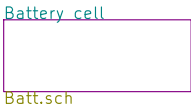
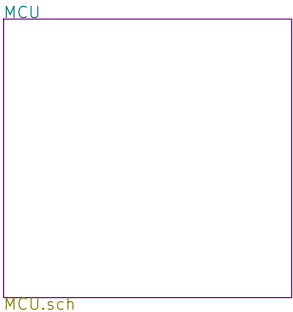
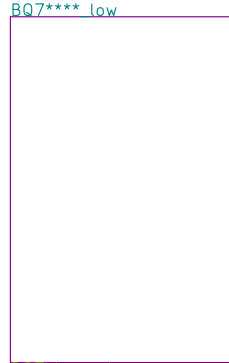
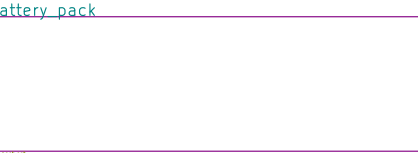
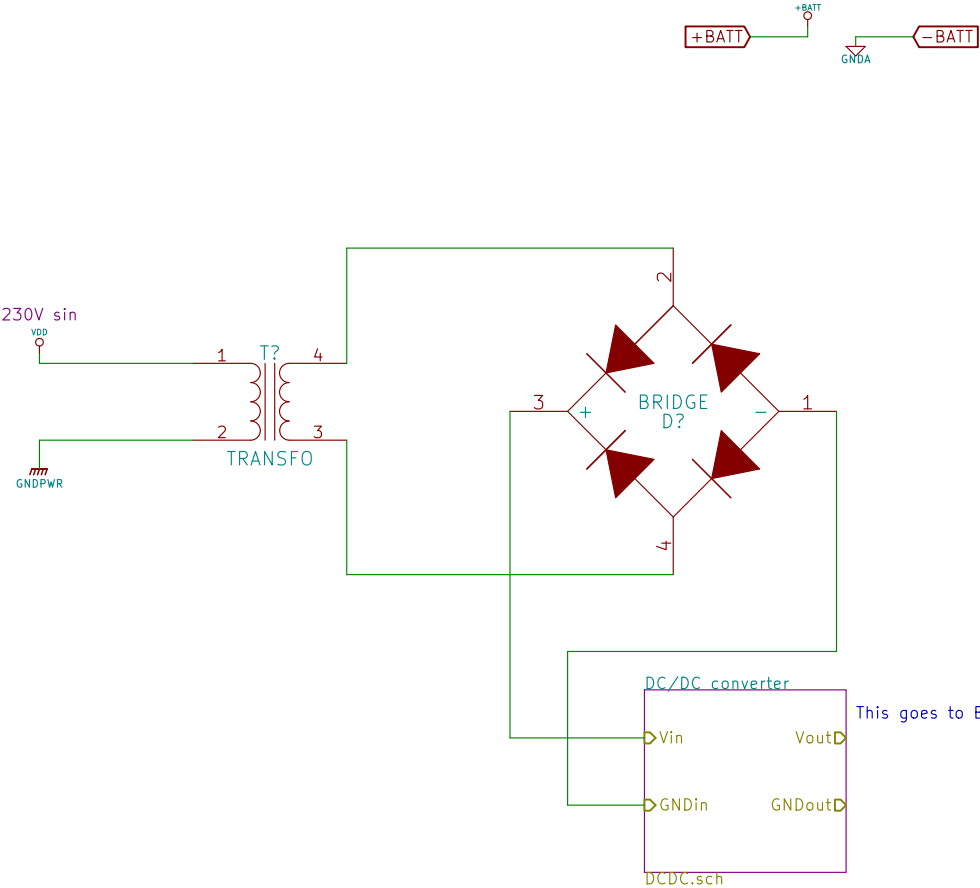


This is start of BMS it made of 4 components first is transformator from 220V/100V and graetz.
Next is DC/DC converter with variable currnet and voltage.(this first is more a charger)
Next on every cell i bq7*** microchip with abilty to measere and balance every battery cell
(one is doing that for 15 batterys)(balance is done with discharging).
And bq7*** is controled with some mcu



FESB			
Sheet: /			
File: BMS.sch			
Title:			
Size: A4	Date:		Rev:
KiCad E.D.A.	kicad (after 2015-may-25 BZR unknown)-product		Id: 1/101

	1	2	3	4	5	6
A	Pick any MCU you whant and make schematic or him and strat codeing					A
B						B
C						C
D					<div><div>FESB</div><div>Sheet: /MCU/ File: MCU.sch</div><div>Title:</div><div><div>Size: A4</div><div>Date:</div><div>Rev:</div></div><div>KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product</div><div>Id: 2/101</div></div>	D
	1	2	3	4	5	6

B

C

D

PIN	NAME	TYPE	DESCRIPTION
17	NC	—	No connect (short to CAP3)
18	TS3	I	Thermistor #3 positive terminal ⁽¹⁾
19	CAP3	O	Capacitor to VC10X
20	BAT	P	Battery (top-most) terminal
21	NC	—	No connect
22	NC	—	No connect
23	NC	—	No connect
24	VC15	I	Sense voltage for 15th cell positive terminal
25	VC14	I	Sense voltage for 14th cell positive terminal
26	VC13	I	Sense voltage for 13th cell positive terminal
27	VC12	I	Sense voltage for 12th cell positive terminal
28	VC11	I	Sense voltage for 11th cell positive terminal
29	VC10	I	Sense voltage for 10th cell negative terminal
30	VC10	I	Sense voltage for 10th cell positive terminal
31	VC9	I	Sense voltage for 9th cell positive terminal
32	VC8	I	Sense voltage for 8th cell positive terminal
33	VC7	I	Sense voltage for 7th cell positive terminal
34	VC6	I	Sense voltage for 6th cell positive terminal
35	VC5B	I	Sense voltage for 6th cell negative terminal
36	VC5	I	Sense voltage for 5th cell positive terminal
37	VC4	I	Sense voltage for 4th cell positive terminal
38	VC3	I	Sense voltage for 3rd cell positive terminal
39	VC2	I	Sense voltage for 2nd cell positive terminal
40	VC1	I	Sense voltage for 1st cell positive terminal
41	VC0	I	Sense voltage for 1st cell negative terminal
42	SRP	I	Negative current sense (nearest VSS)
43	SRN	I	Positive current sense
44	ALERT	IO	Alert output and override input

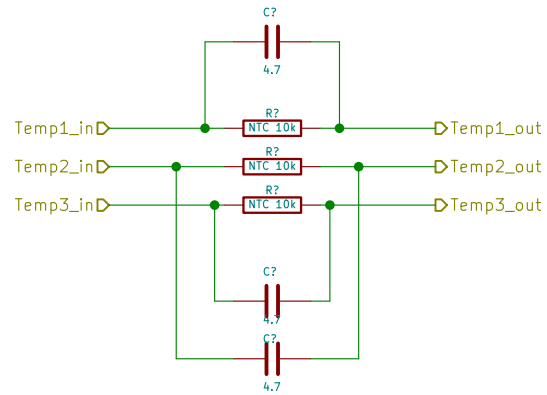
Rev:
Id: 3/101

Missing only for NTC so we can convert to Temp

$$V_{TSX} = (ADC \text{ in Decimal}) \times 382 \mu V/LSB$$

$$R_{TS} = (10,000 \times V_{TSX}) \div (3.3 - V_{TSX})$$

Termistors
Connect with outer 6 pin



FESB

Sheet: /BQ7***_high/NTC Temp monitor/
File: Temp.sch

Title:

Size: A4

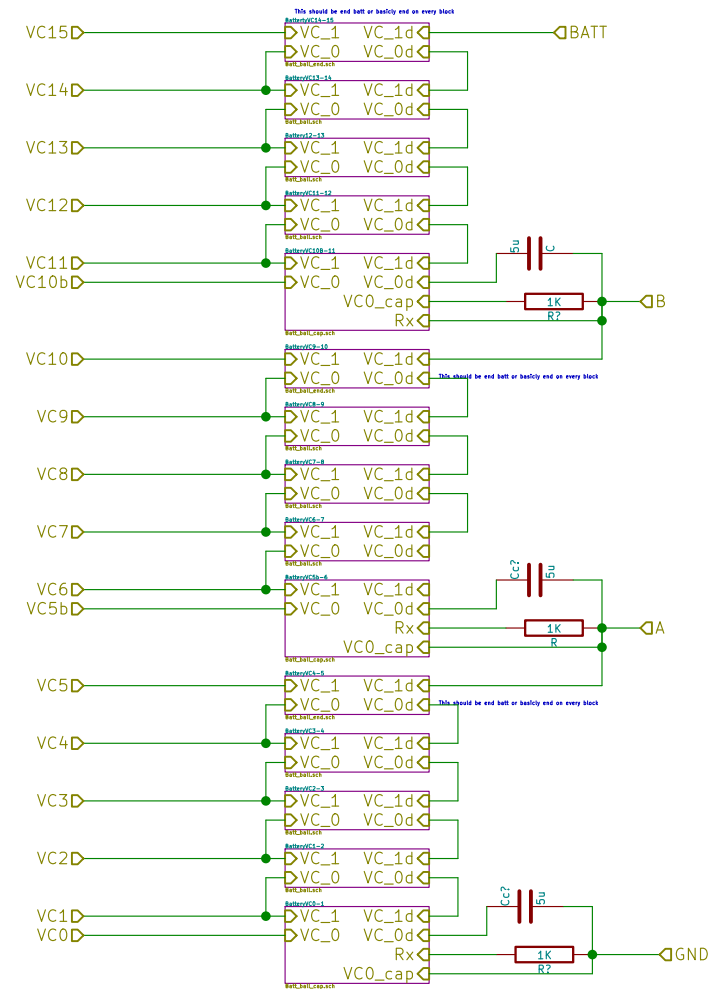
Date:

Rev:

KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Id: 4/101

Mess bellow. Batt_ball circuit are sharing every pin except last and first
So because they are sharing pin they are sharing a Rin so only
last should have it.(IN every block).



FESB

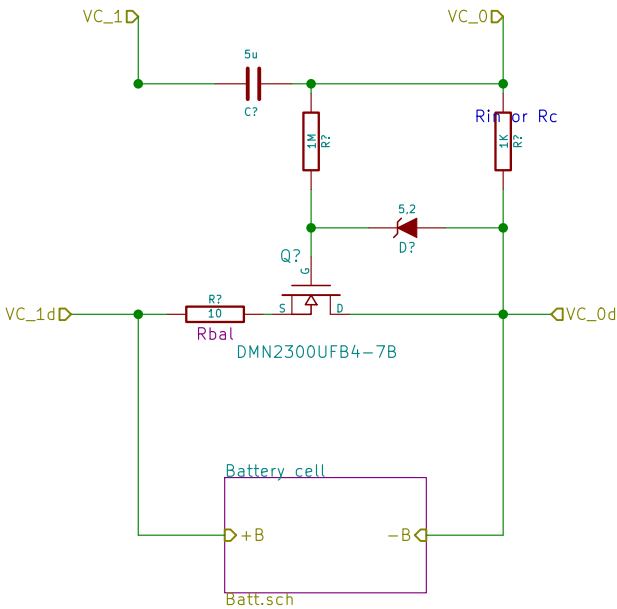
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File: Batt_pack.sch

Title: Battery Pack

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 5/101

This is just mesurment and balancing circuit



FESB

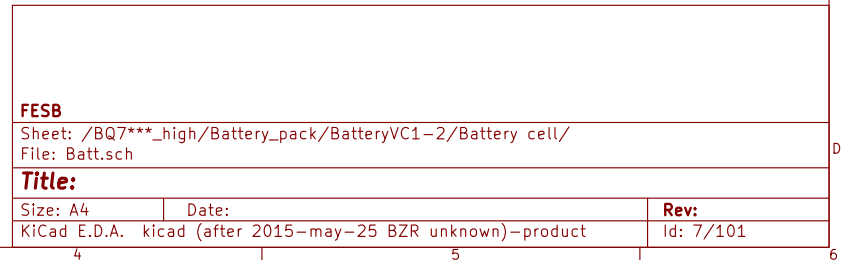
Sheet: /BQ7***_high/Battery_pack/BatteryVC1-2/
File: Batt_ball.sch

Title:

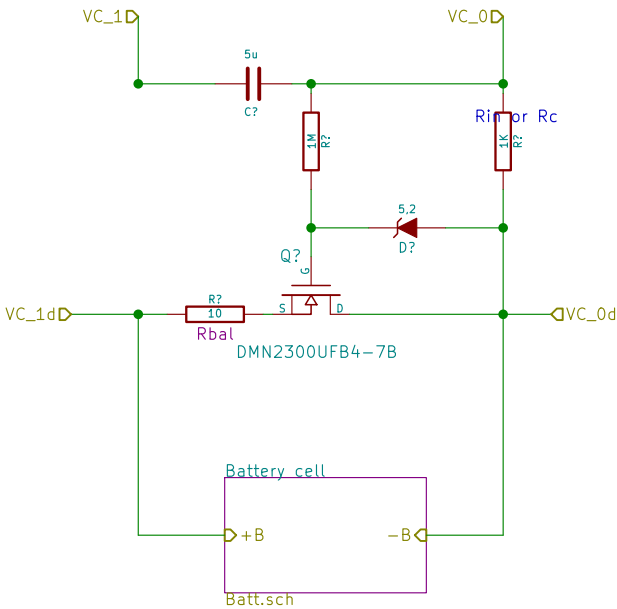
Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 6/101

Put anything about possible battery in this sheet as component description or should I say new field.



This is just mesurment and balancing circuit



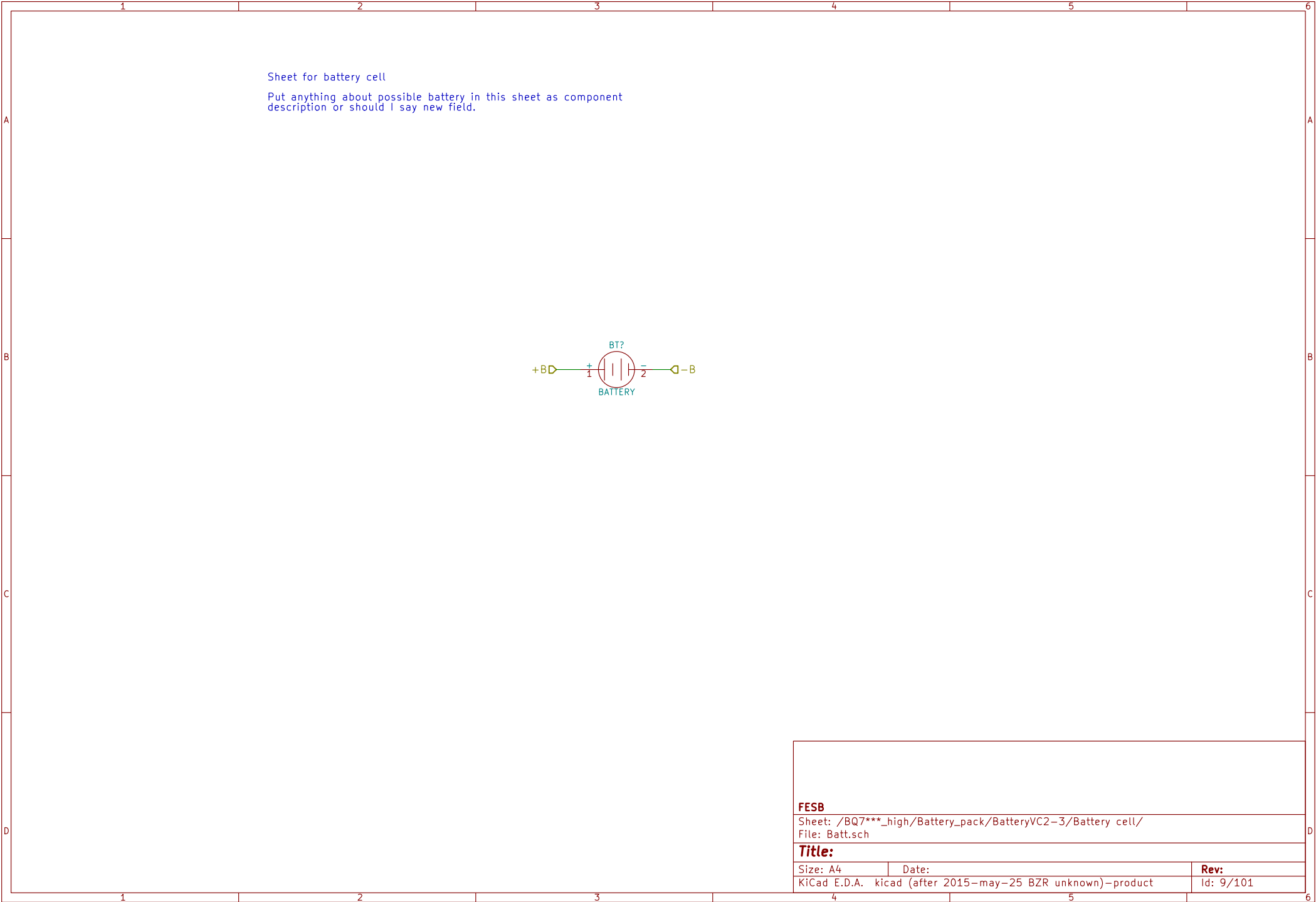
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC2-3/
File: Batt_ball.sch

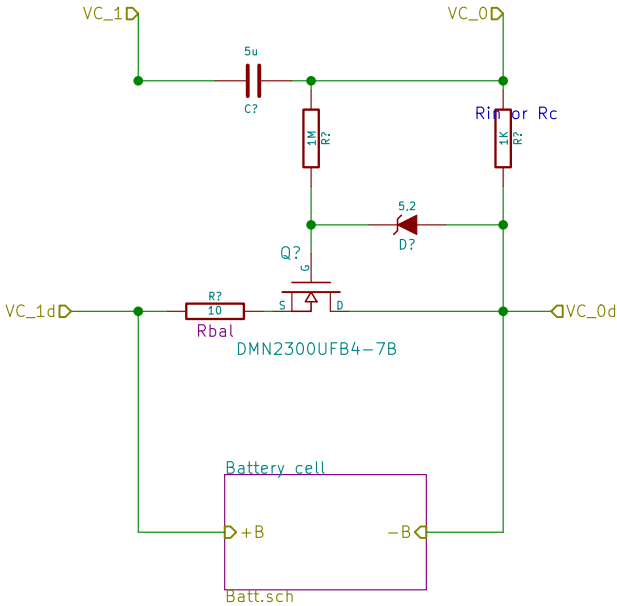
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 8/101



This is just mesurment and balancing circuit



FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC3-4/
File: Batt_ball.sch

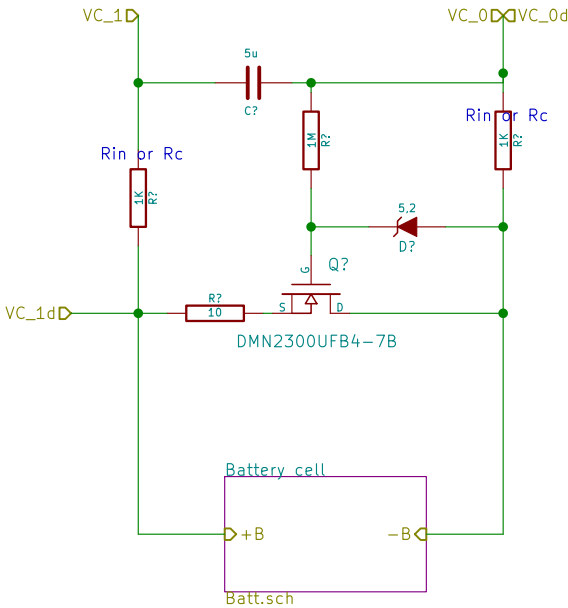
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 10/101

	1	2	3	4	5	6
A	<div> <div>Sheet for battery cell</div> <div>Put anything about possible battery in this sheet as component description or should I say new field.</div> </div>					
B	<div> </div>					
C						
D	<div> <div>FESB</div> <div> <div>Sheet: /BQ7***_high/Battery_pack/BatteryVC3-4/Battery cell/</div> <div>File: Batt.sch</div> </div> <div> <div>Title:</div> <div> <div>Size: A4</div> <div>Date:</div> <div>Rev:</div> </div> <div> <div>KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product</div> <div>Id: 11/101</div> </div> </div> </div>					
	1	2	3	4	5	6

