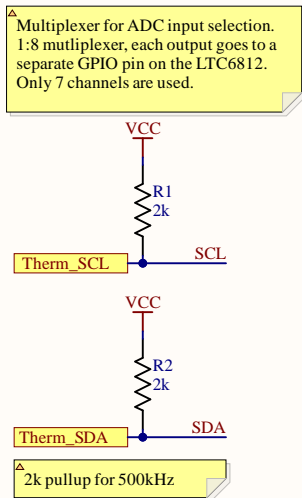
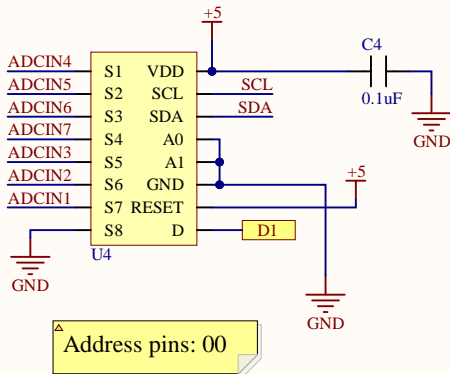
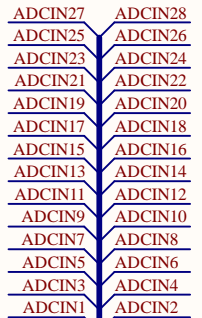
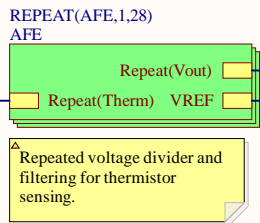
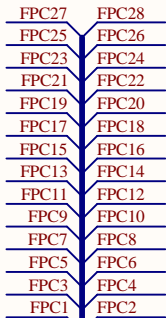
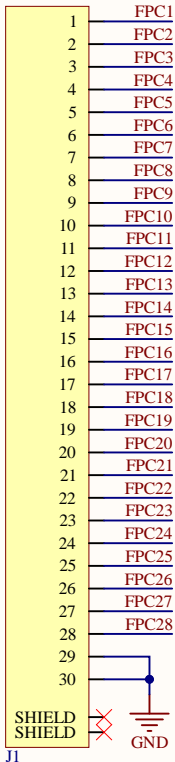



On resistance of multiplexer 2.50hm
14\$5P per IC
Therefore 70 cells per IC
1/5th is 12 cells temp sensed 14
This will measure 28, i.e. 50%



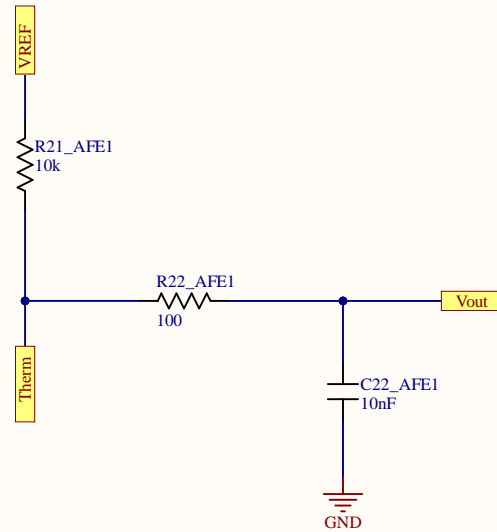
Title Temp_Sense.SchDoc		 motorSPORT	
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 13/09/2021			
Sheet 2	of 6		


Therm leads to FPC 10k
NTC thermistor. Ground
path is provided on FPC.

Max temperature allowed is 60 degrees, after which the
accumulator will shut down.
Minimum temperature is estimated to be 10 degrees.

NTC thermistor PN: NCU18XH103D60RB

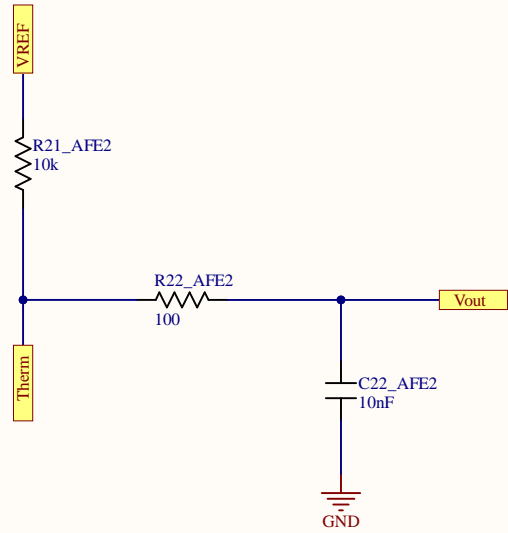
Corresponds to: ...mV at Vout




Title AFE.SchDoc			
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3	of 6		

Therm leads to FPC 10k
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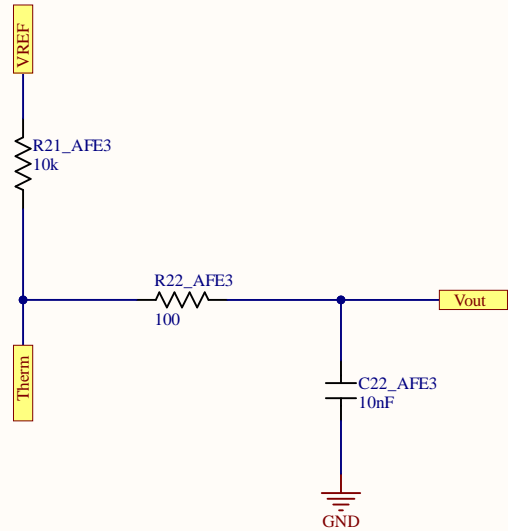
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Sheet 3 of 6			