This is just mesurment and balancing circuit



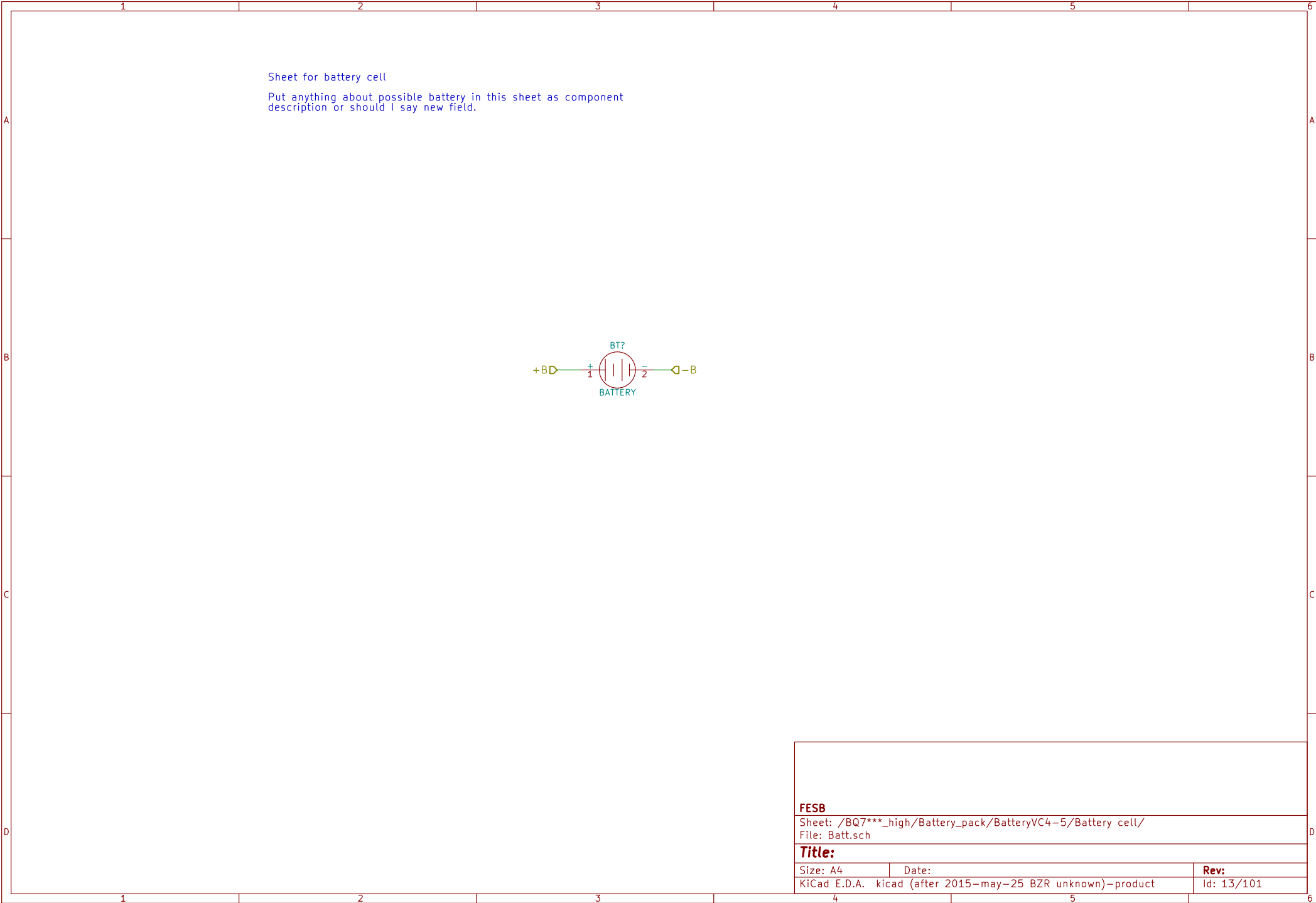
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC4-5/
File: Batt_ball_end.sch

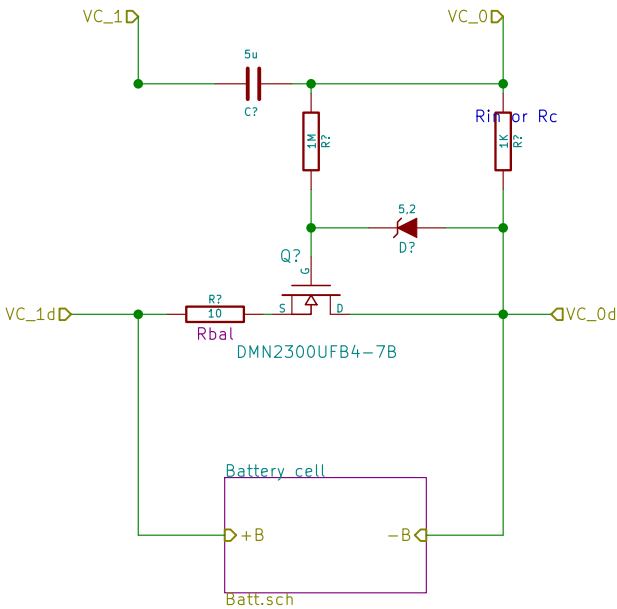
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 12/101



This is just mesurment and balancing circuit



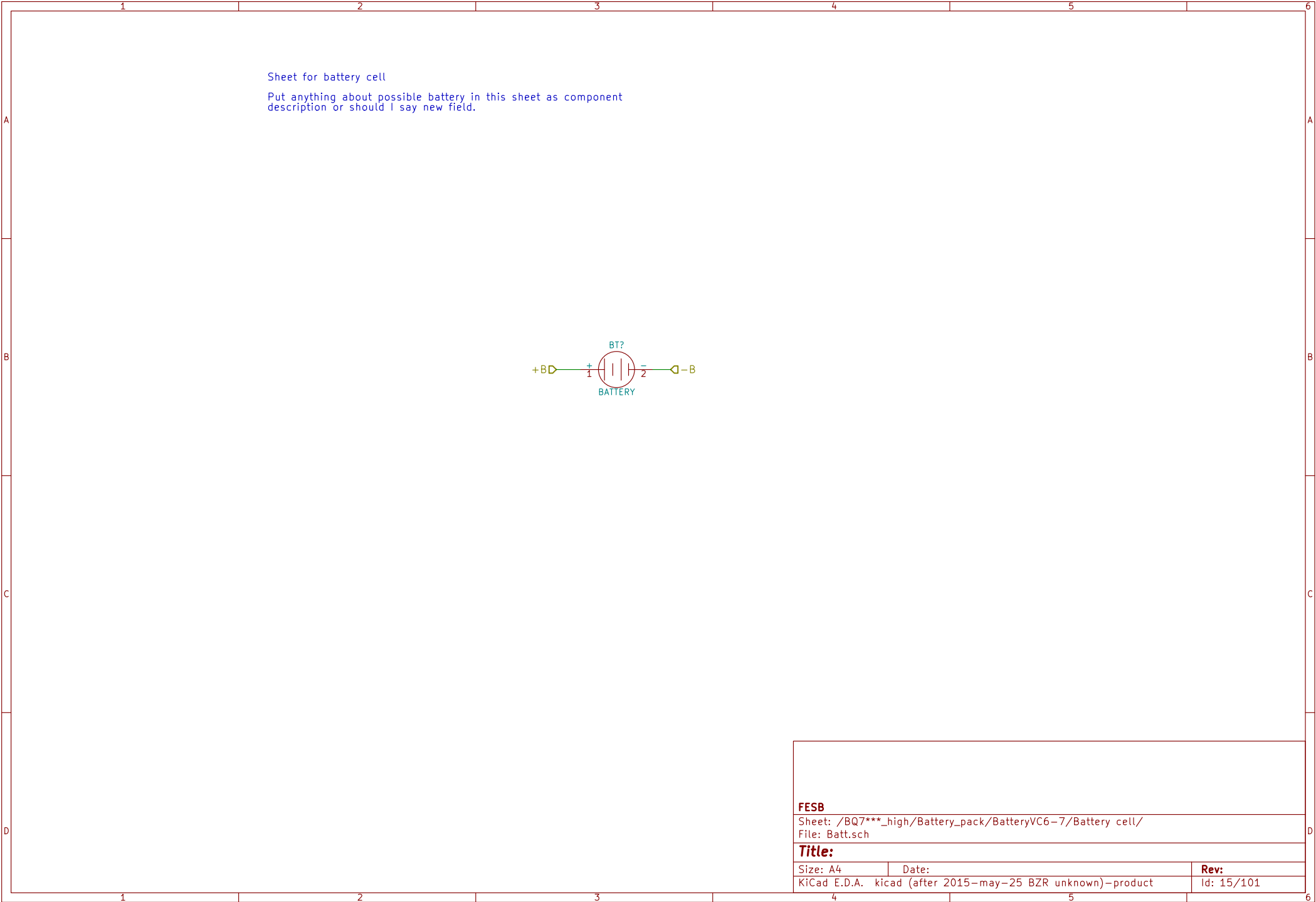
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC6-7/
File: Batt_ball.sch

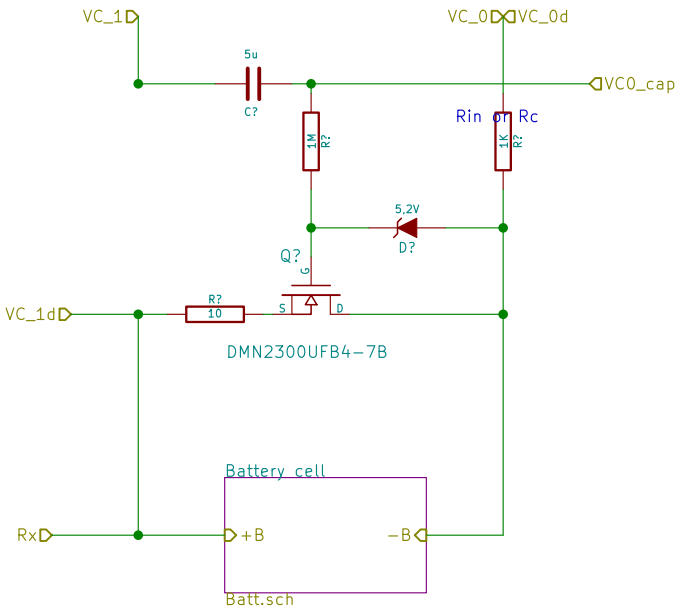
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 14/101



This is just mesurment and balancing circuit



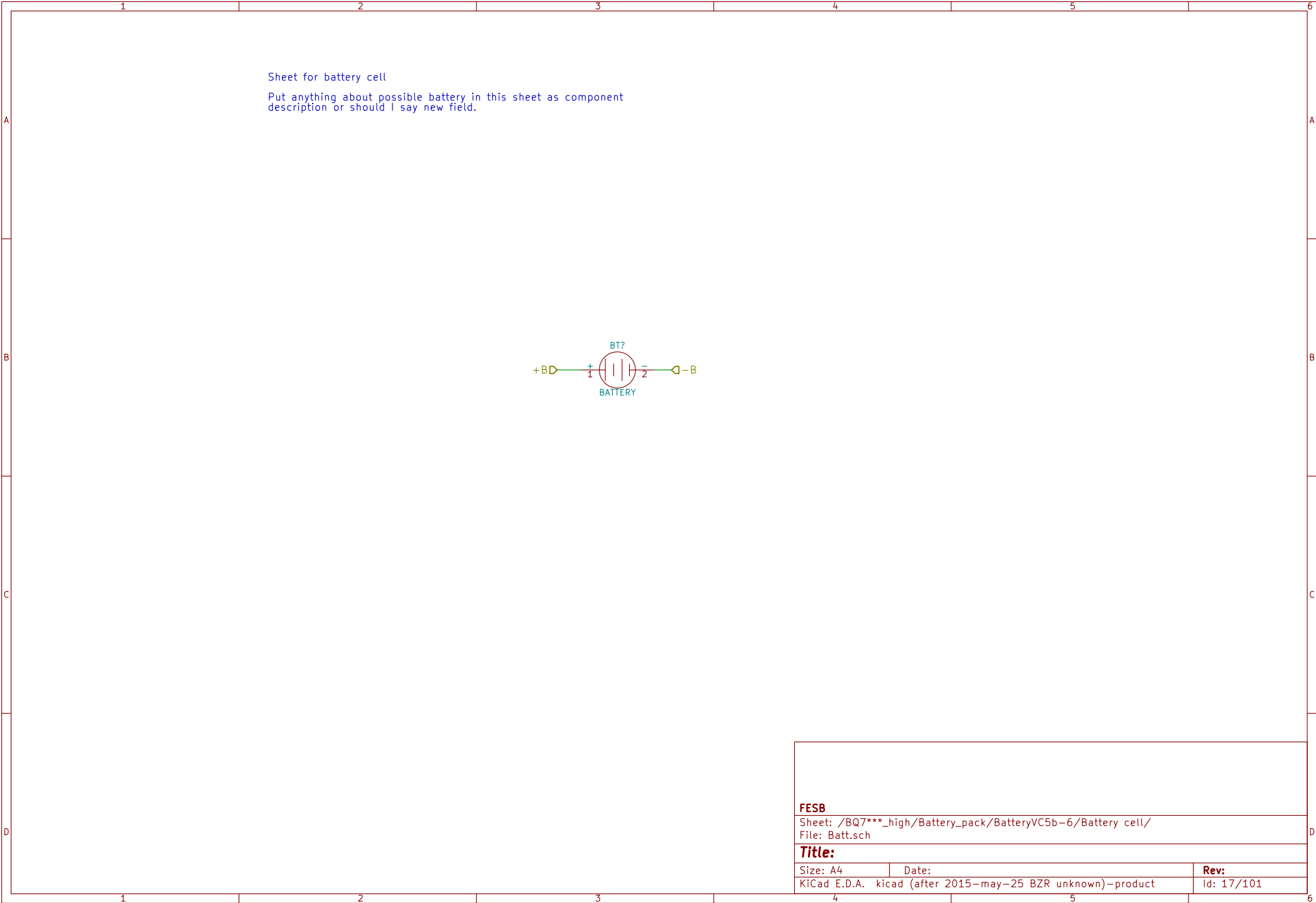
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC5b-6/
File: Batt_ball_cap.sch

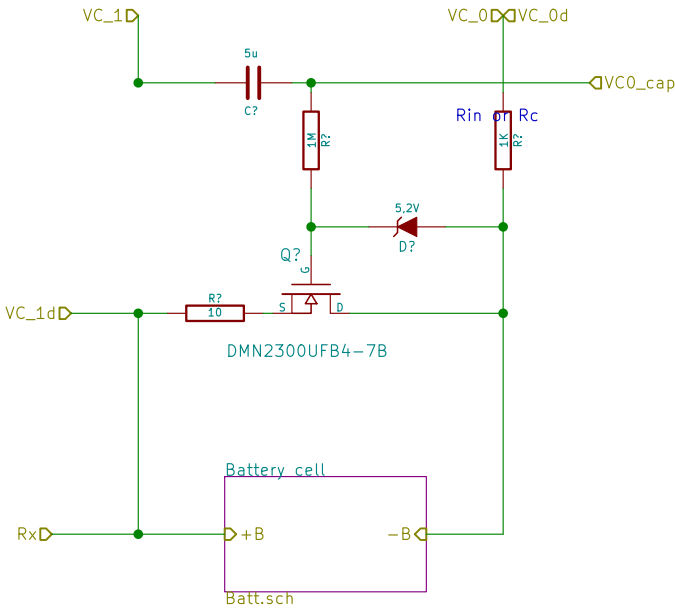
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

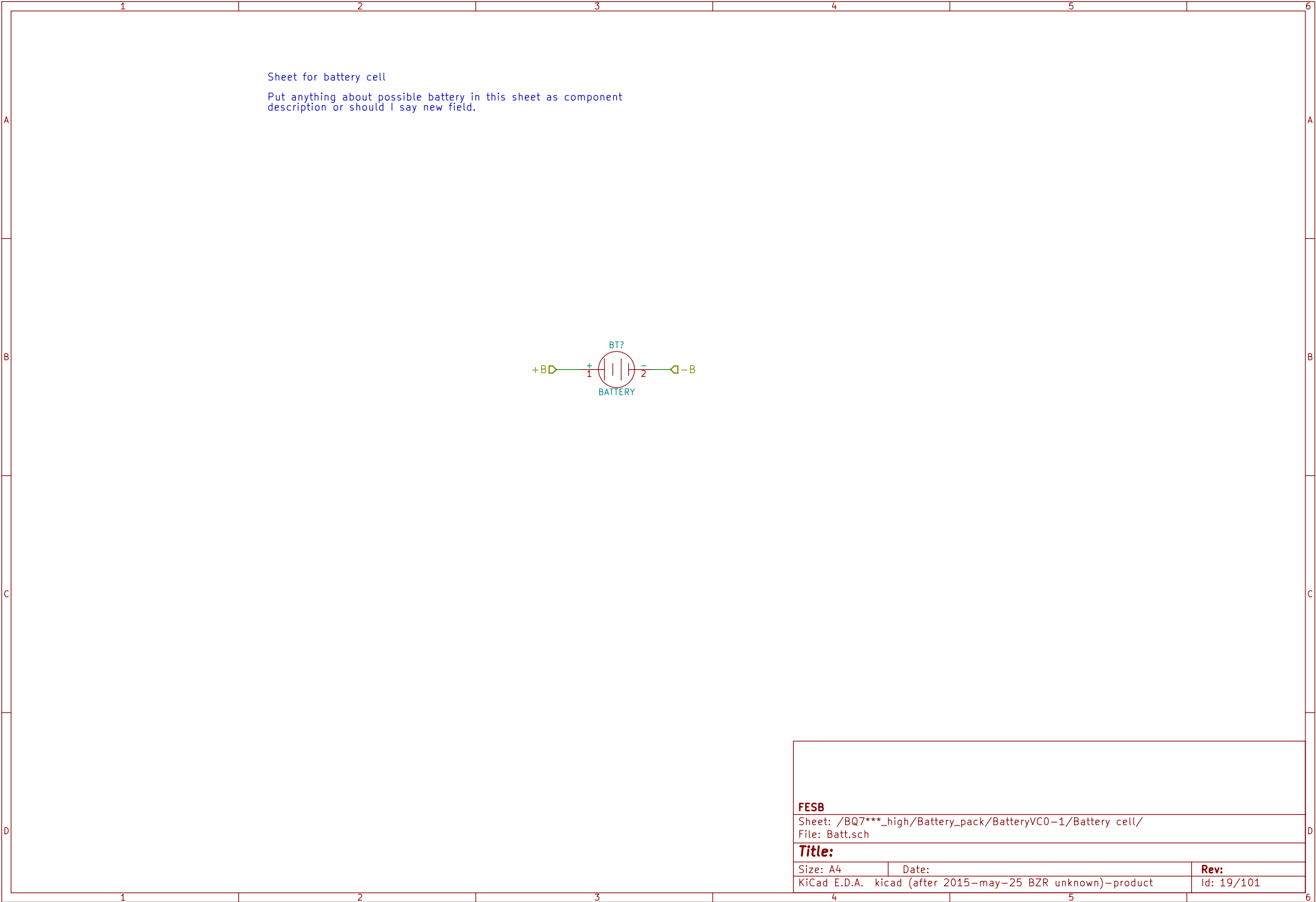
Rev: Id: 16/101



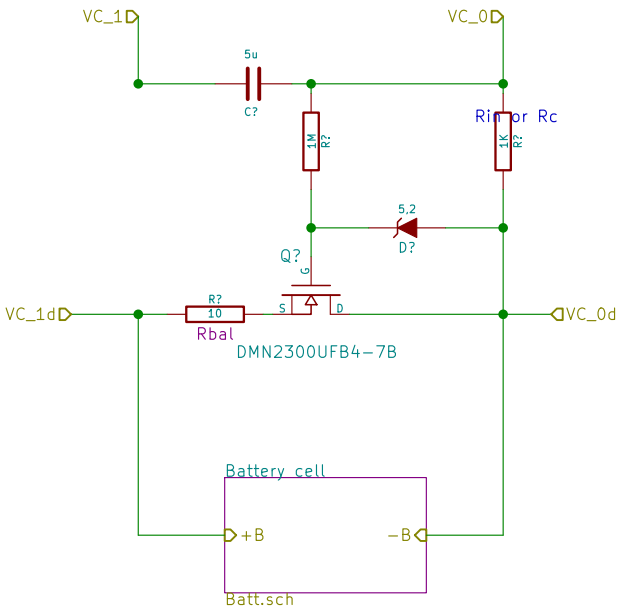
This is just mesurment and balancing circuit



FESB		
Sheet: /BQ7***_high/Battery_pack/BatteryVC0-1/		
File: Batt_ball_cap.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 18/101