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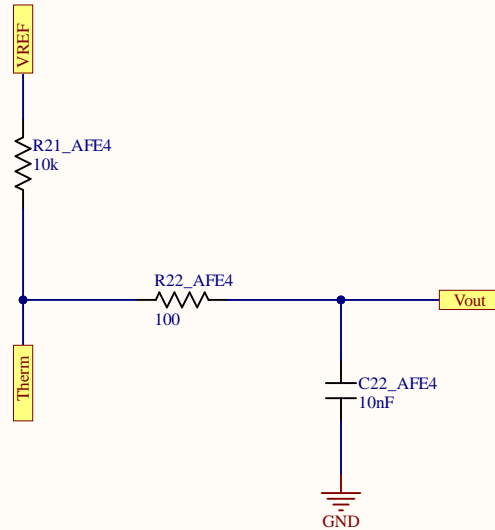
Title AFE.SchDoc			
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3	of 6		


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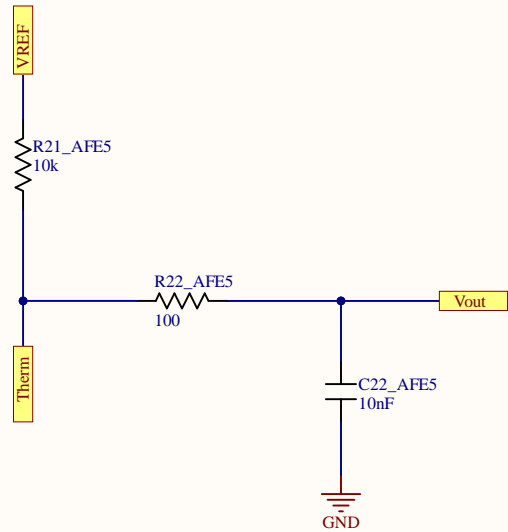
Corresponds to: ...mV at Vout




Title AFE.SchDoc			
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3	of 6		

Therm leads to FPC 10k NTC thermistor. Ground path is provided on FPC.

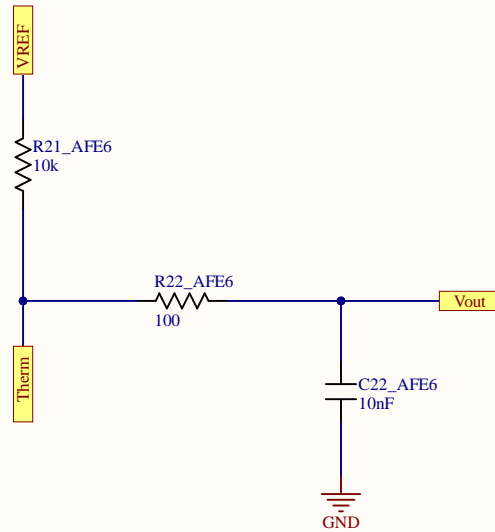
Max temperature allowed is 60 degrees, after which the accumulator will shut down.
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3 of 6			

Therm leads to FPC 10k
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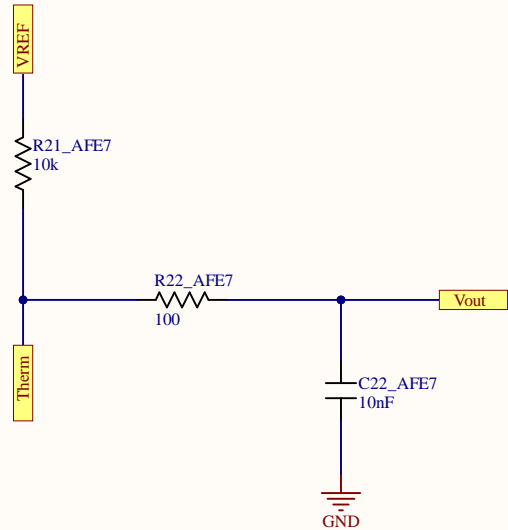
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Corresponds to: ...mV at Vout




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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3 of 6			

Therm leads to FPC 10k NTC thermistor. Ground path is provided on FPC.

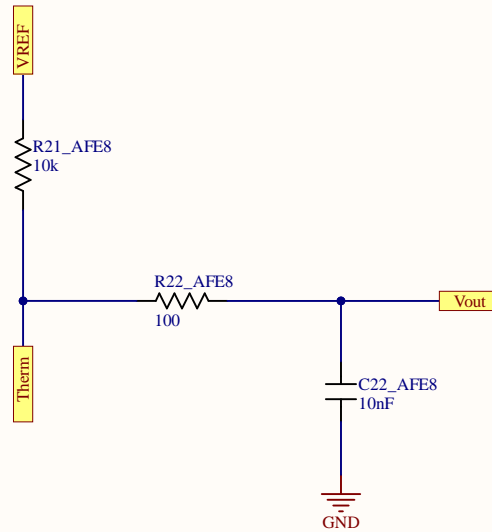
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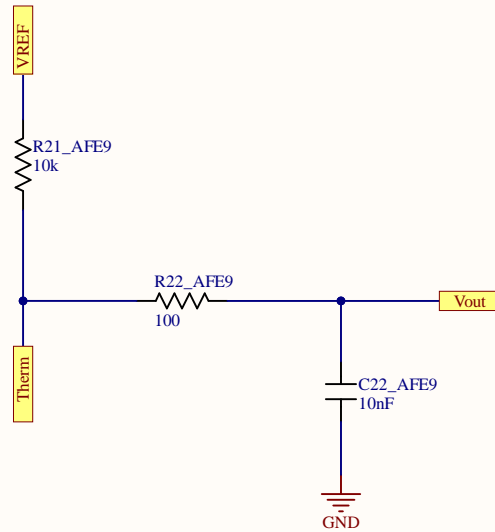
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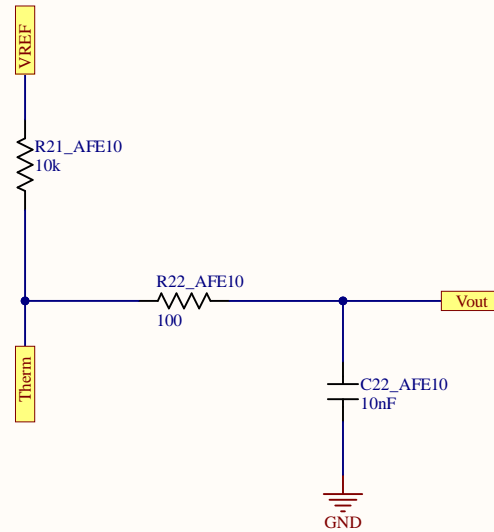
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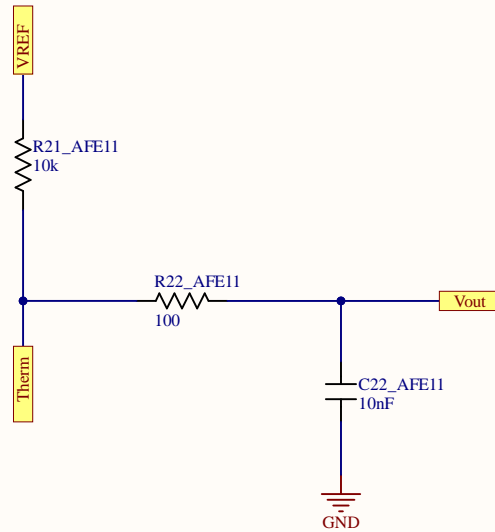
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021	Sheet 3 of 6		