This is just mesurment and balancing circuit



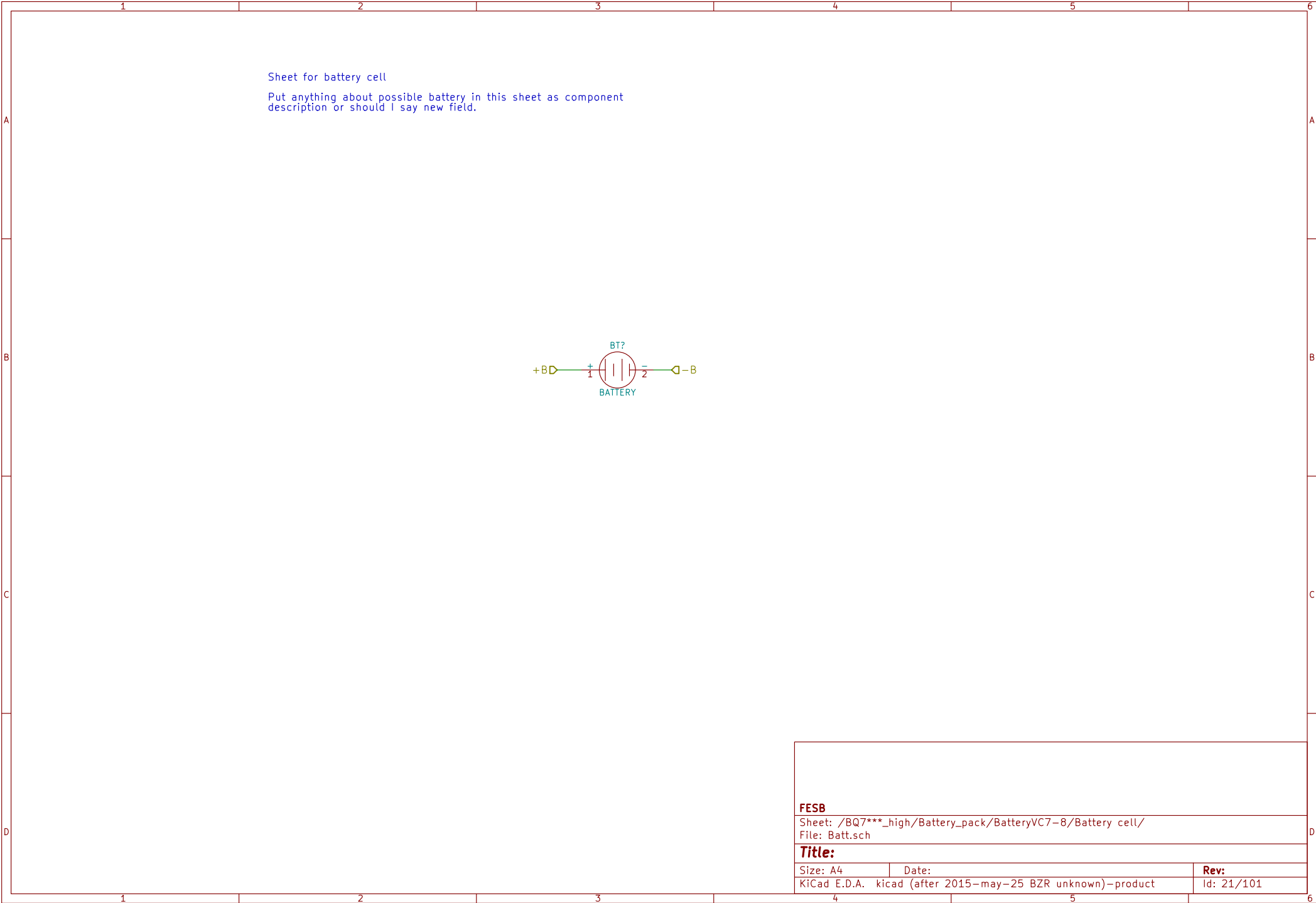
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC7-8/
File: Batt_ball.sch

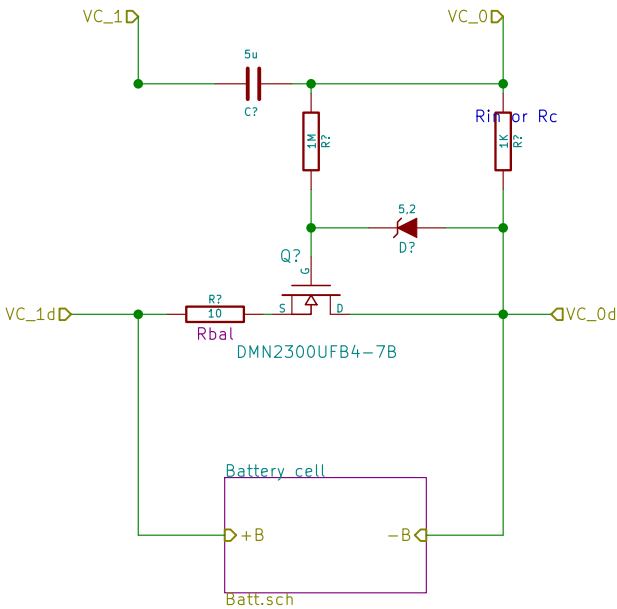
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 20/101



This is just mesurment and balancing circuit



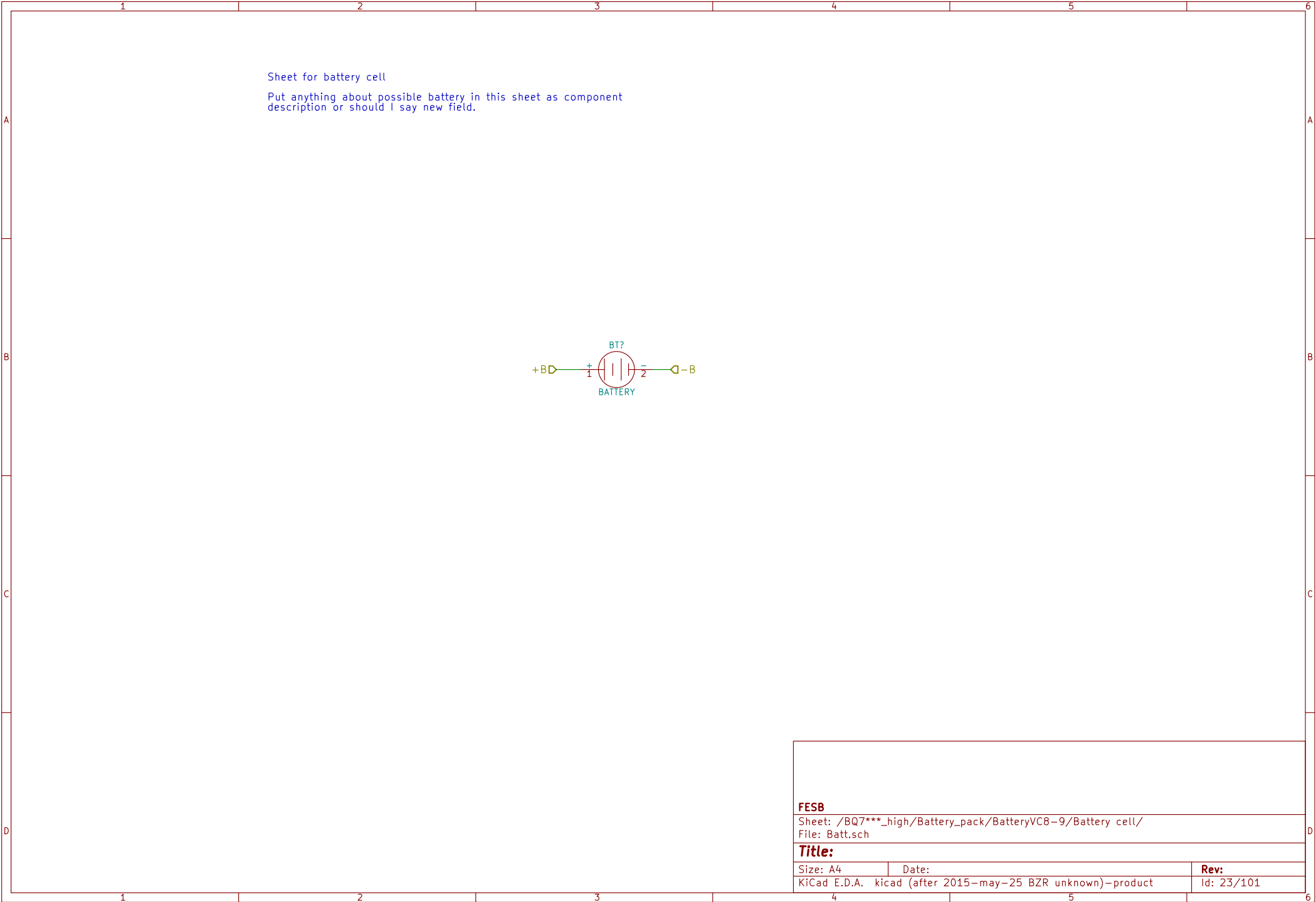
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC8-9/
File: Batt_ball.sch

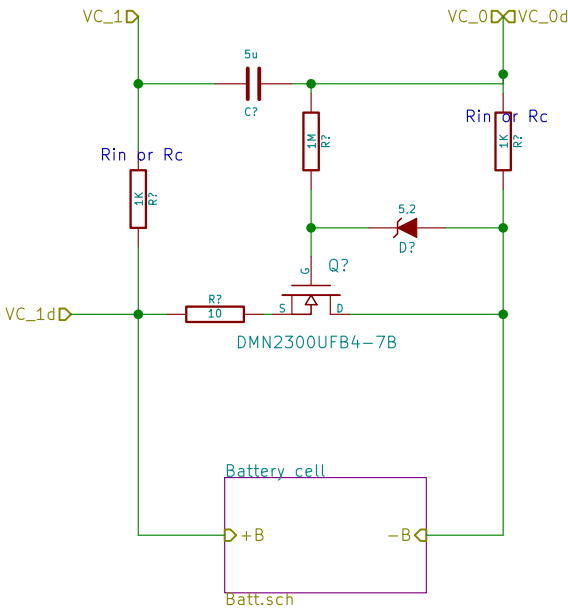
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 22/101



This is just mesurment and balancing circuit



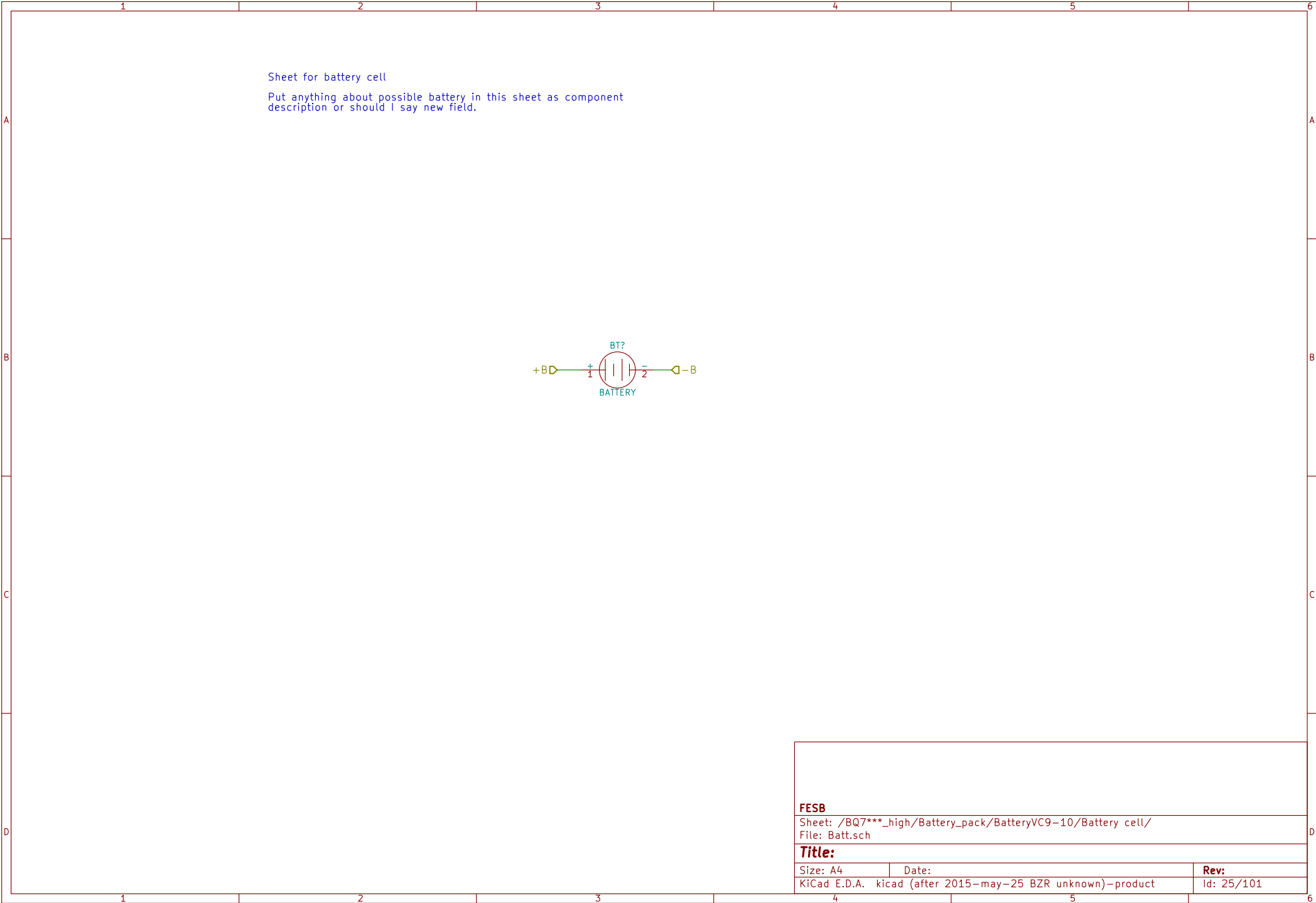
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC9-10/
File: Batt_ball_end.sch

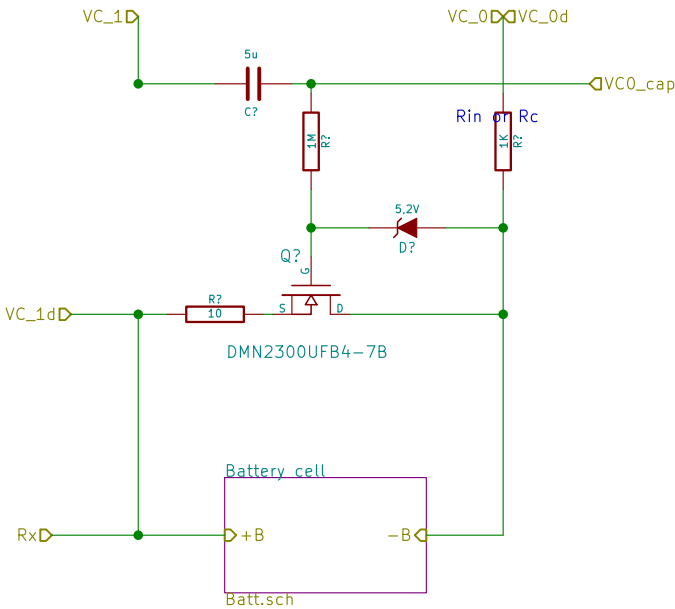
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 24/101



This is just mesurment and balancing circuit



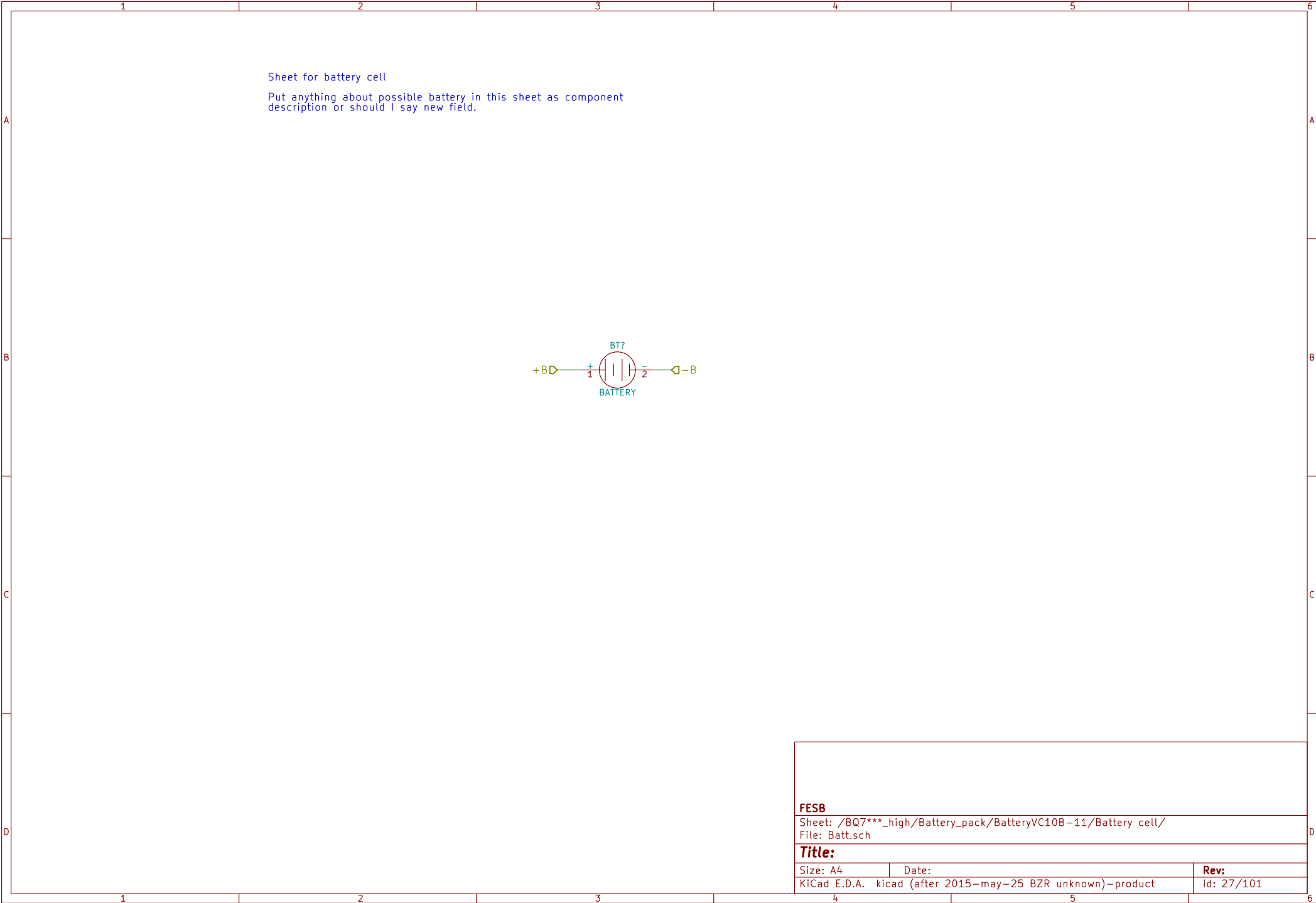
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC10B-11/
File: Batt_ball_cap.sch

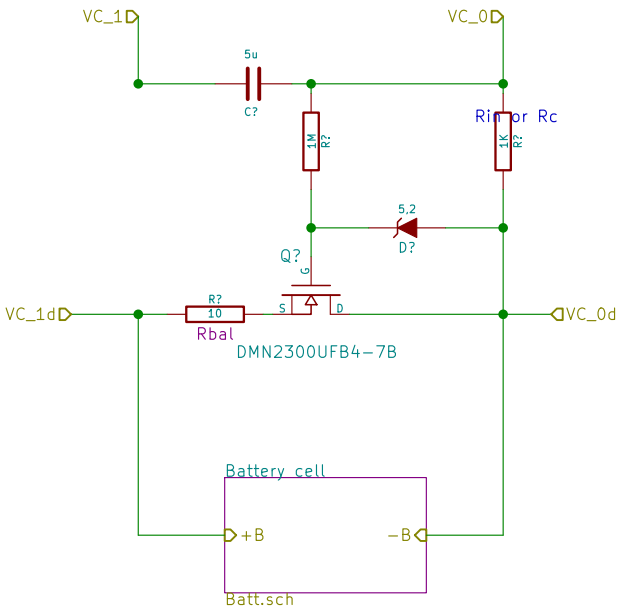
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 26/101



This is just mesurment and balancing circuit



FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC11-12/
File: Batt_ball.sch

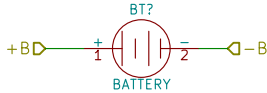
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 28/101

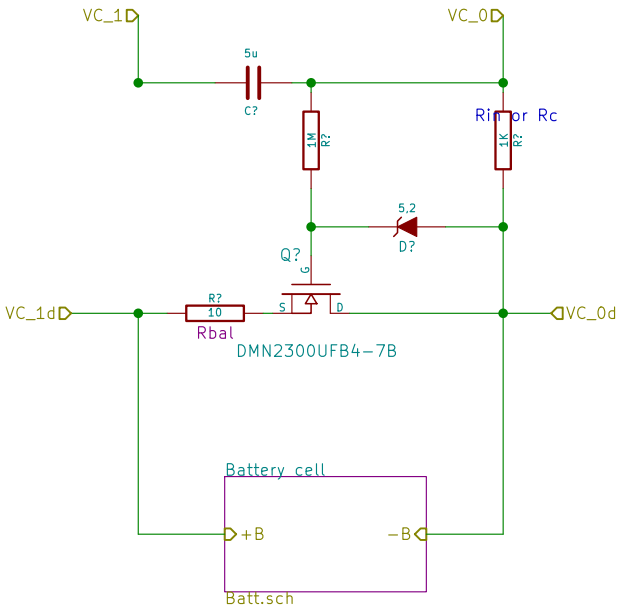
Sheet for battery cell

Put anything about possible battery in this sheet as component description or should I say new field.



FESB		
Sheet: /BQ7***_high/Battery_pack/BatteryVC11-12/Battery cell/		
File: Batt.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 29/101

This is just mesurment and balancing circuit



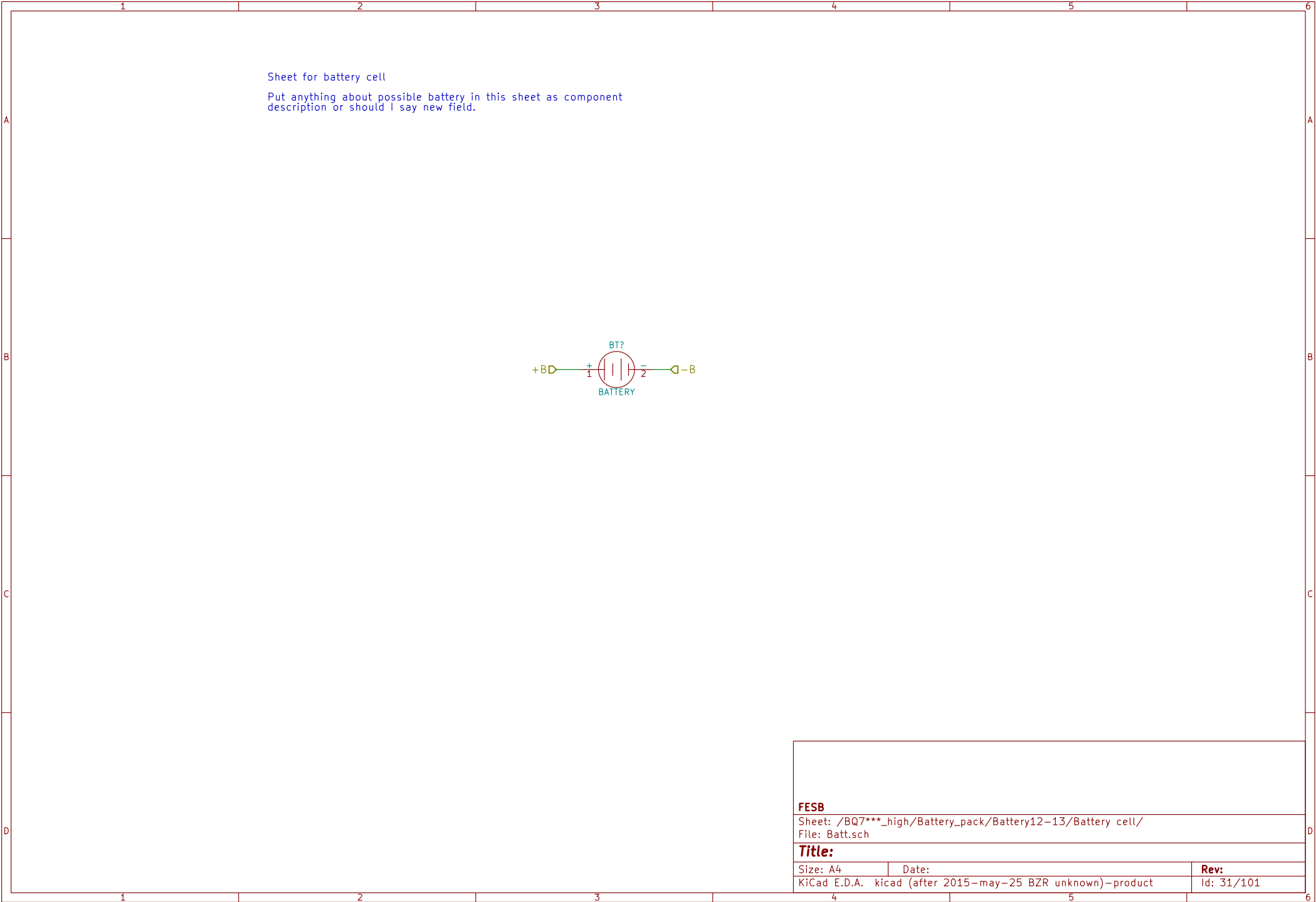
FESB

Sheet: /BQ7***_high/Battery_pack/Battery12-13/
File: Batt_ball.sch

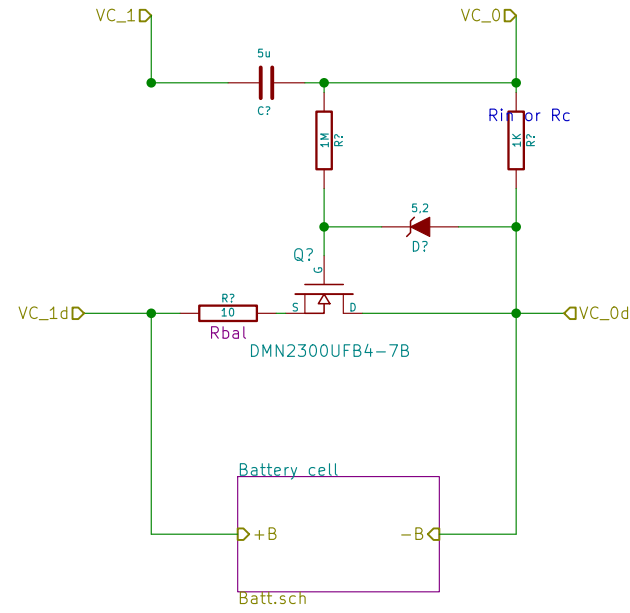
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 30/101



This is just mesurment and balancing circuit



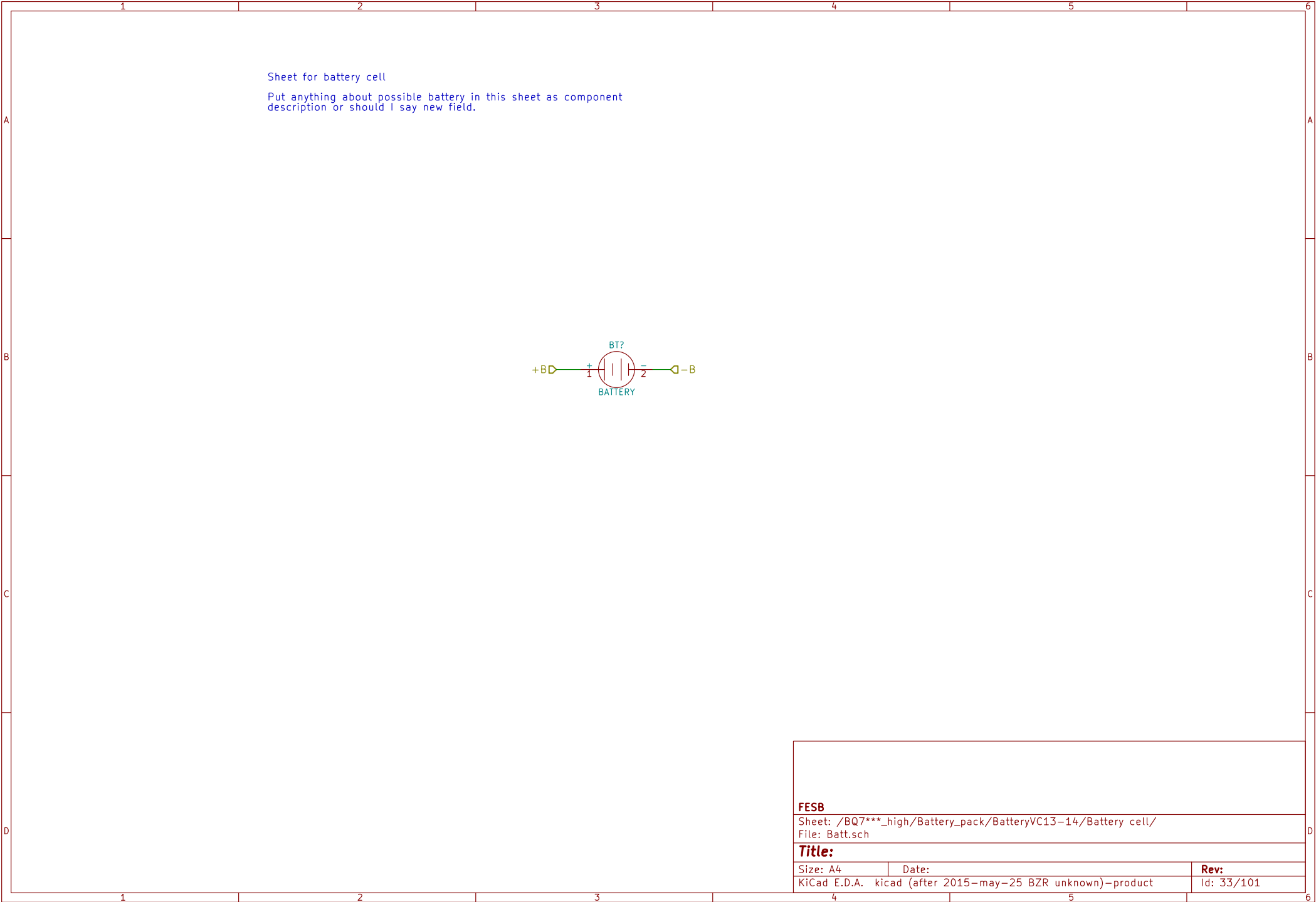
FESB

Sheet: /BQ7***_high/Battery_pack/BatteryVC13-14/
File: Batt_ball.sch

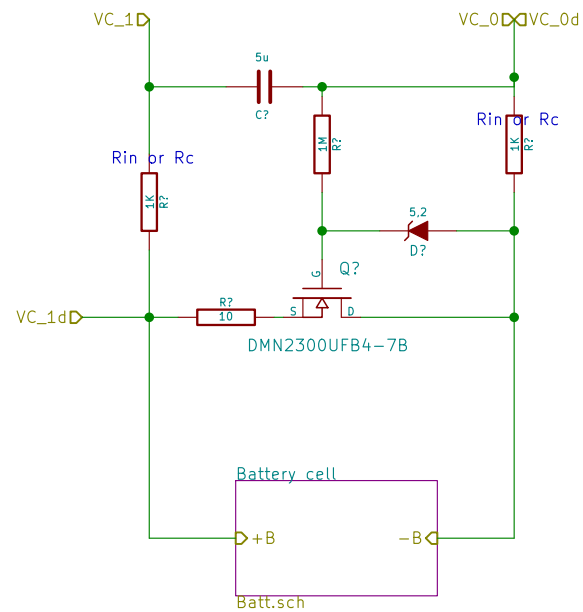
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 32/101



This is just mesurment and balancing circuit



FESB

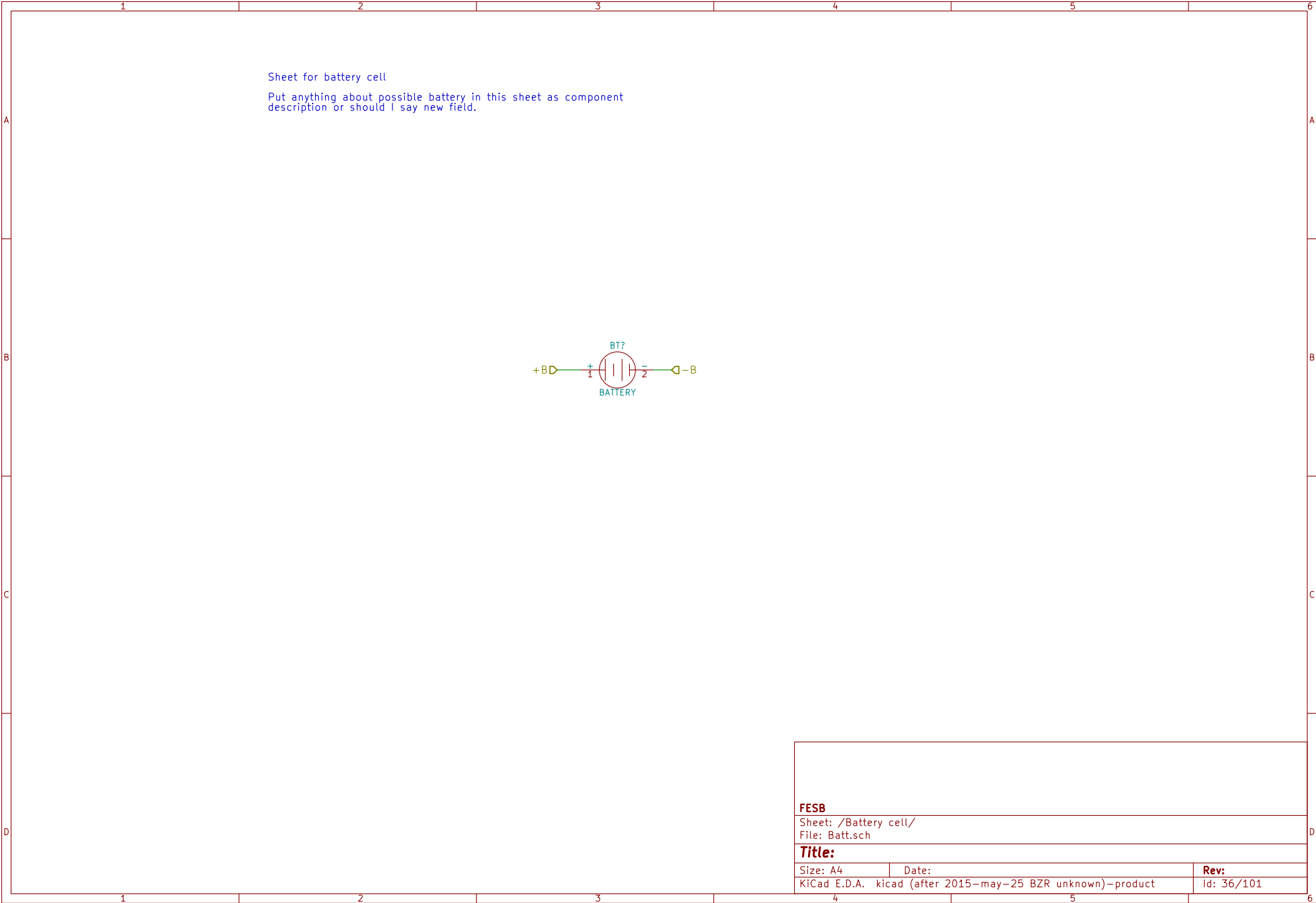
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File: Batt_ball_end.sch

Title:

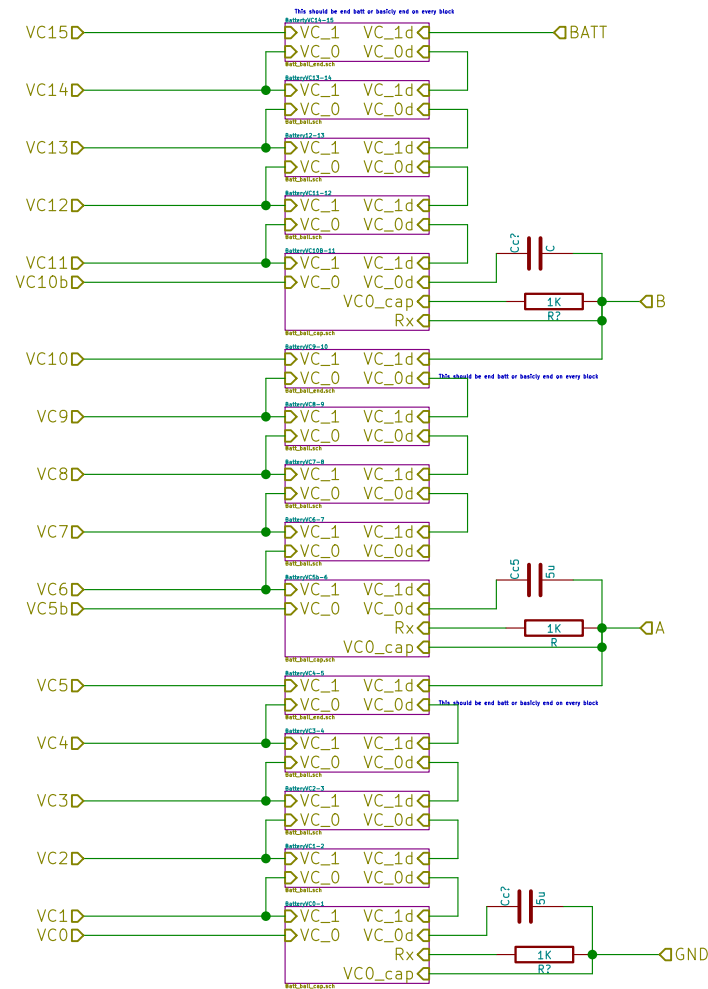
Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 34/101

	1	2	3	4	5	6
A	<div> <div>Sheet for battery cell</div> <div>Put anything about possible battery in this sheet as component description or should I say new field.</div> </div>					
B	<div> </div>					
C						
D	<div> <div>FESB</div> <div> <div>Sheet: /BQ7***_high/Battery_pack/BatteryVC14-15/Battery cell/</div> <div>File: Batt.sch</div> </div> <div> <div>Title:</div> <div> <div>Size: A4</div> <div>Date:</div> <div>Rev:</div> </div> <div> <div>KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product</div> <div>Id: 35/101</div> </div> </div> </div>					
	1	2	3	4	5	6



Mess bellow. Batt_ball circuit are sharing every pin except last and first
 So because they are sharing pin they are sharing a Rin so only
 last should have it.(IN every block).



FESB

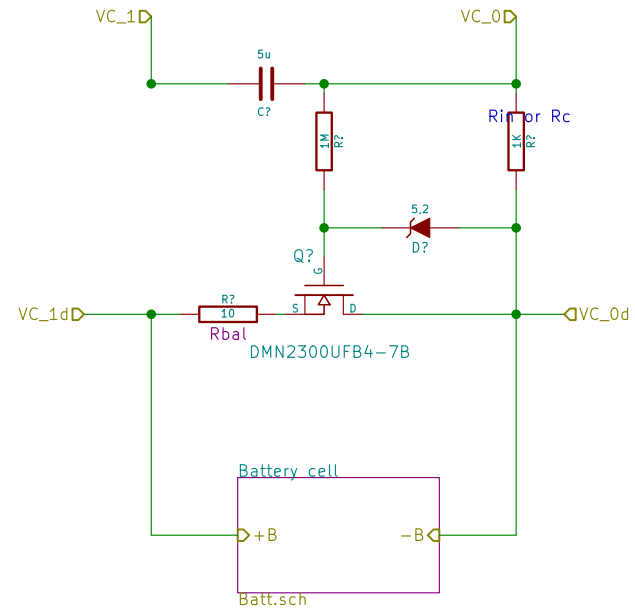
Sheet: /Battery_pack/
 File: Batt_pack.sch

Title: Battery Pack

Size: A4 Date:
 KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
 Id: 37/101

This is just mesurment and balancing circuit



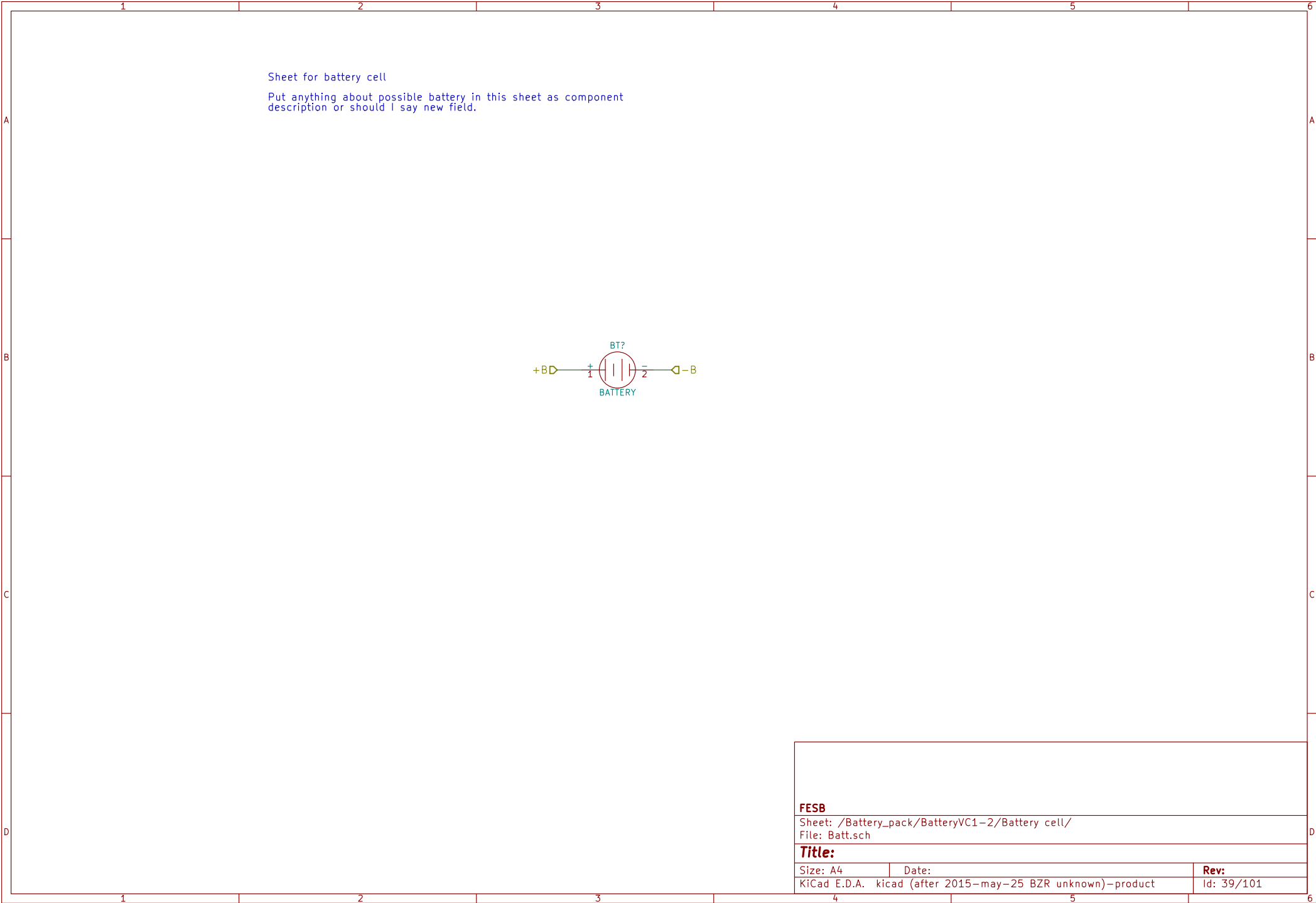
FESB

Sheet: /Battery_pack/BatteryVC1-2/
File: Batt_ball.sch

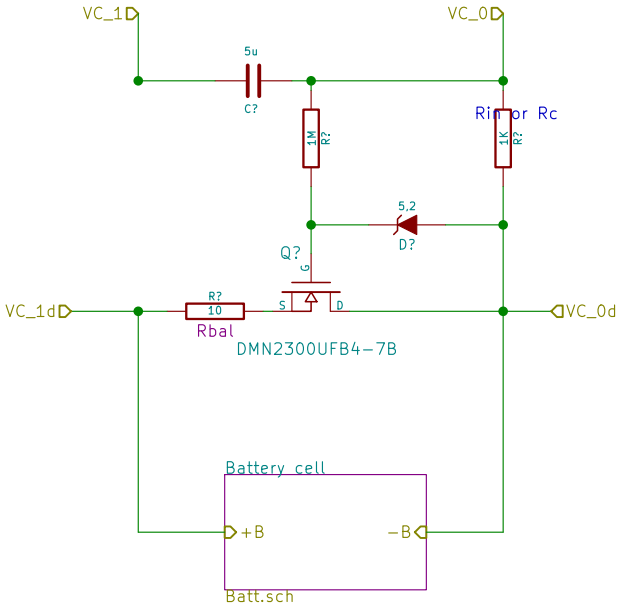
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 38/101