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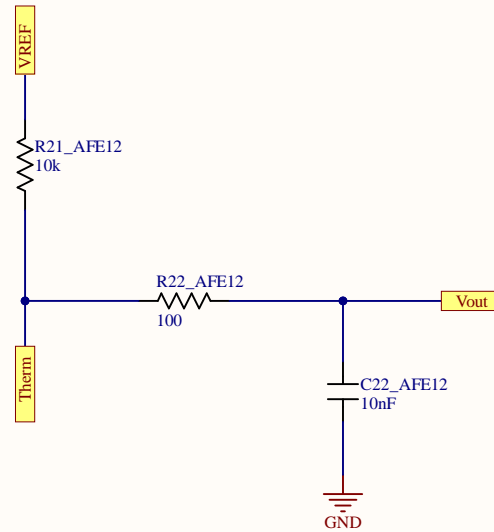
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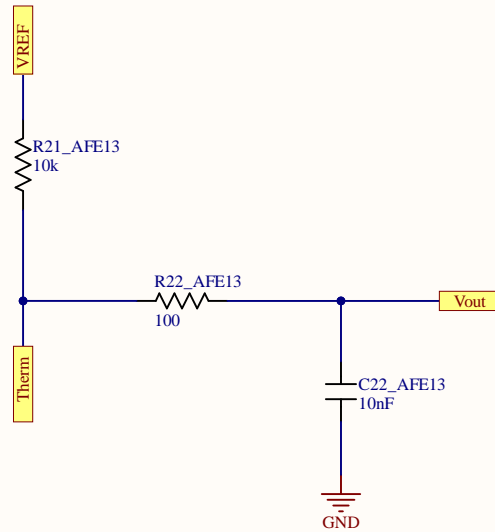
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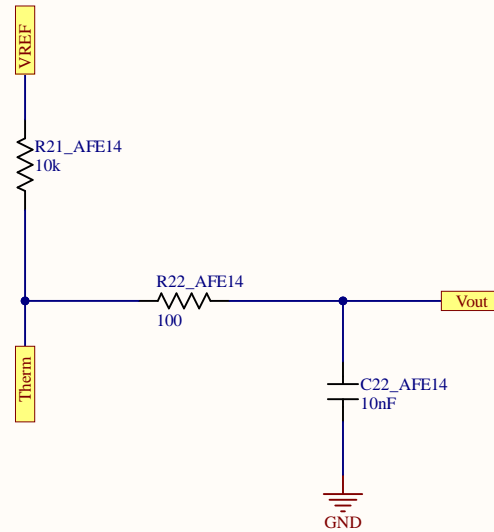
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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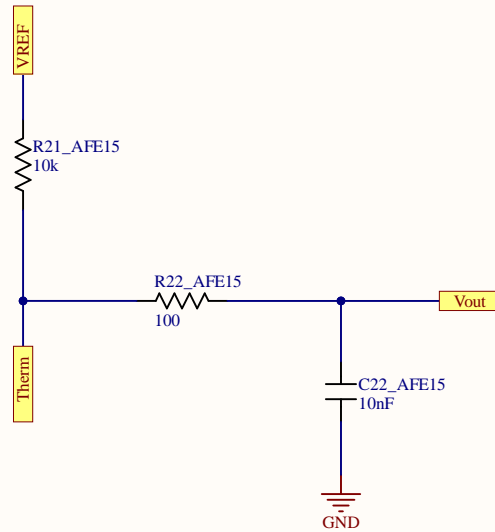
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Sheet 3	of 6		

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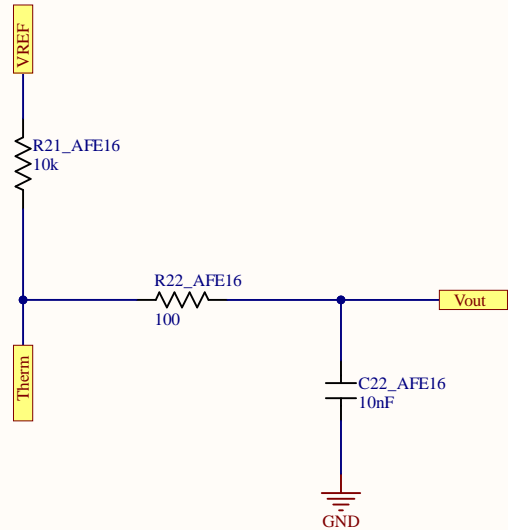
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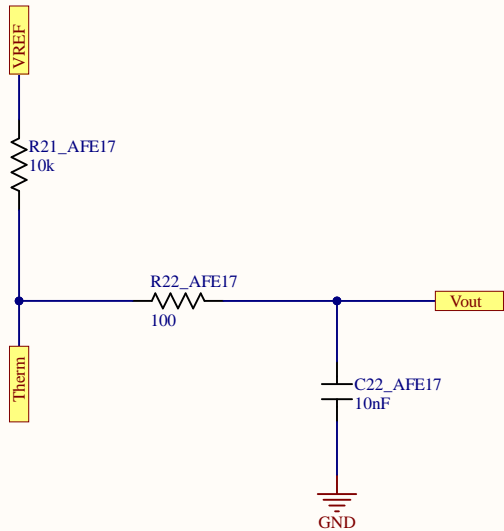
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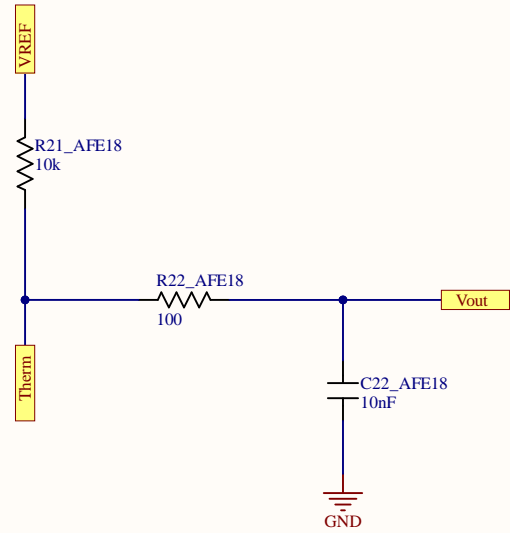
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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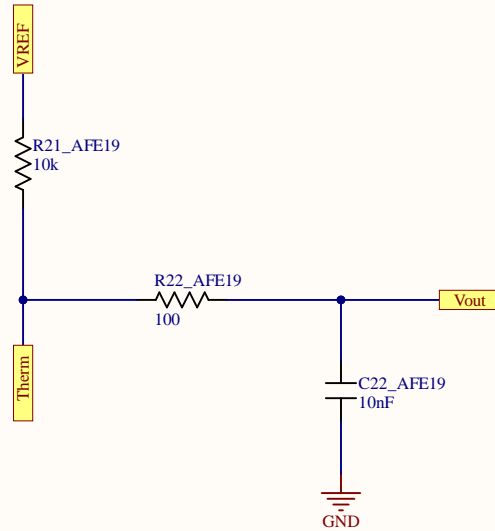
Title AFE.SchDoc			
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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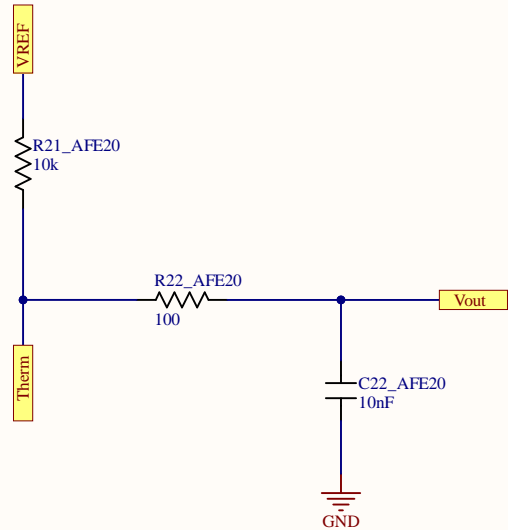
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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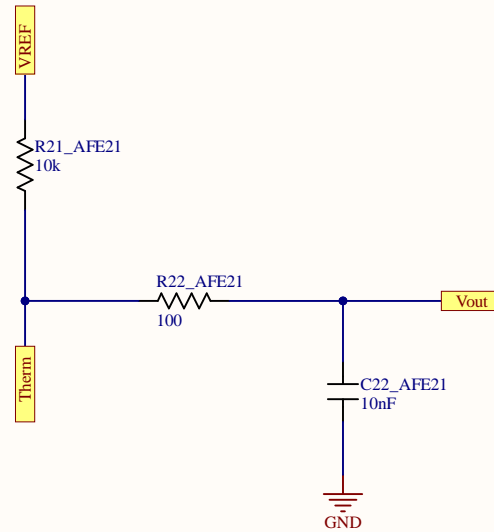
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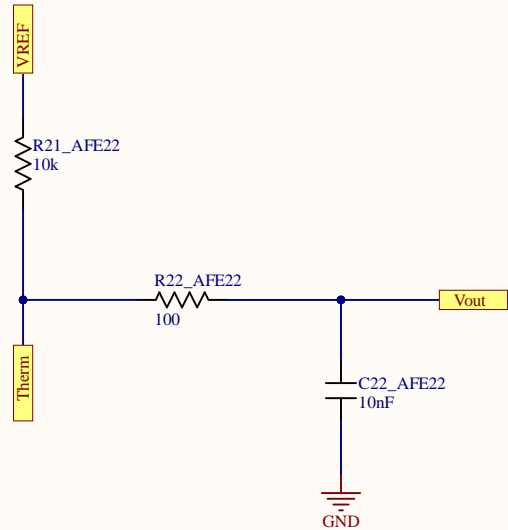
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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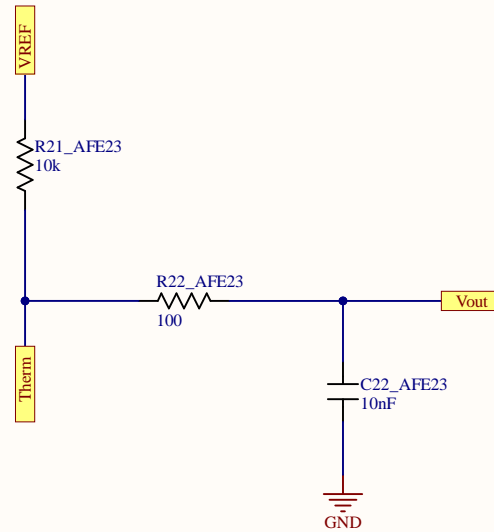
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
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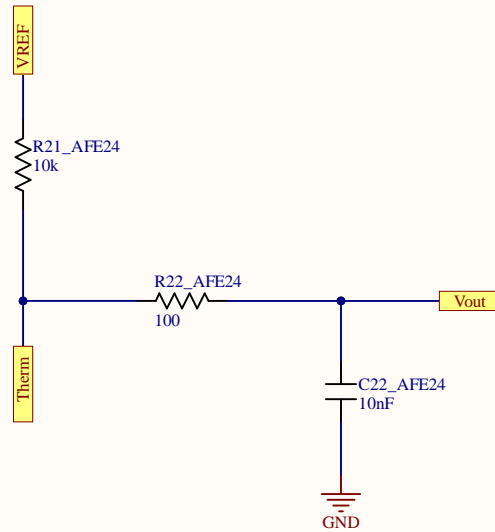
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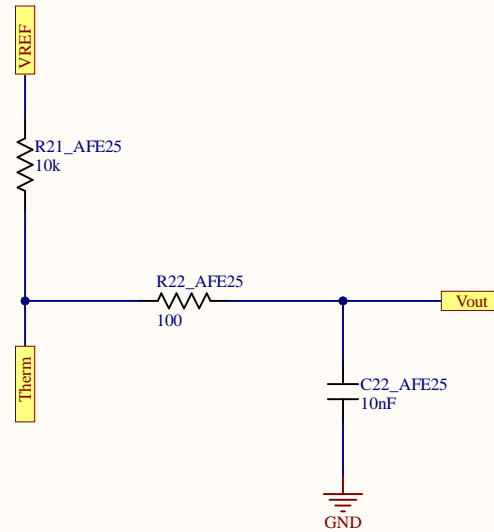
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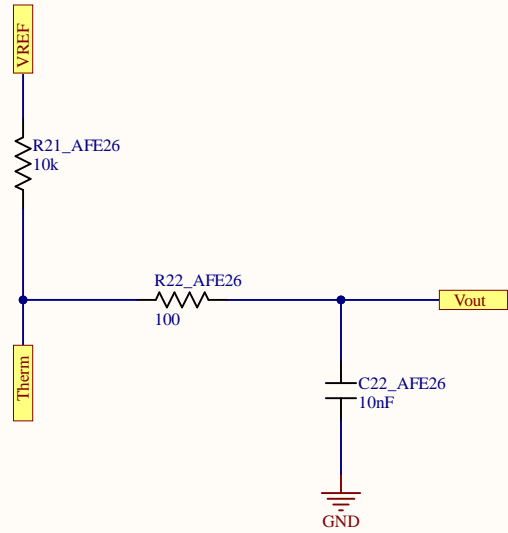
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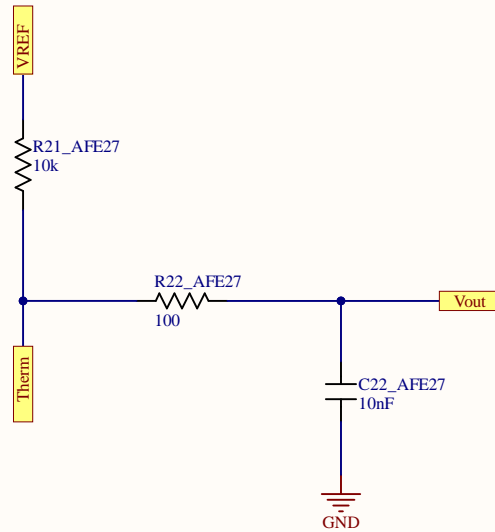
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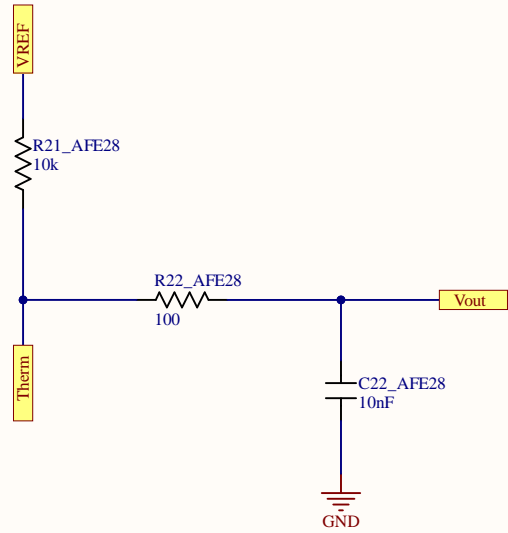
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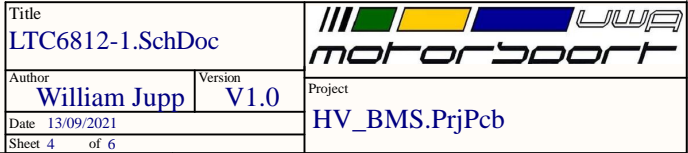
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Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 1/09/2021			
Sheet 3 of 6			