This is just mesurment and balancing circuit



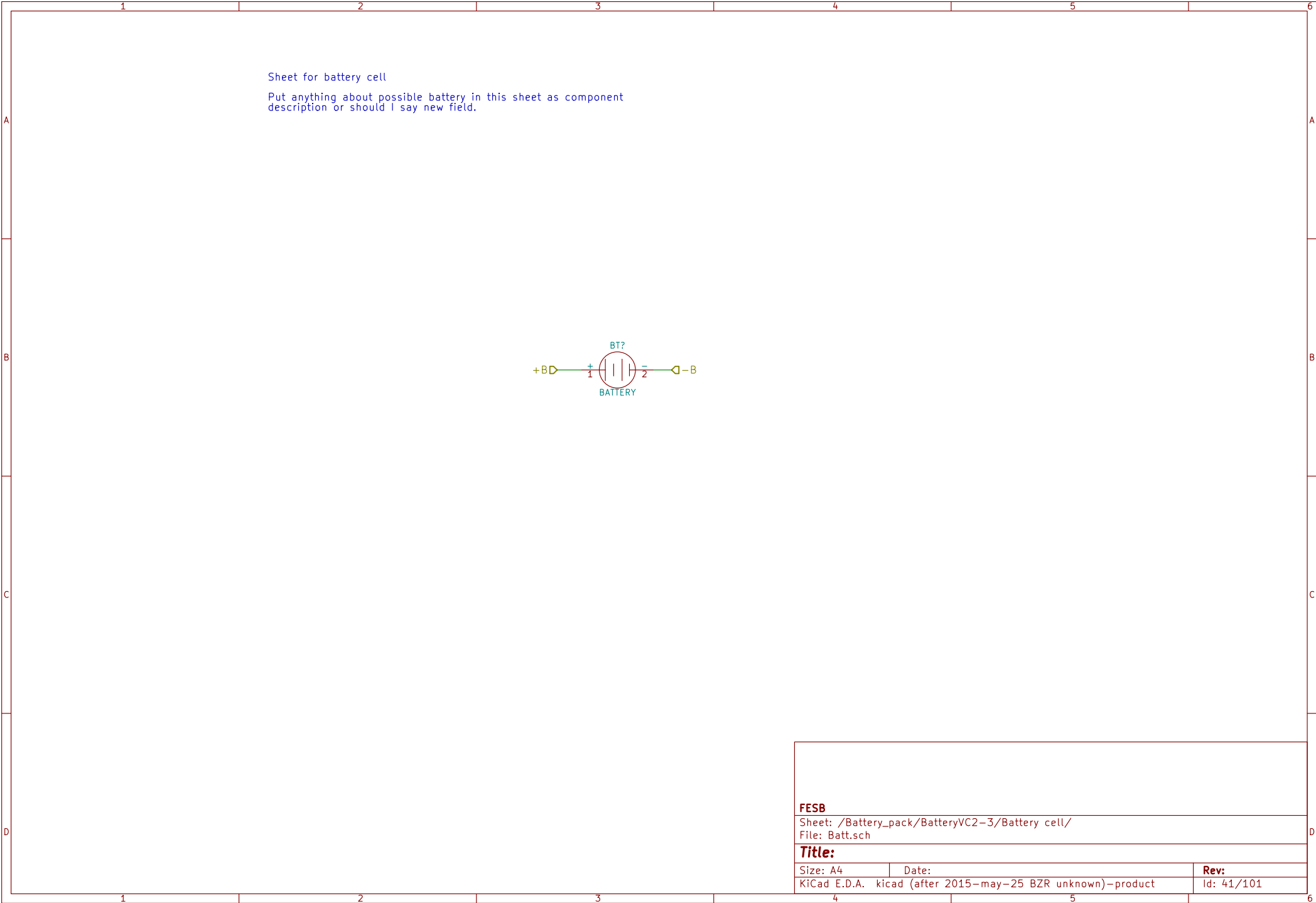
FESB

Sheet: /Battery_pack/BatteryVC2-3/
File: Batt_ball.sch

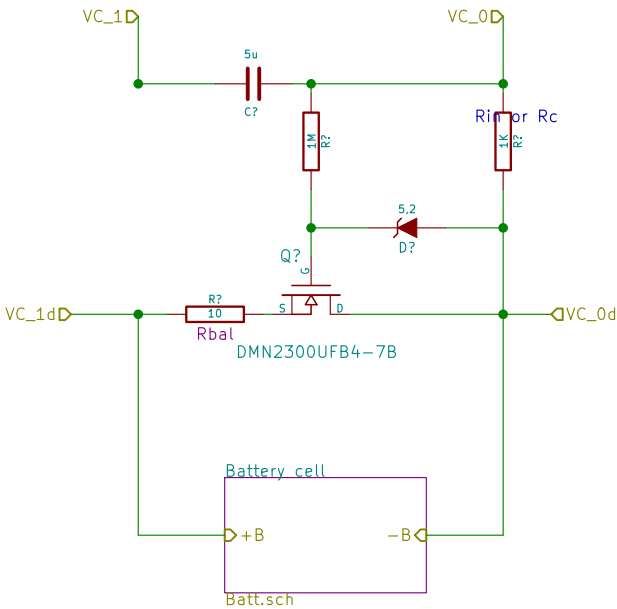
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 40/101



This is just mesurment and balancing circuit



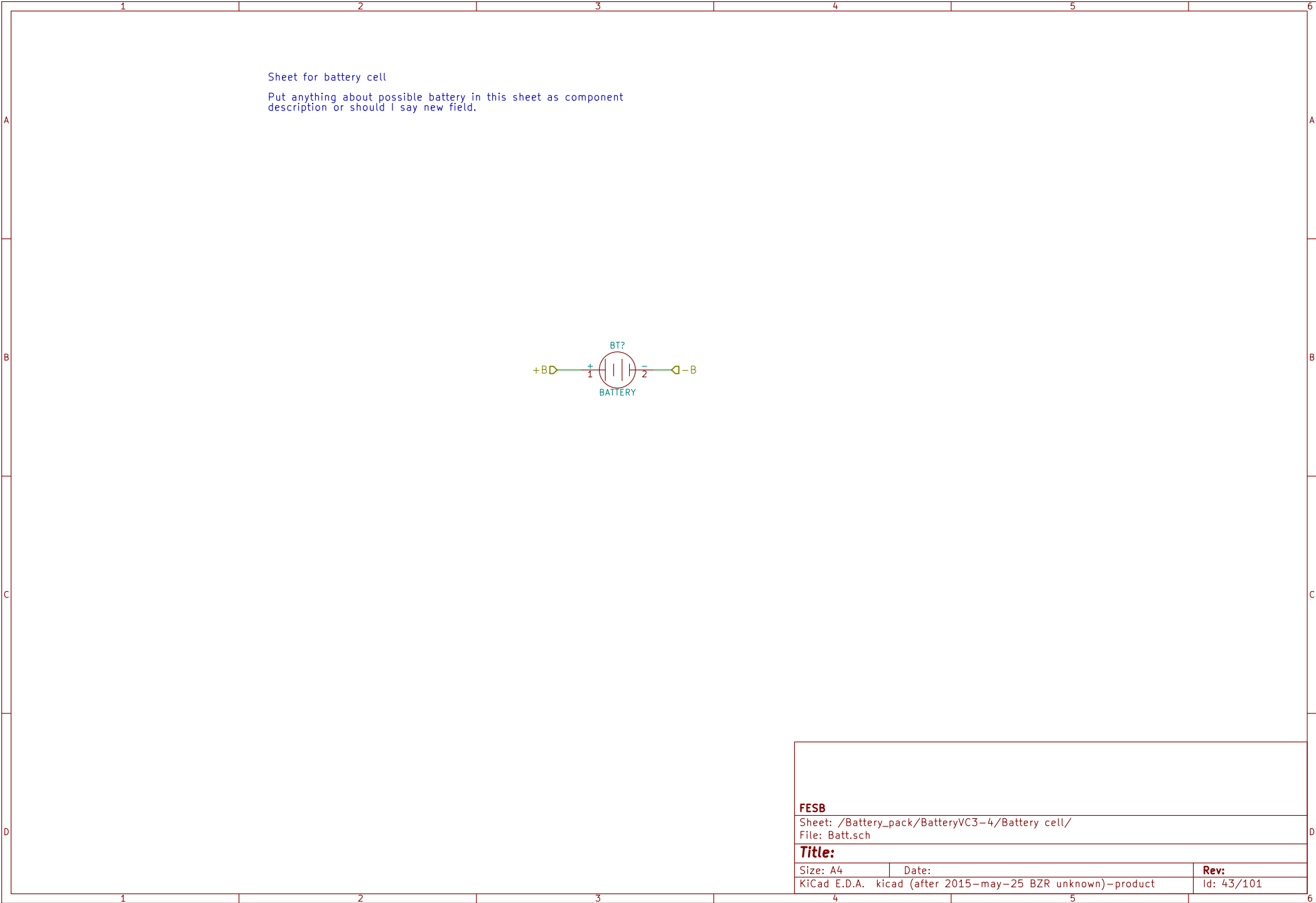
FESB

Sheet: /Battery_pack/BatteryVC3-4/
File: Batt_ball.sch

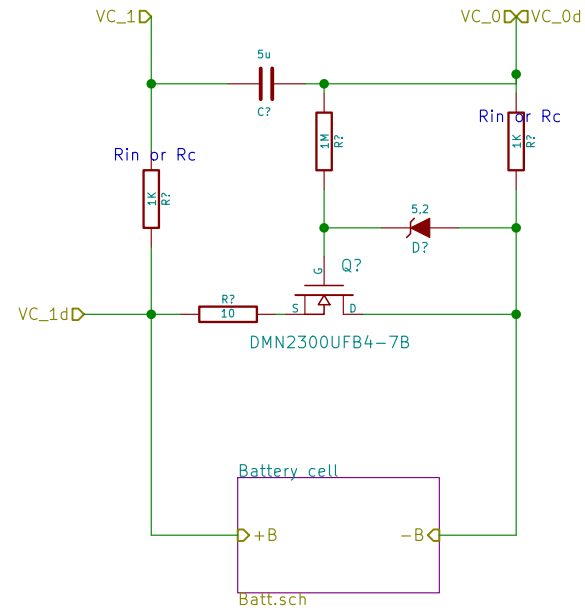
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 42/101



This is just mesurment and balancing circuit



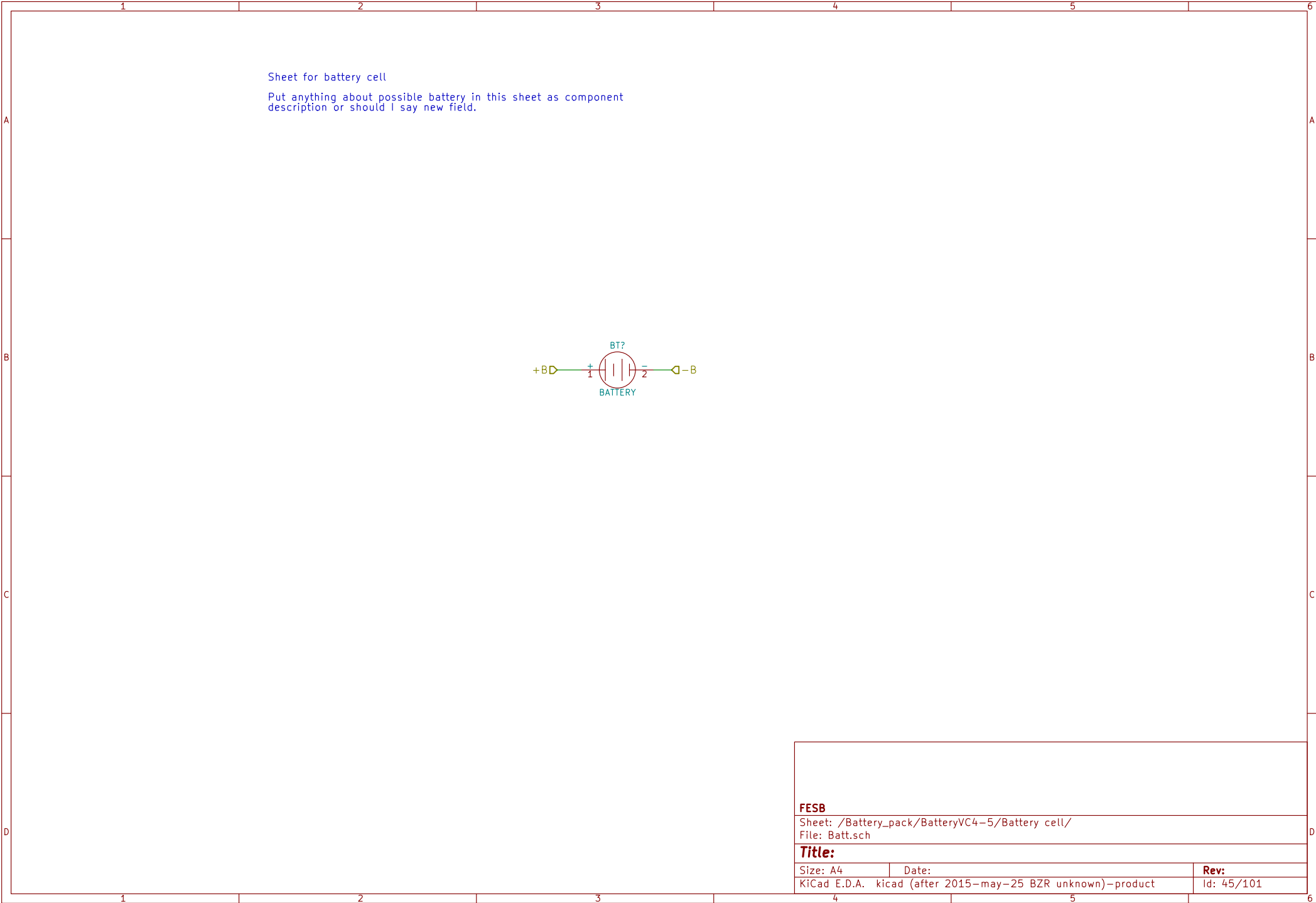
FESB

Sheet: /Battery_pack/BatteryVC4-5/
File: Batt_ball_end.sch

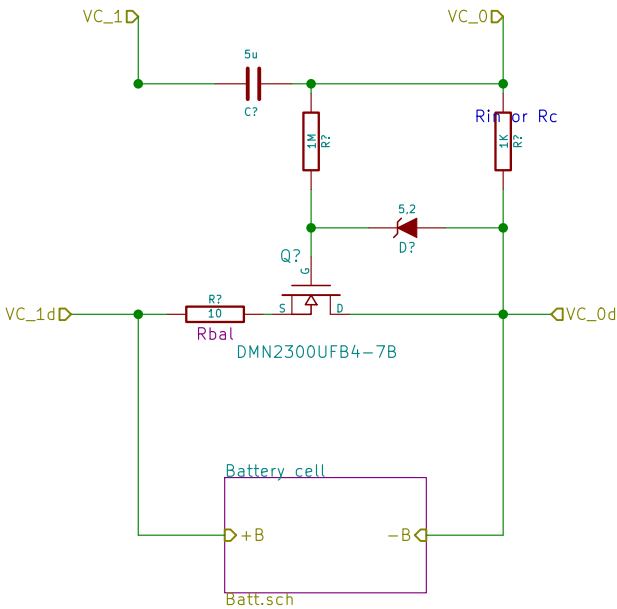
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 44/101



This is just mesurment and balancing circuit



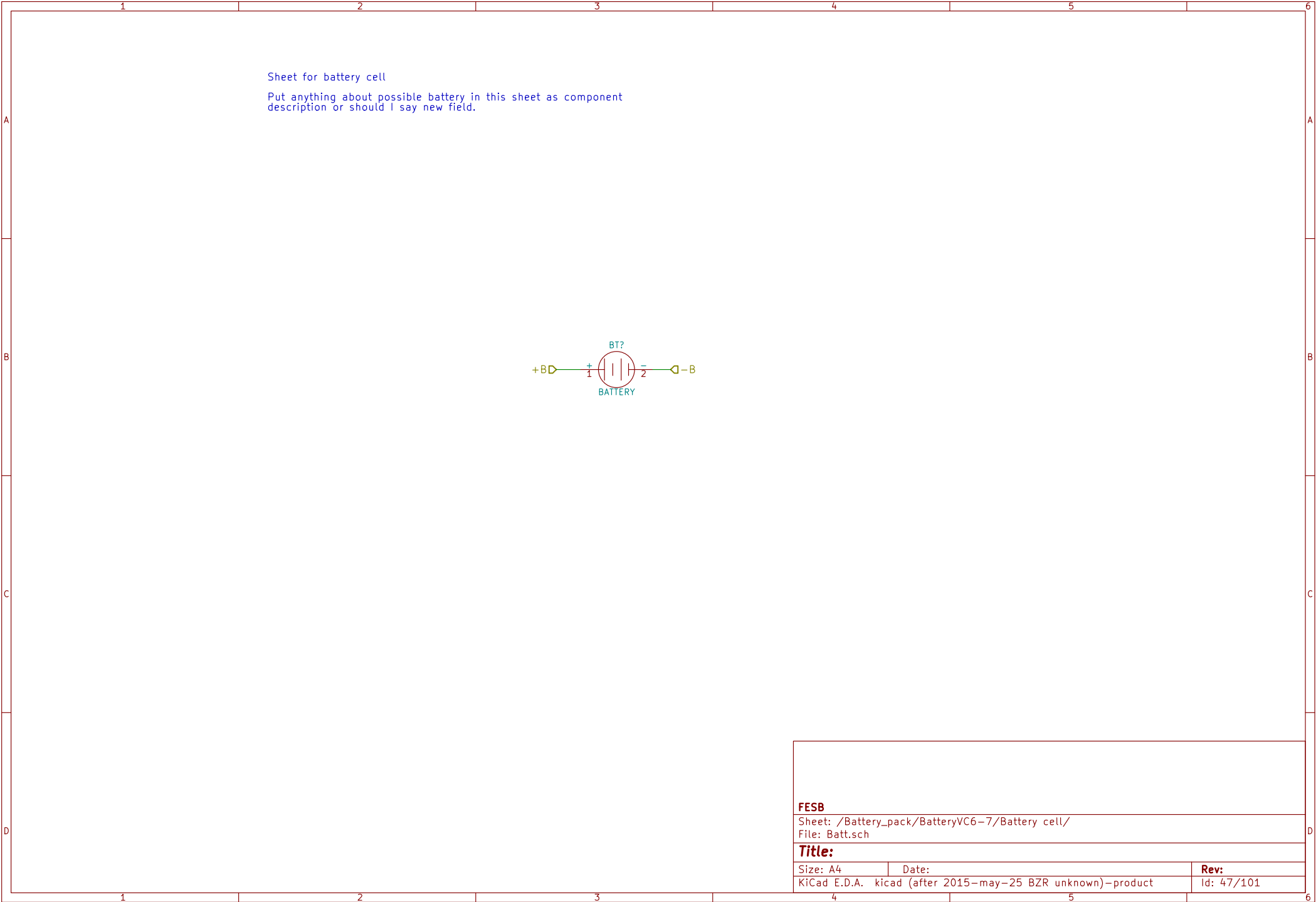
FESB

Sheet: /Battery_pack/BatteryVC6-7/
File: Batt_ball.sch

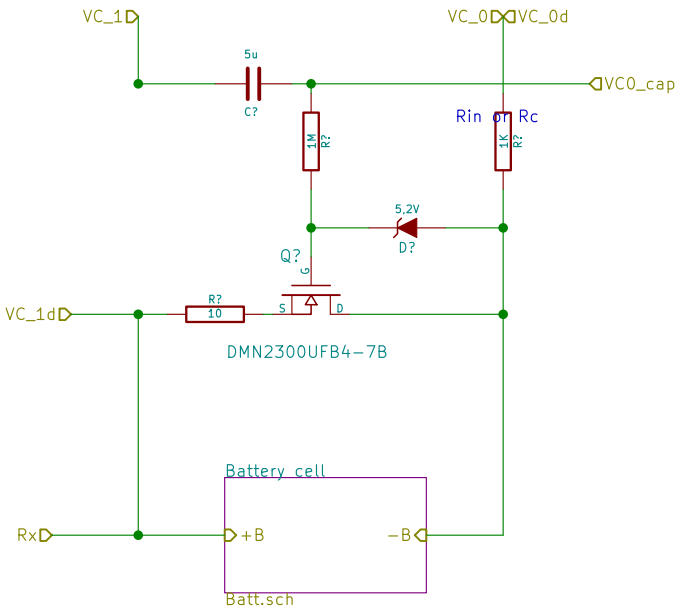
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 46/101



This is just mesurment and balancing circuit



FESB

Sheet: /Battery_pack/BatteryVC5b-6/
File: Batt_ball_cap.sch

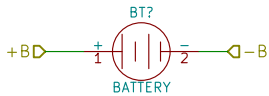
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 48/101

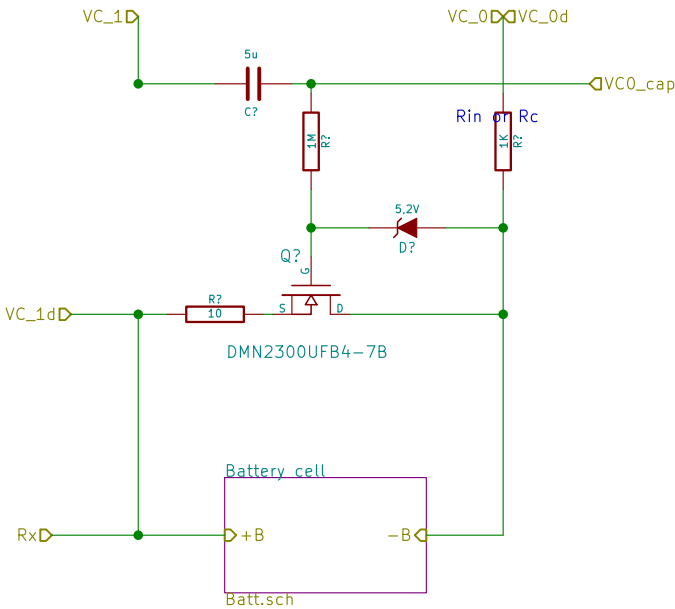
Sheet for battery cell

Put anything about possible battery in this sheet as component description or should I say new field.