1

2

3

4

△ HC1
HC2
HC3

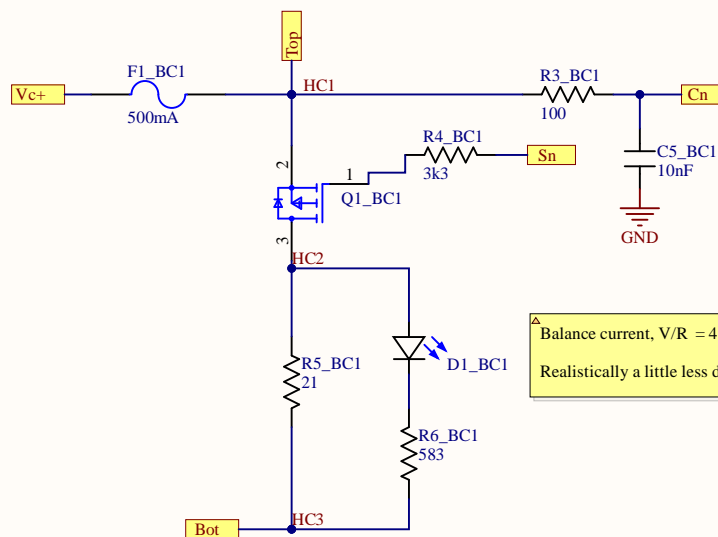
i Balance Current

△ Vc+ is connected to FPC connector (direct to cell)