FESB		
Sheet: /Battery_pack/BatteryVC5b-6/Battery cell/		
File: Batt.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 49/101

This is just mesurment and balancing circuit



FESB

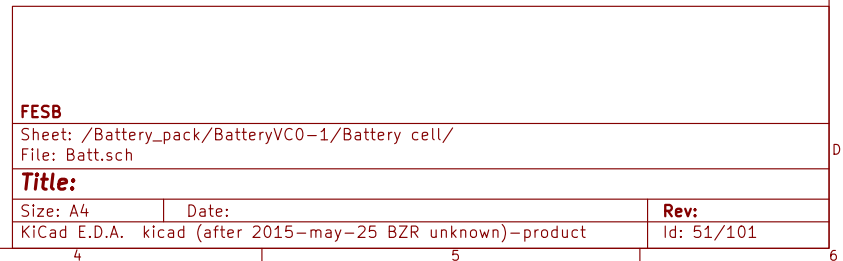
Sheet: /Battery_pack/BatteryVC0-1/
File: Batt_ball_cap.sch

Title:

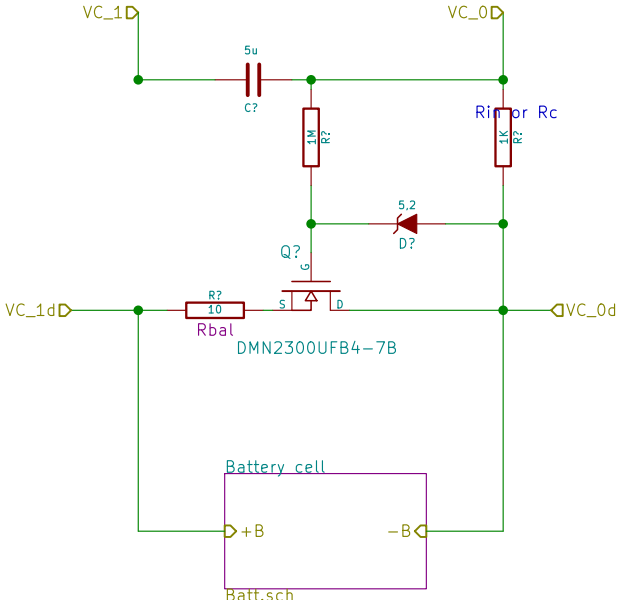
Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 50/101

Put anything about possible battery in this sheet as component description or should I say new field.



This is just measurement and balancing circuit



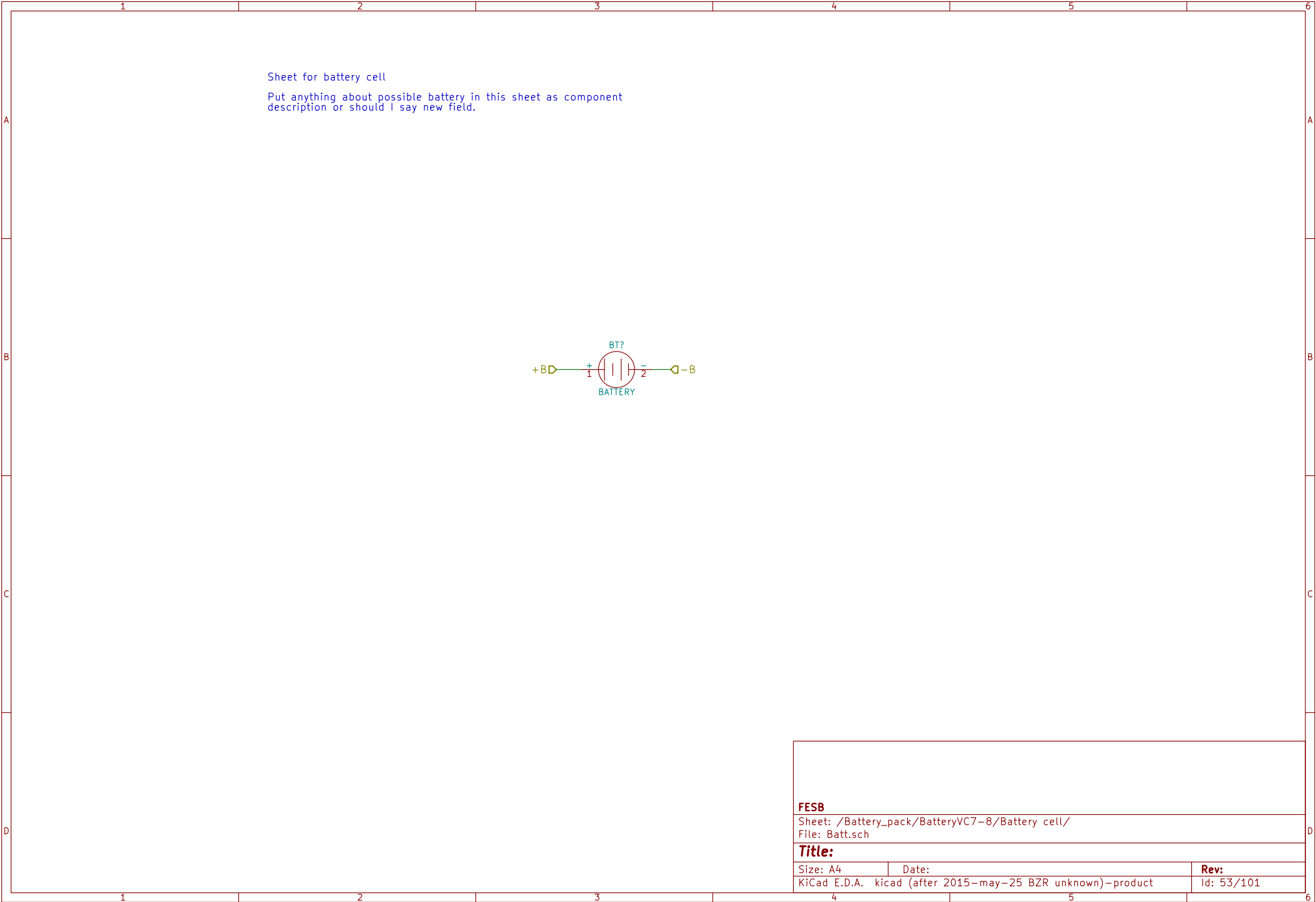
FESB

Sheet: /Battery_pack/BatteryVC7-8/
File: Batt_ball.sch

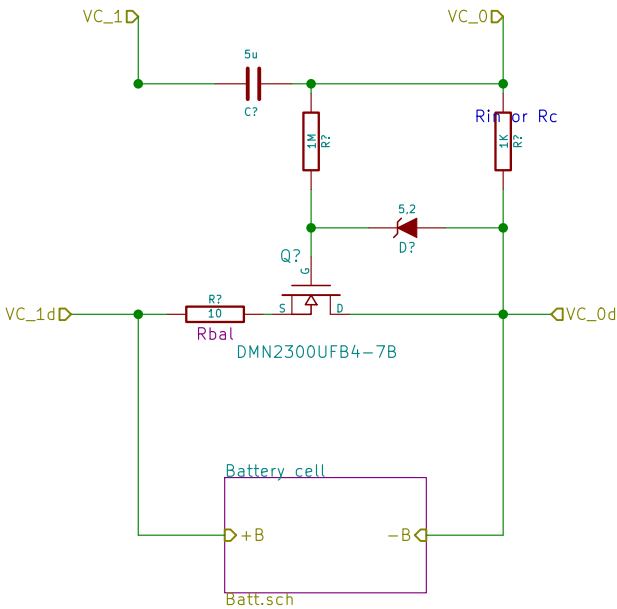
Title:

Size: A4	Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product	

Rev:
Id: 52/101



This is just mesurment and balancing circuit



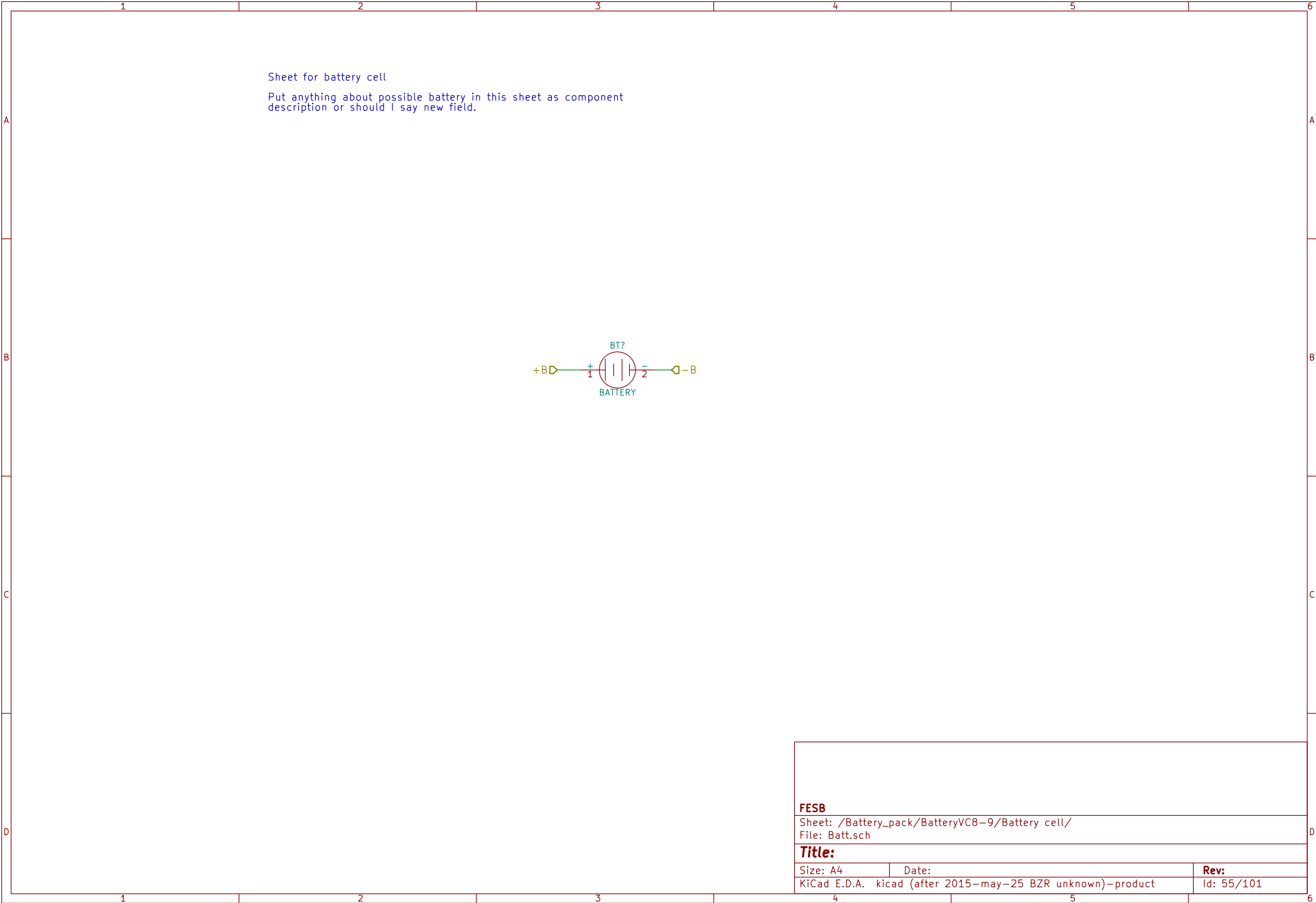
FESB

Sheet: /Battery_pack/BatteryVC8-9/
File: Batt_ball.sch

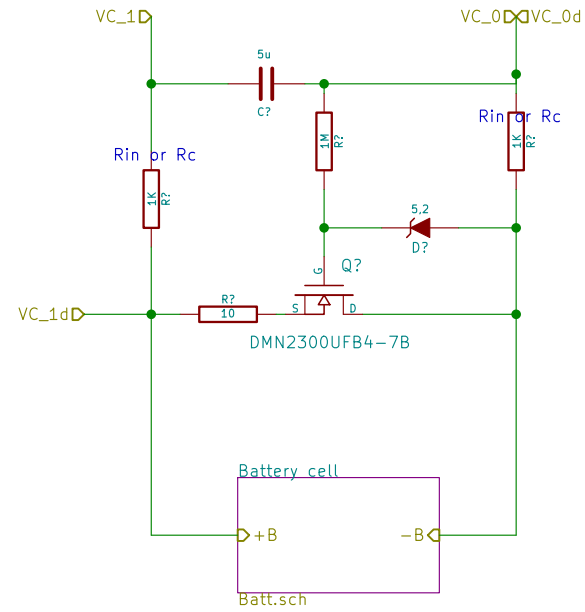
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 54/101



This is just mesurment and balancing circuit



FESB

Sheet: /Battery_pack/BatteryVC9-10/
File: Batt_ball_end.sch

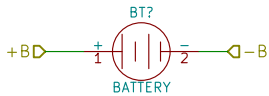
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 56/101

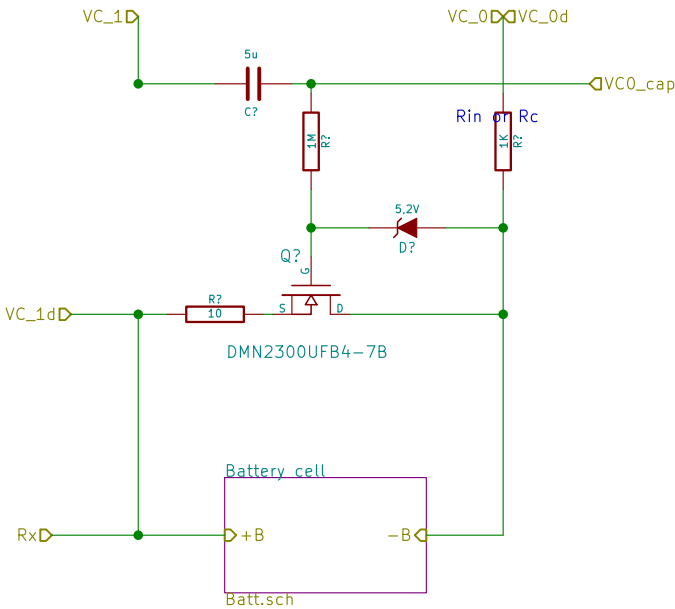
Sheet for battery cell

Put anything about possible battery in this sheet as component description or should I say new field.



FESB		
Sheet: /Battery_pack/BatteryVC9-10/Battery cell/		
File: Batt.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 57/101

This is just mesurment and balancing circuit



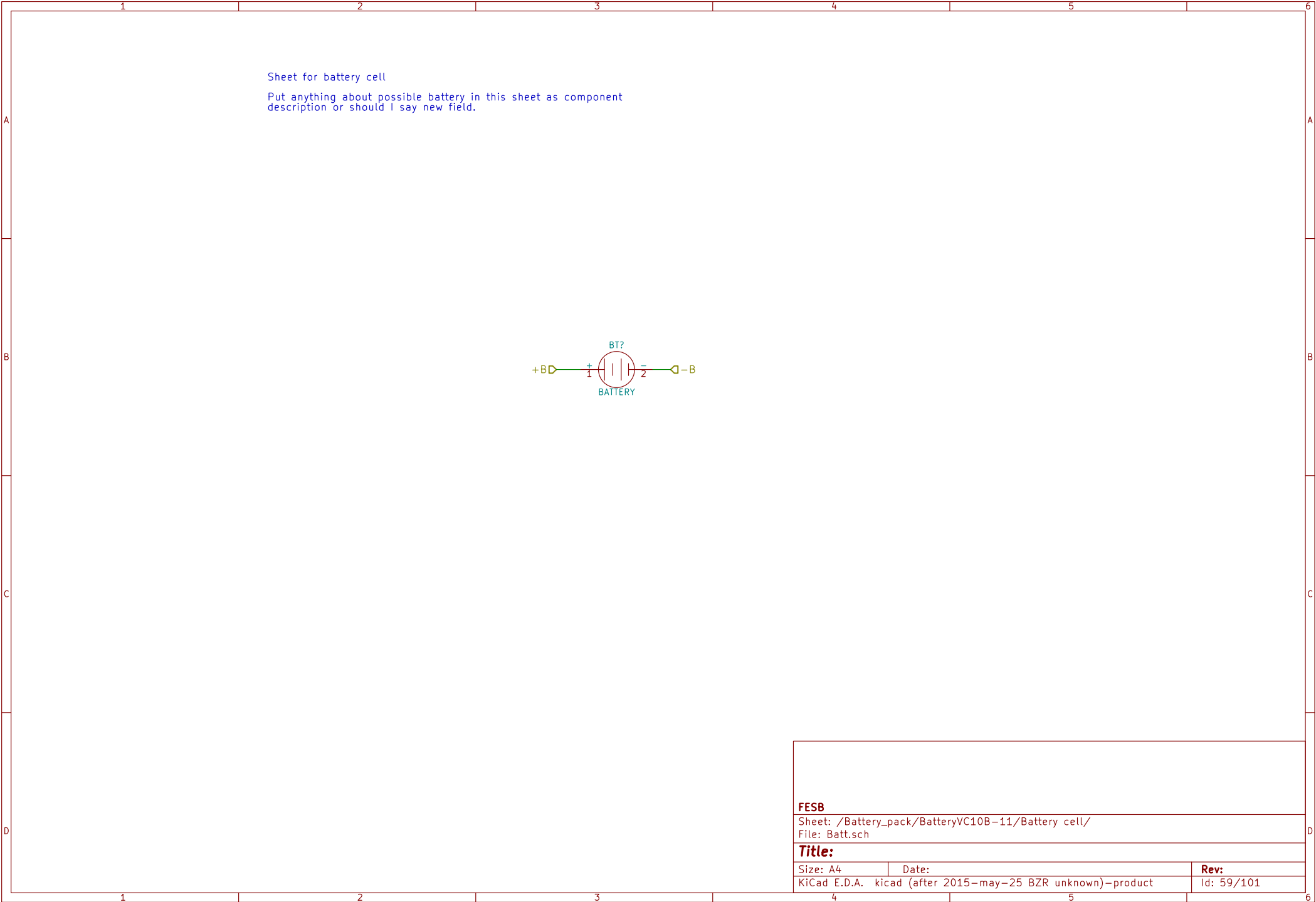
FESB

Sheet: /Battery_pack/BatteryVC10B-11/
File: Batt_ball_cap.sch

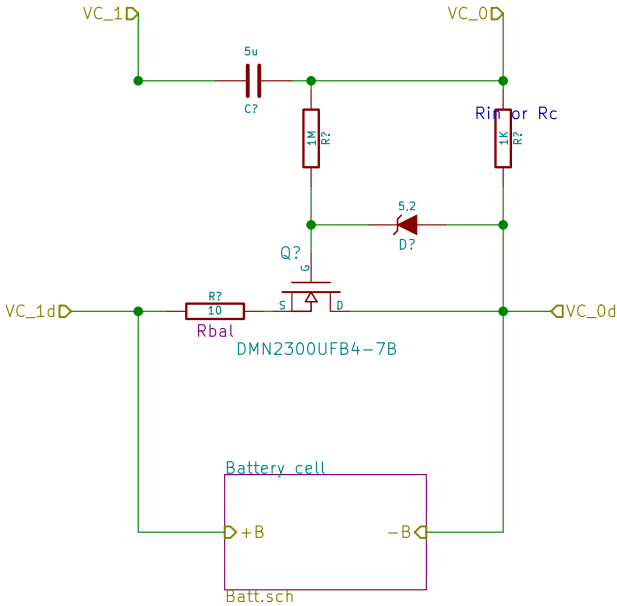
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 58/101