Cn is connected to BMS IC for cell measurement


Sn is connected to BMS IC for FET switching

Bot is connected to cell belows Top



△ Balance current, $V/R = 4.2/21 = 200\text{mA}$

Realistically a little less due to FET R_{DS} but a small increase with parallel LED.

Title Balance_Circuit.SchDoc			
Author William Jupp	Version V1.0	Project HV_BMS.PrjPcb	
Date 13/09/2021			
Sheet 5 of 6			

1

2

3

4

1

2

3

4

△ HC1
HC2
HC3

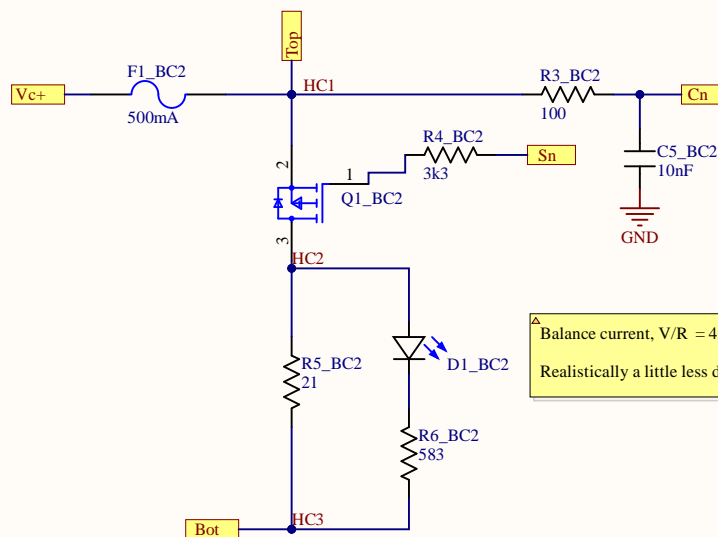
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Sheet 5 of 6			

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2

3

4

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2

3

4

△ HC1
HC2
HC3

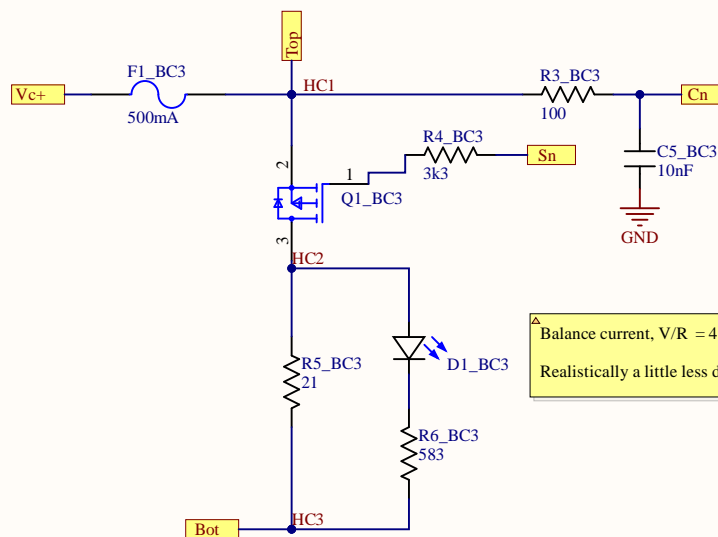
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HC1
HC2
HC3

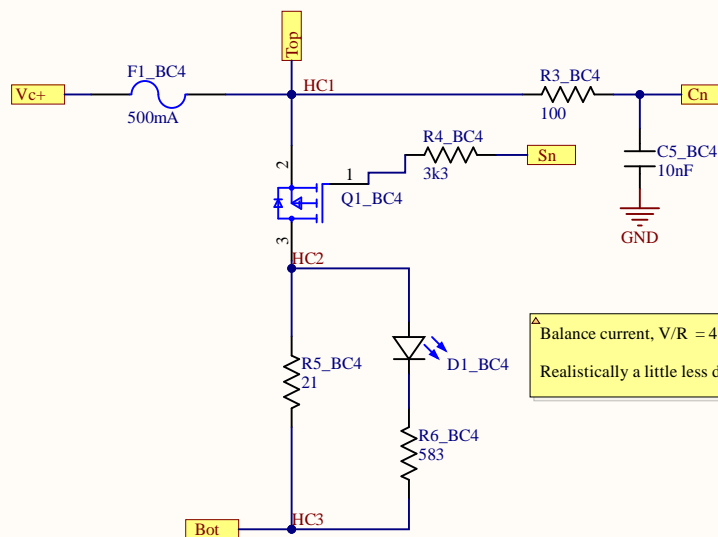
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Realistically a little less due to FET R_{DS} but a small increase with parallel LED.

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△ HC1
HC2
HC3

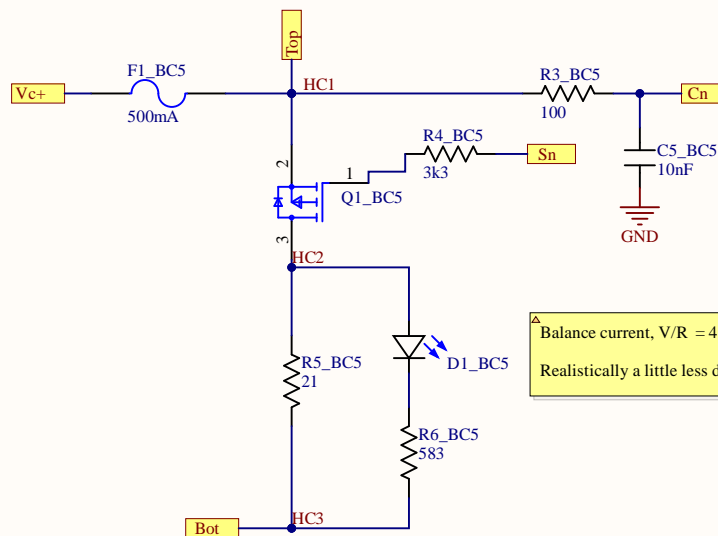
i Balance Current

△ Vc+ is connected to FPC connector (direct to cell)