This is just mesurment and balancing circuit



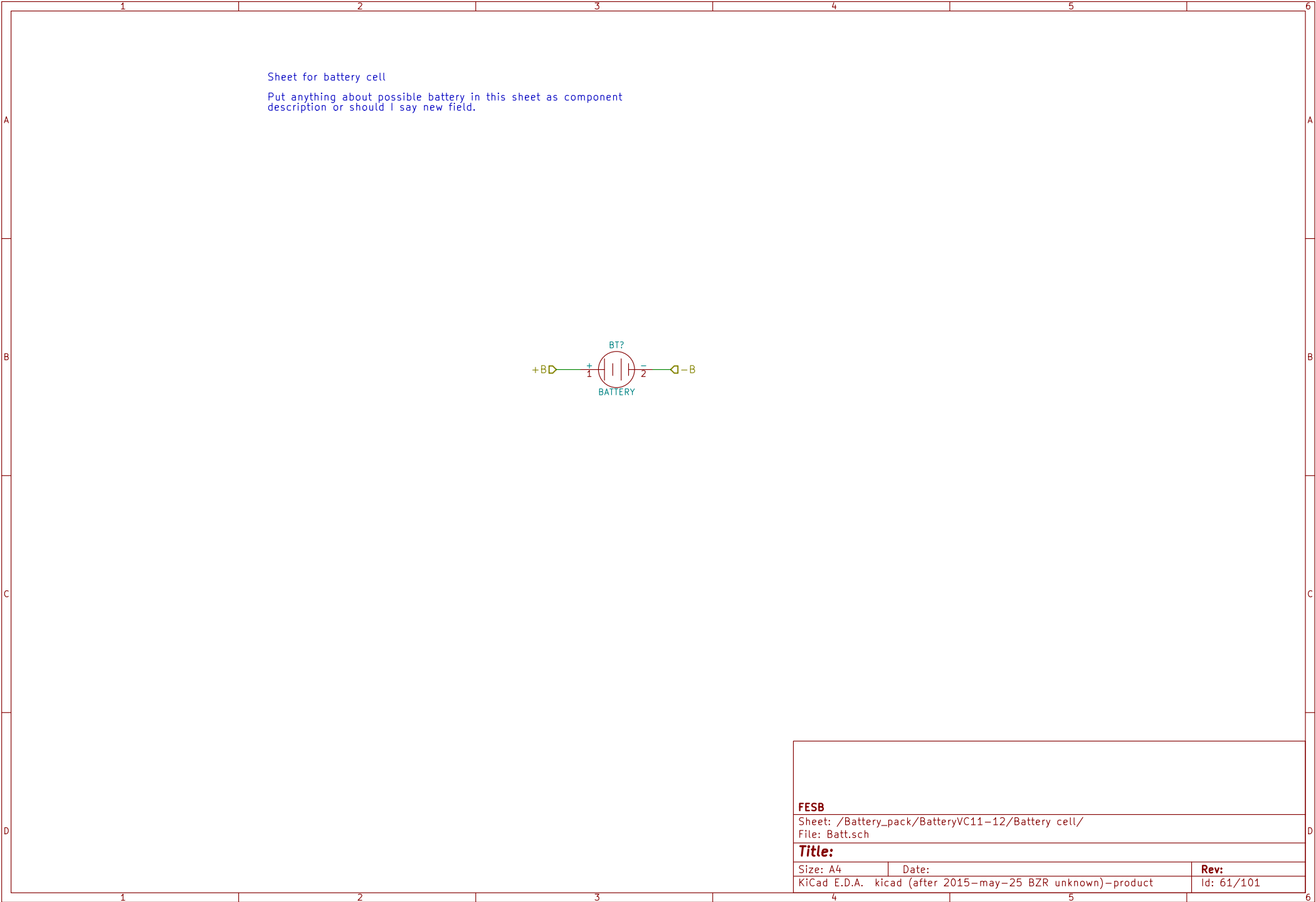
FESB

Sheet: /Battery_pack/BatteryVC11-12/
File: Batt_ball.sch

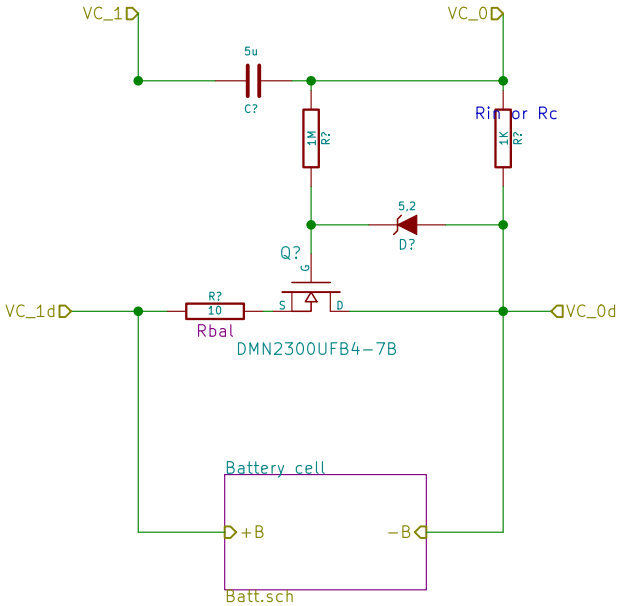
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 60/101



This is just mesurment and balancing circuit



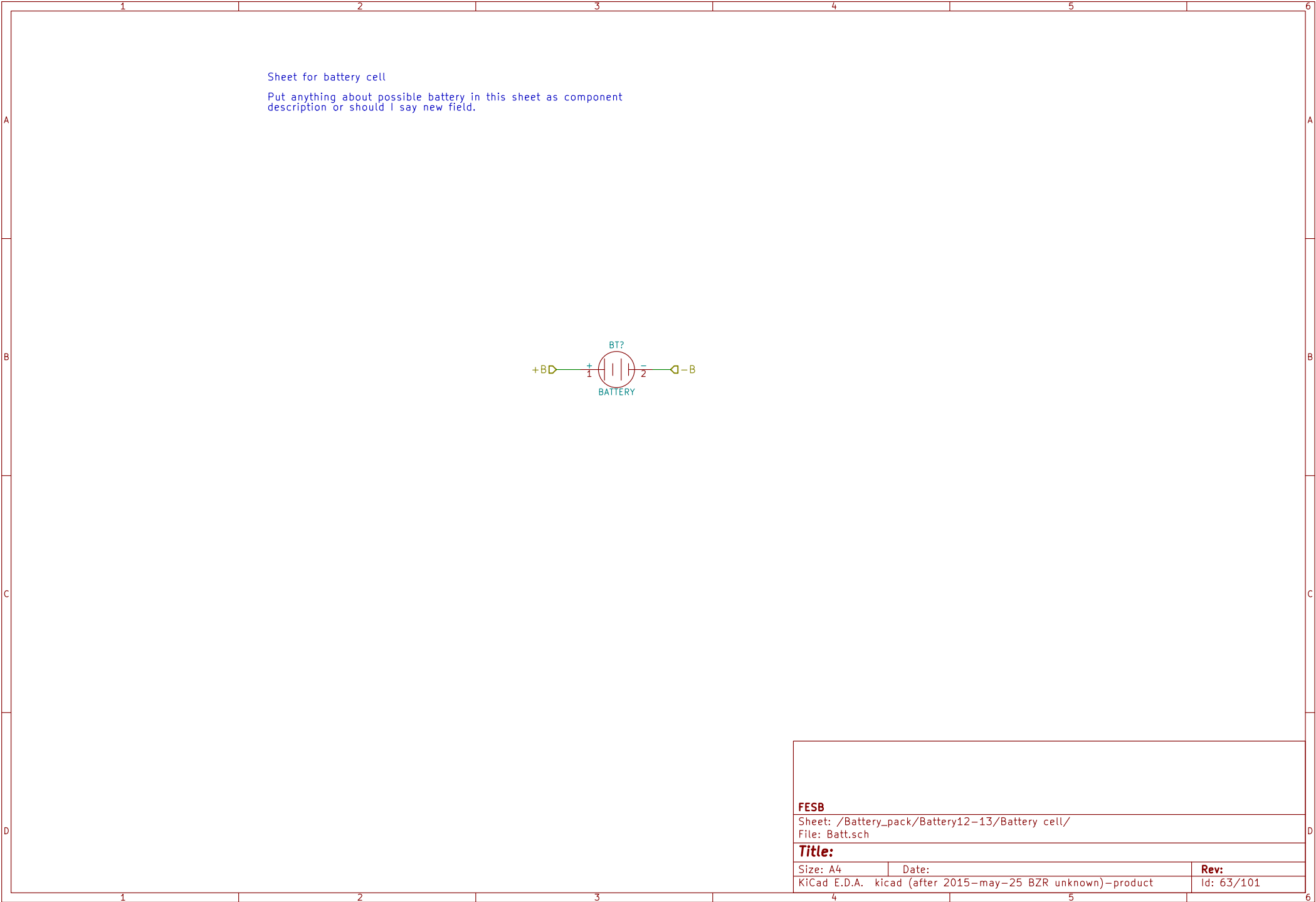
FESB

Sheet: /Battery_pack/Battery12-13/
File: Batt_ball.sch

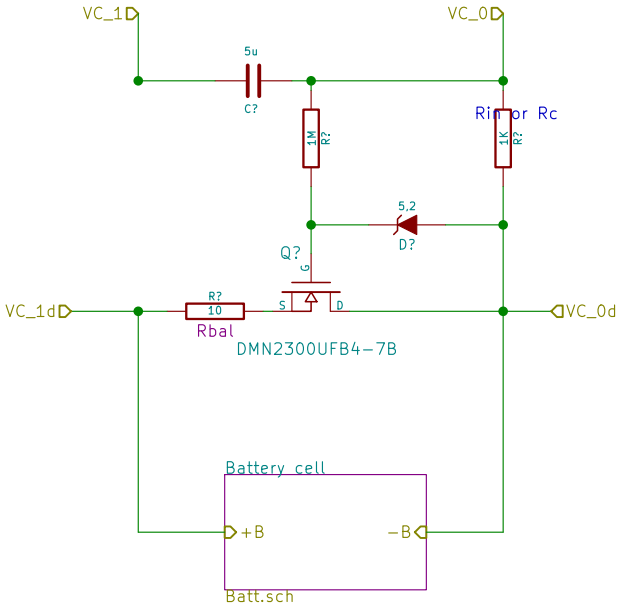
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 62/101



This is just mesurment and balancing circuit



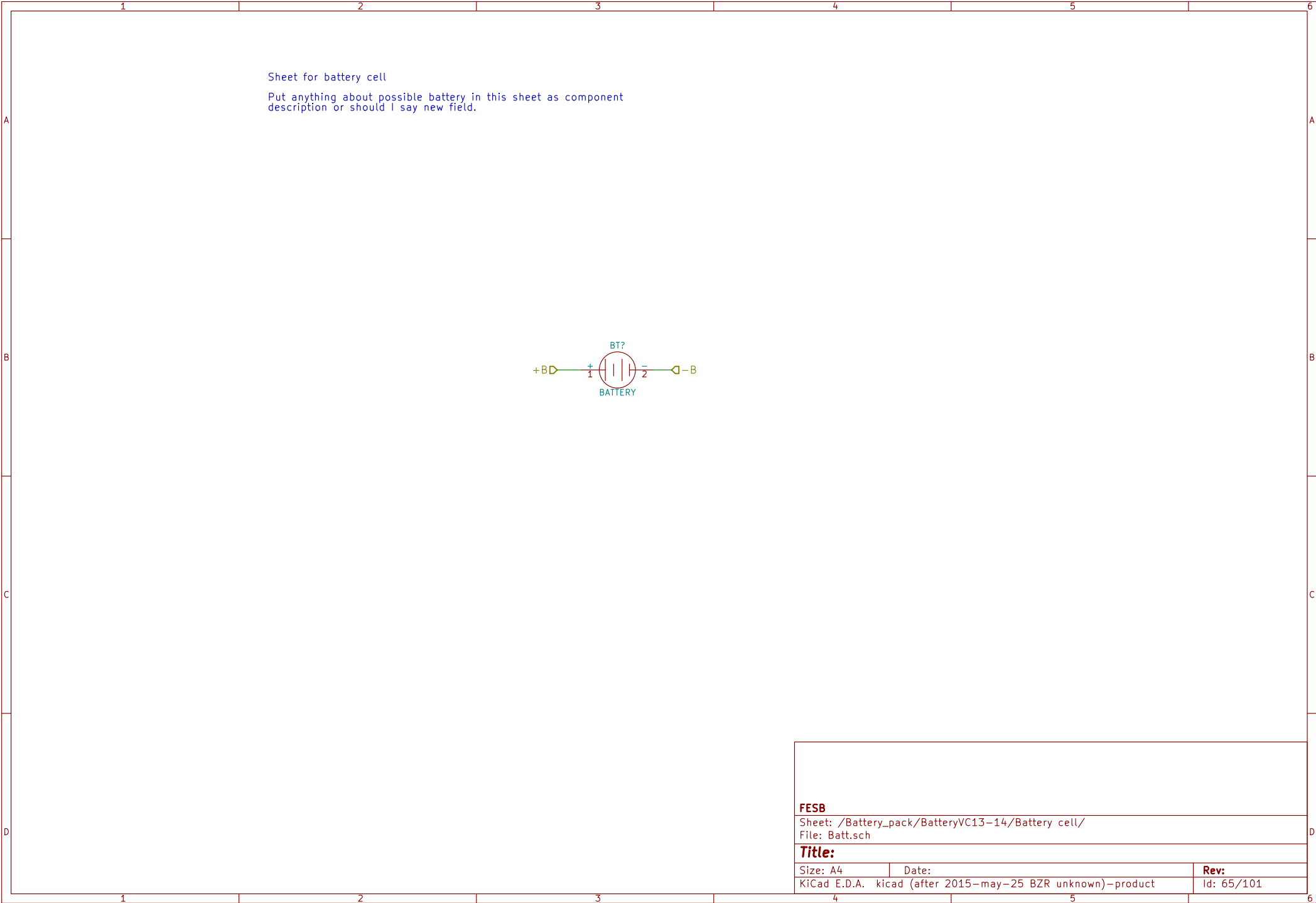
FESB

Sheet: /Battery_pack/BatteryVC13-14/
File: Batt_ball.sch

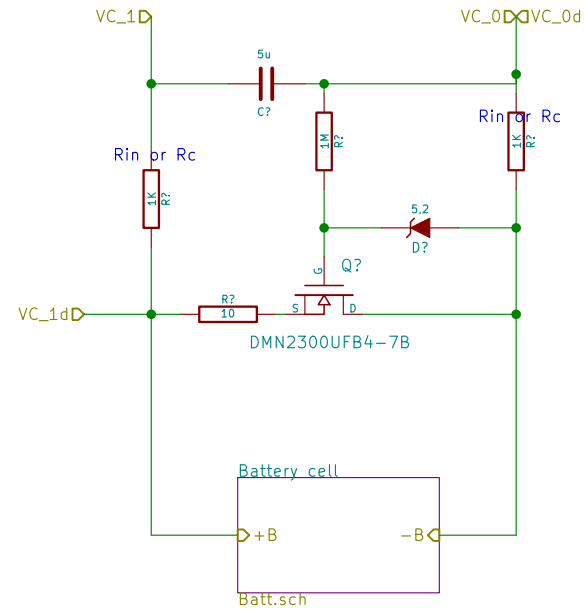
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 64/101



This is just mesurment and balancing circuit



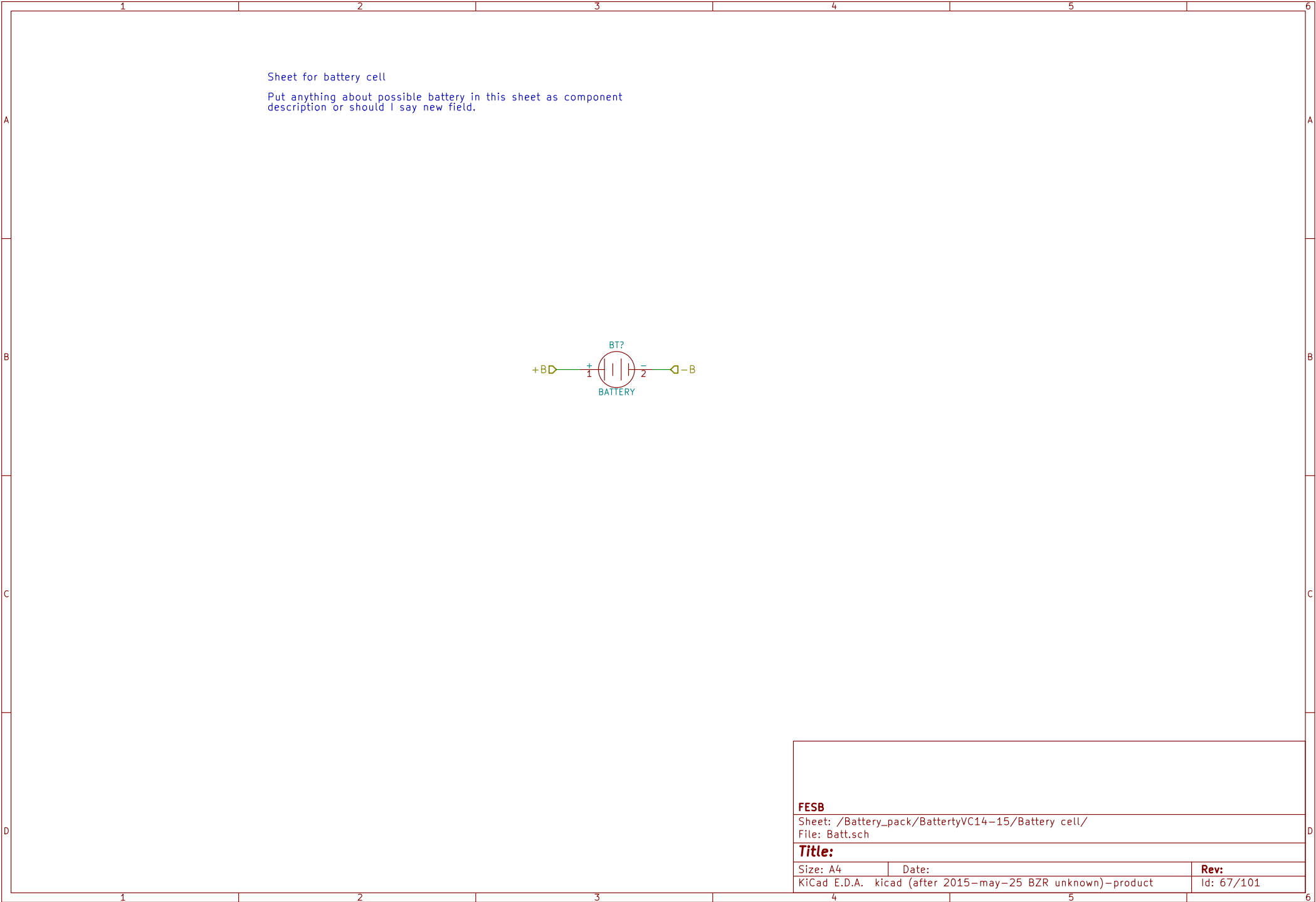
FESB

Sheet: /Battery_pack/BatteryVC14-15/
File: Batt_ball_end.sch

Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 66/101



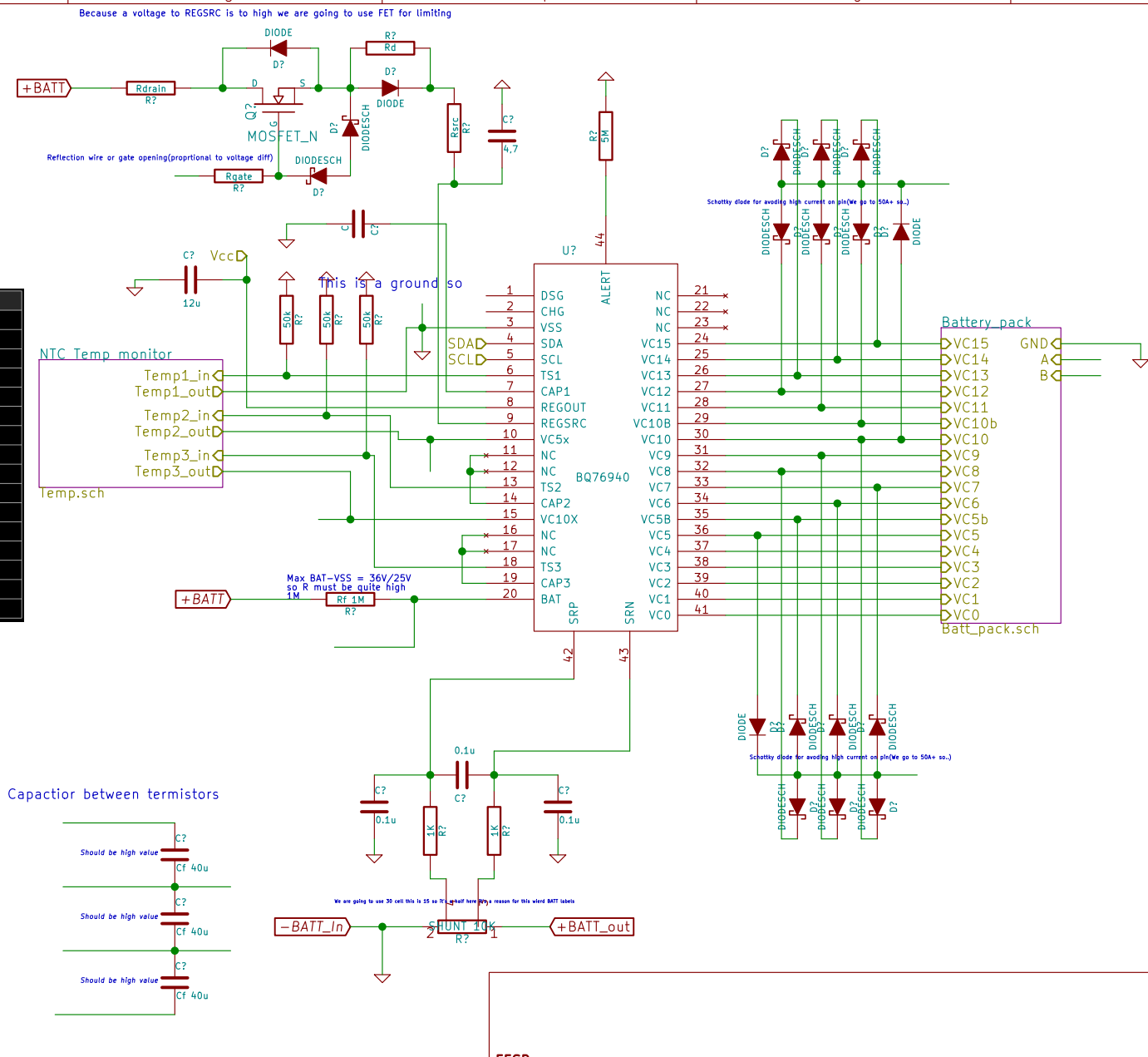
Bq7*** circuit its basically disconnected from other stuff looking a voltage of every cell and if needed discharging them.(balancing)
Controlled by a MCU two of them because we have 30 batteries.