Cn is connected to BMS IC for cell measurement


Sn is connected to BMS IC for FET switching

Bot is connected to cell belows Top



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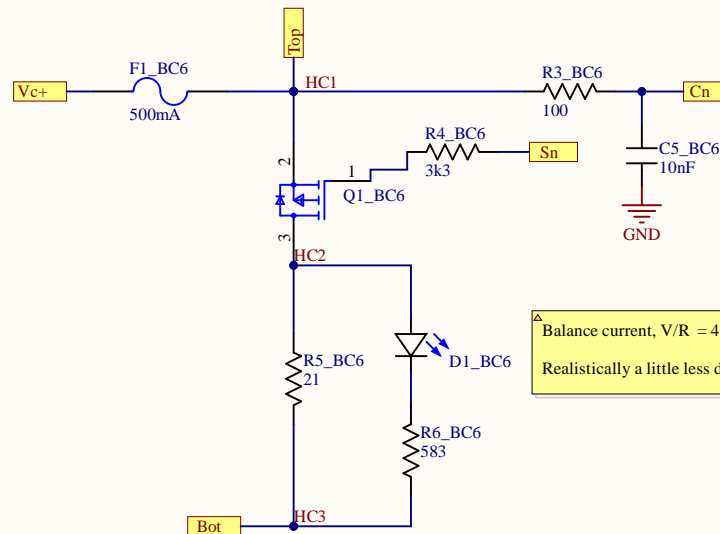
Title Balance_Circuit.SchDoc			
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HC1
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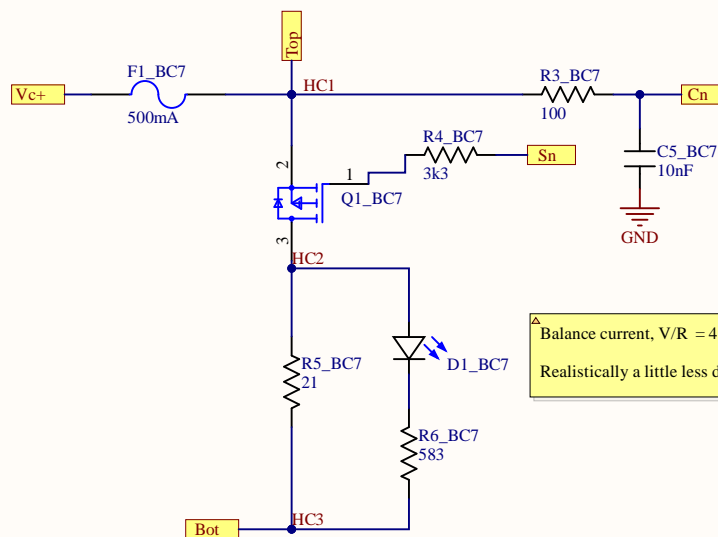
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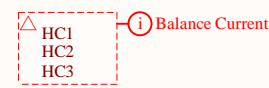
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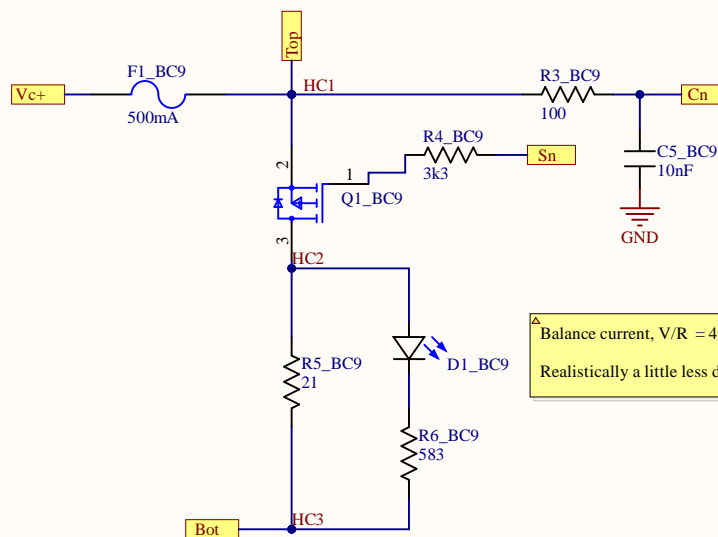
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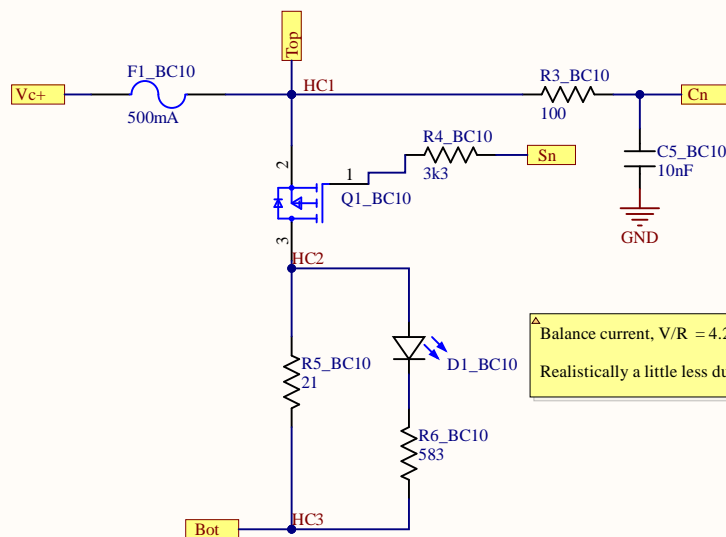
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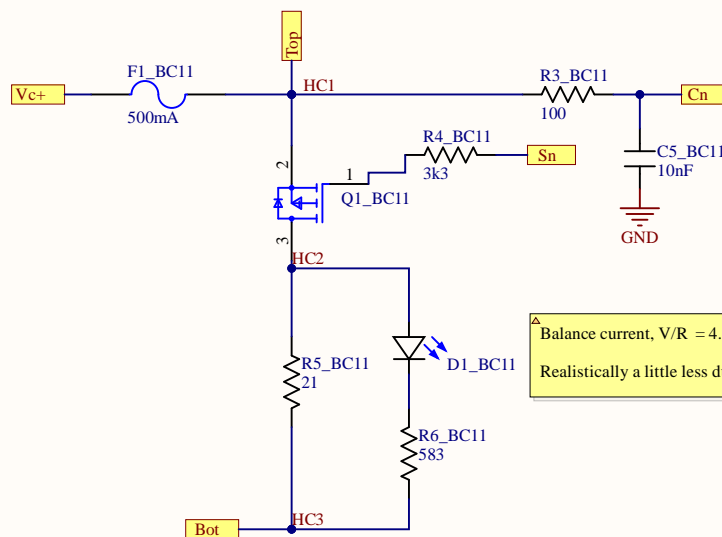
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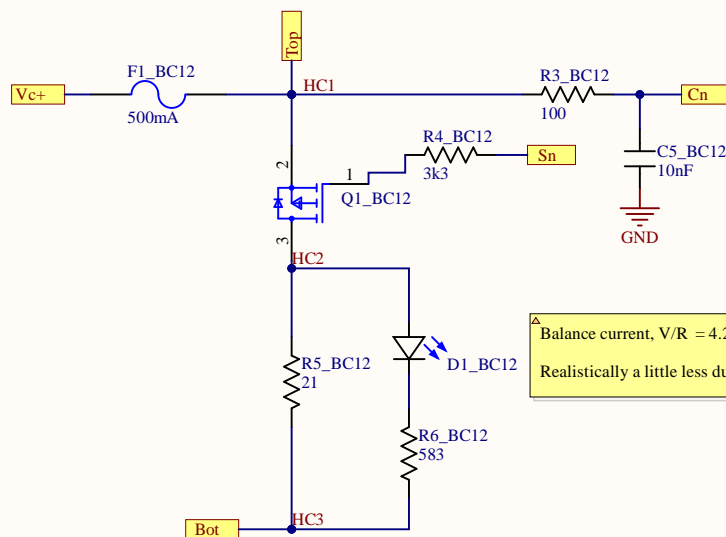
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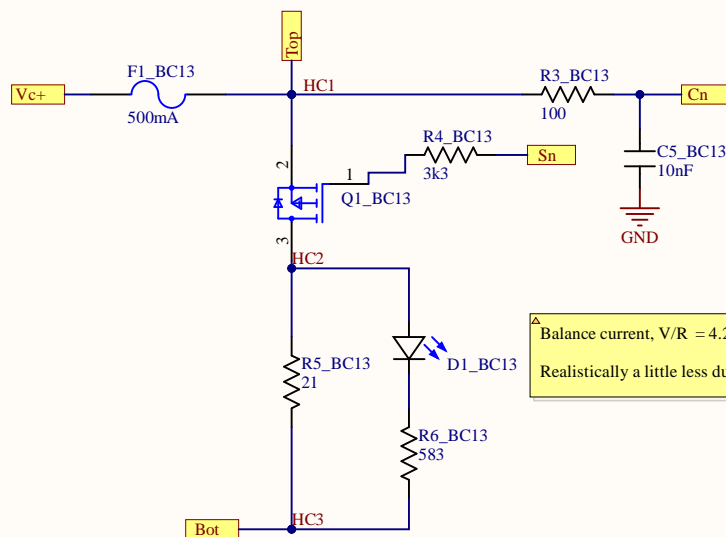
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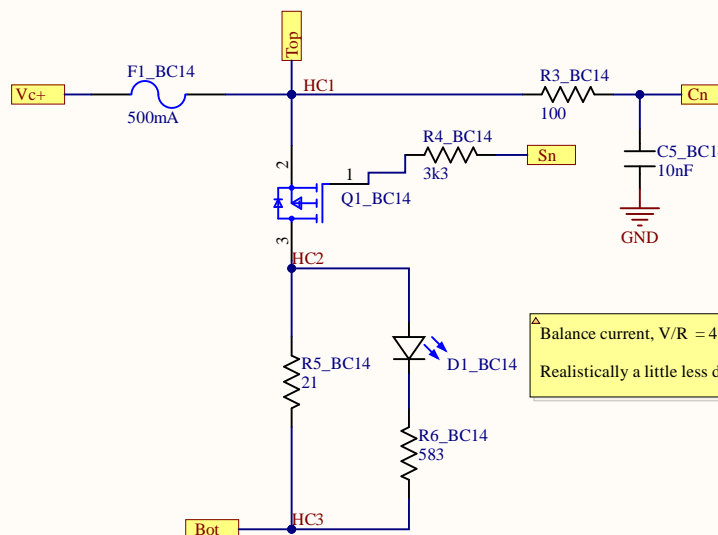
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