VSS is same as ground symbol in this sheet

Pin configuration

PIN	NAME	TYPE	DESCRIPTION
1	DSG	O	Discharge FET driver
2	CHG	O	Charge FET driver
3	VSS	—	Chip VSS
4	SDA	I/O	I ² C communication to the host controller
5	SCL	I	I ² C communication to the host controller
6	TS1	I	Thermistor #1 positive terminal ⁽¹⁾
7	CAP1	O	Capacitor to VSS
8	REGOUT	P	Output LDO
9	REGSRC	I	Input source for output LDO
10	VC5X	P	Thermistor #2 negative terminal
11	NC	—	No connect (short to CAP2)
12	NC	—	No connect (short to CAP2)
13	TS2	I	Thermistor #2 positive terminal ⁽¹⁾
14	CAP2	O	Capacitor to VC5X
15	VC10X	P	Thermistor #3 negative terminal
16	NC	—	No connect (short to CAP3)

PIN	NAME	TYPE	DESCRIPTION
17	NC	—	No connect (short to CAP3)
18	TS3	I	Thermistor #3 positive terminal ⁽¹⁾
19	CAP3	O	Capacitor to VC10X
20	BAT	P	Battery (top-most) terminal
21	NC	—	No connect
22	NC	—	No connect
23	NC	—	No connect
24	VC15	I	Sense voltage for 15th cell positive terminal
25	VC14	I	Sense voltage for 14th cell positive terminal
26	VC13	I	Sense voltage for 13th cell positive terminal
27	VC12	I	Sense voltage for 12th cell positive terminal
28	VC11	I	Sense voltage for 11th cell positive terminal
29	VC10b	I	Sense voltage for 10th cell negative terminal
30	VC10	I	Sense voltage for 10th cell positive terminal
31	VC9	I	Sense voltage for 9th cell positive terminal
32	VC8	I	Sense voltage for 8th cell positive terminal
33	VC7	I	Sense voltage for 7th cell positive terminal
34	VC6	I	Sense voltage for 6th cell positive terminal
35	VC5b	I	Sense voltage for 6th cell negative terminal
36	VC5	I	Sense voltage for 5th cell positive terminal
37	VC4	I	Sense voltage for 4th cell positive terminal
38	VC3	I	Sense voltage for 3rd cell positive terminal
39	VC2	I	Sense voltage for 2nd cell positive terminal
40	VC1	I	Sense voltage for 1st cell positive terminal
41	VC0	I	Sense voltage for 1st cell negative terminal
42	SRP	I	Negative current sense (nearest VSS)
43	SRN	I	Positive current sense
44	ALERT	I/O	Alert output and override input



FESB

Sheet: /BQ7****_low/
File: BQ7_low.sch

Title: BQ76940

Size: A4
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

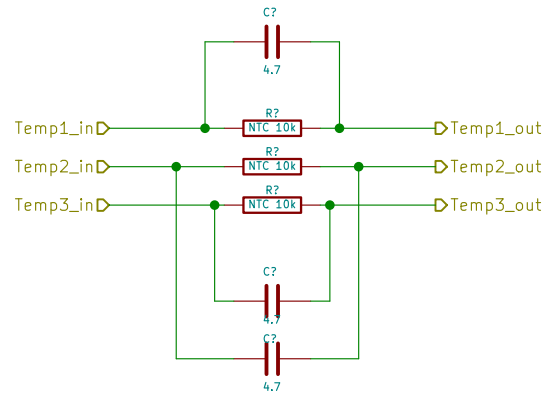
Date:
Id: 68/101

Dont forget this when programming

Missing only for NTC so we can convert to Temp

$$V_{TSX} = (ADC \text{ in Decimal}) \times 382 \mu V/LSB$$
$$R_{TS} = (10,000 \times V_{TSX}) \div (3.3 - V_{TSX})$$

Termistors
Connect with outer 6 pin



FESB

Sheet: /BQ7****_low/NTC Temp monitor/
File: Temp.sch

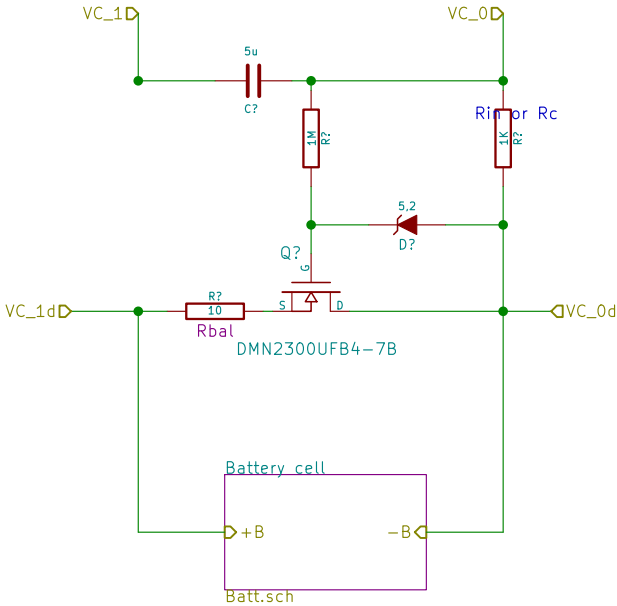
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 69/101

Rev:
Id: 70/101

This is just mesurment and balancing circuit



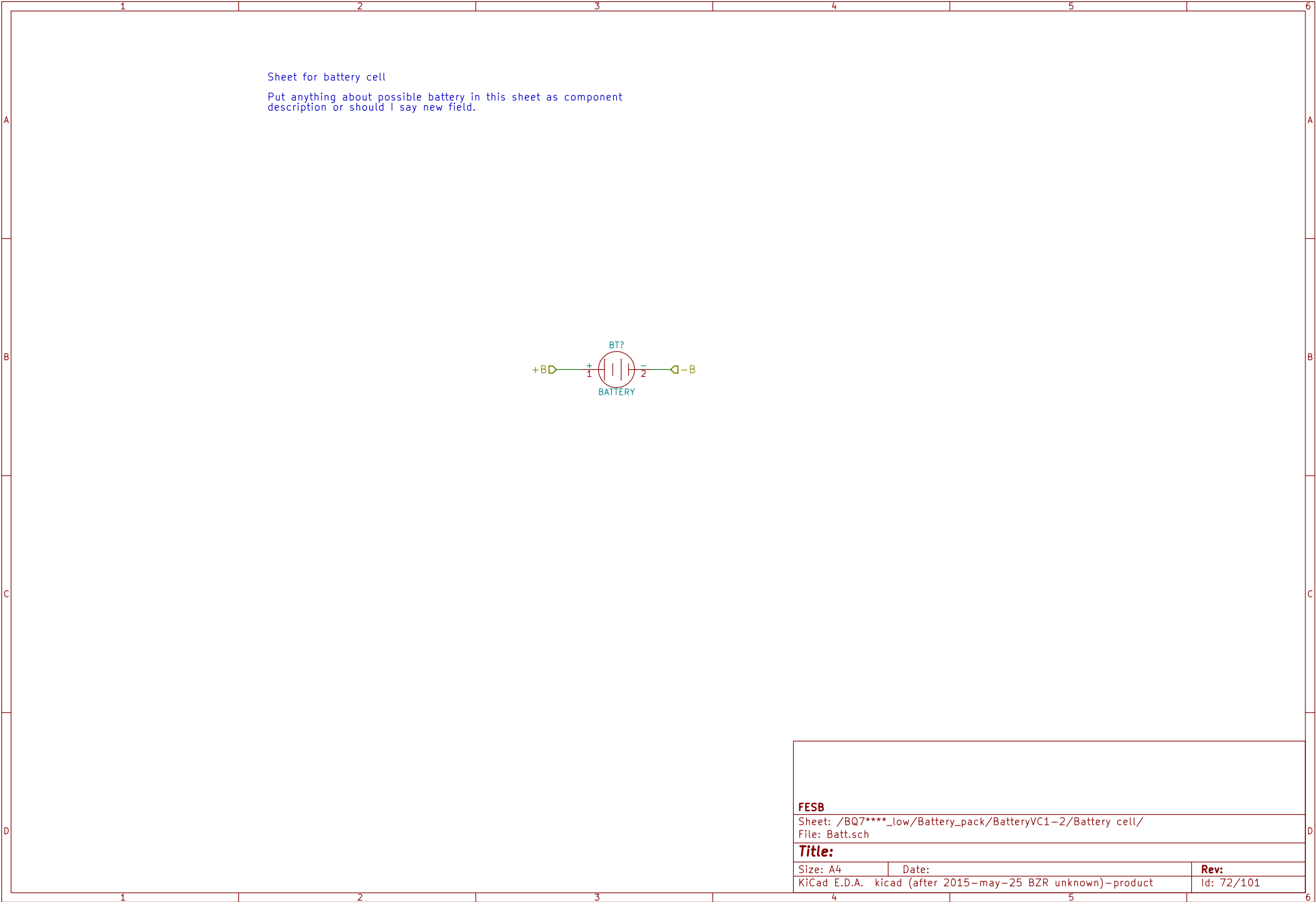
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC1-2/
File: Batt_ball.sch

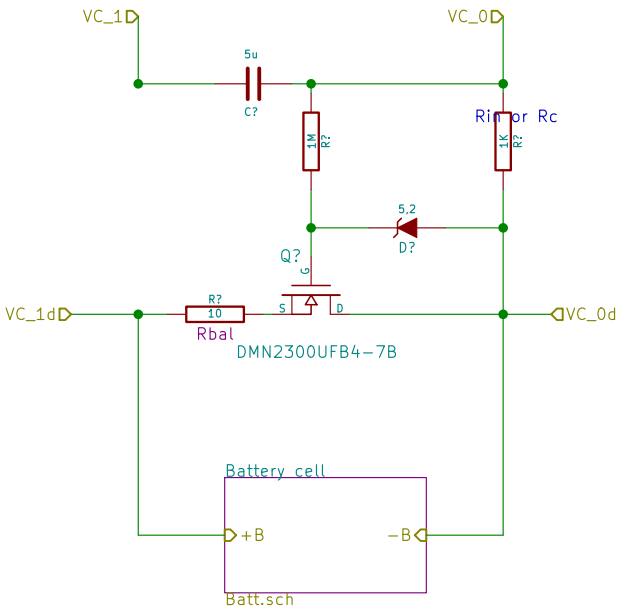
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 71/101



This is just mesurment and balancing circuit



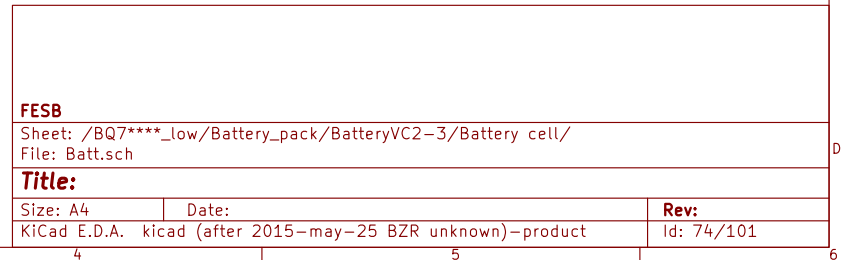
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC2-3/
File: Batt_ball.sch

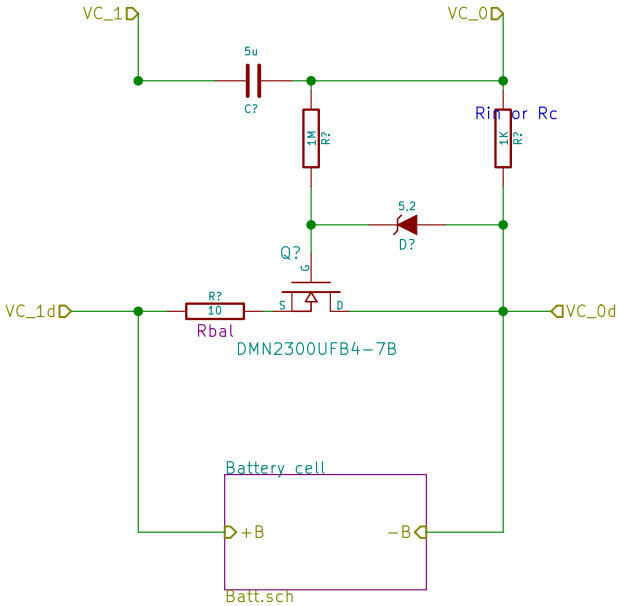
Title:

Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 73/101

Put anything about possible battery in this sheet as component description or should I say new field.



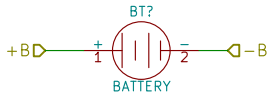
This is just mesurment and balancing circuit



FESB		
Sheet: /BQ7****_low/Battery_pack/BatteryVC3-4/		
File: Batt_ball.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 75/101

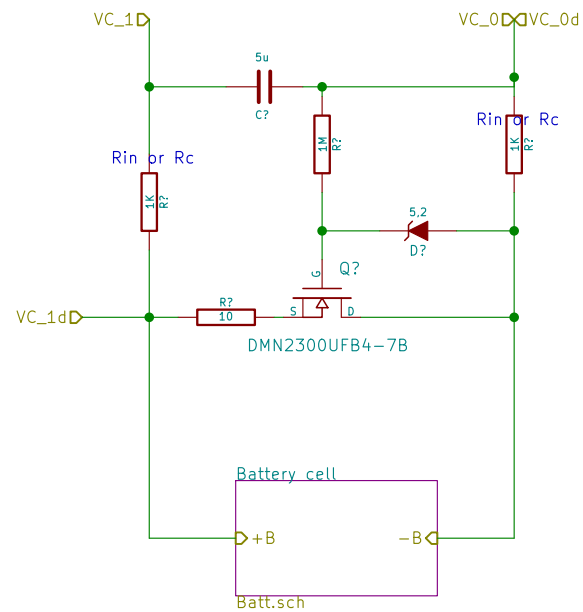
Sheet for battery cell

Put anything about possible battery in this sheet as component description or should I say new field.



FESB		
Sheet: /BQ7****_low/Battery_pack/BatteryVC3-4/Battery cell/		
File: Batt.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 76/101

This is just mesurment and balancing circuit



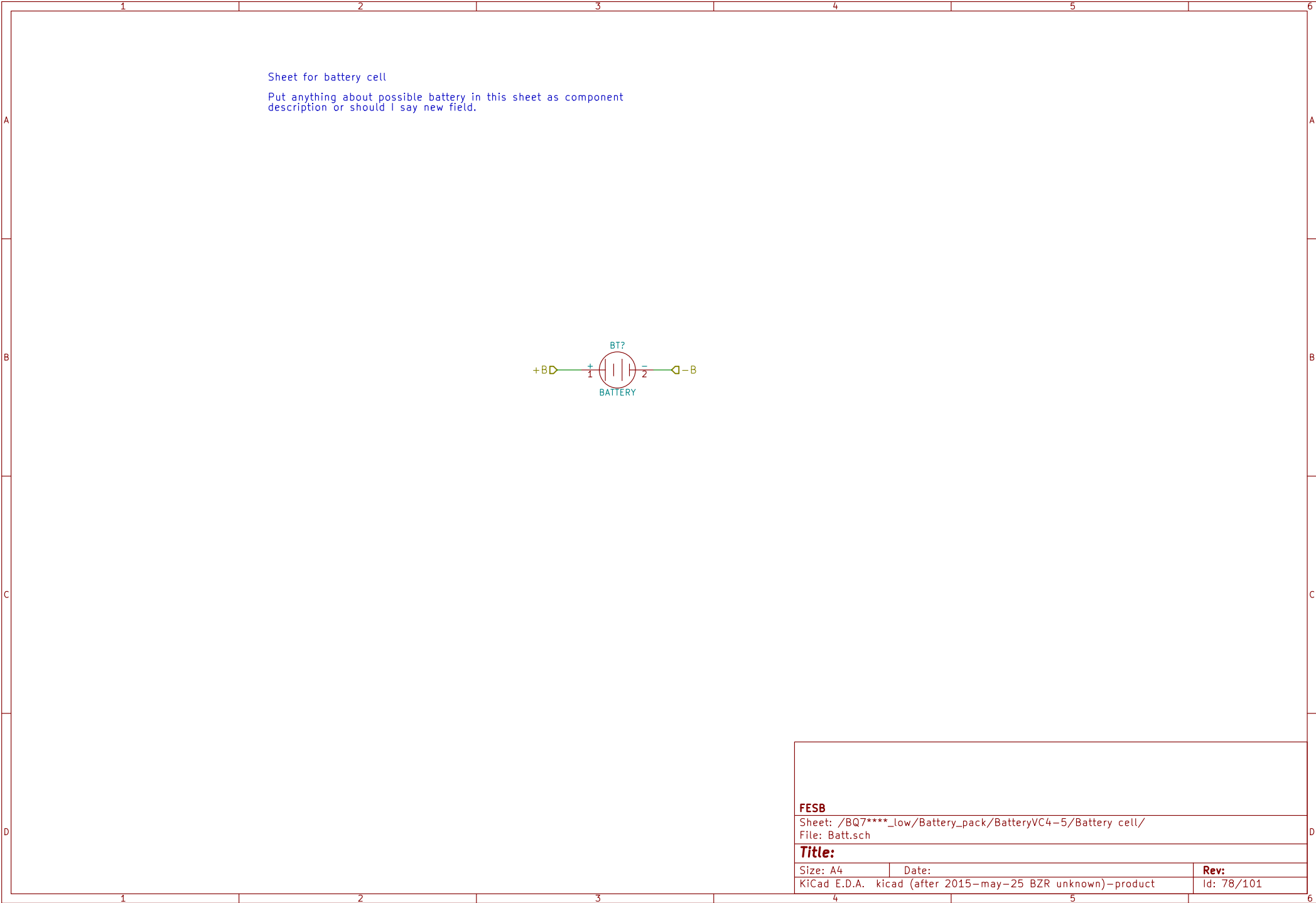
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC4-5/
File: Batt_bal_end.sch

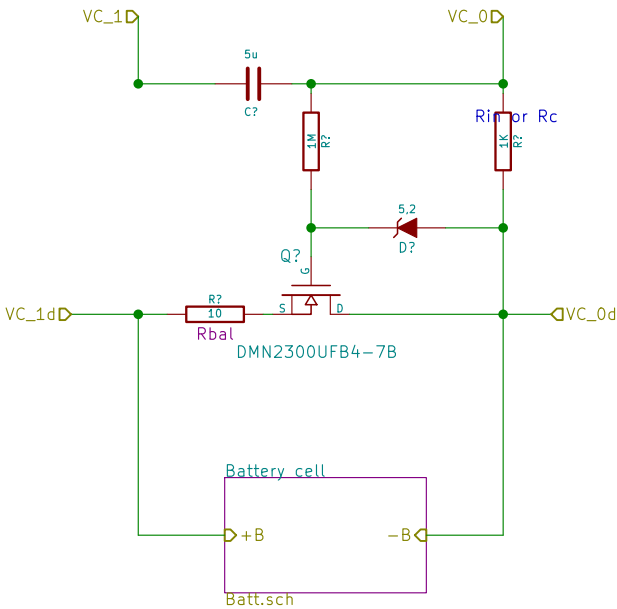
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 77/101



This is just mesurment and balancing circuit



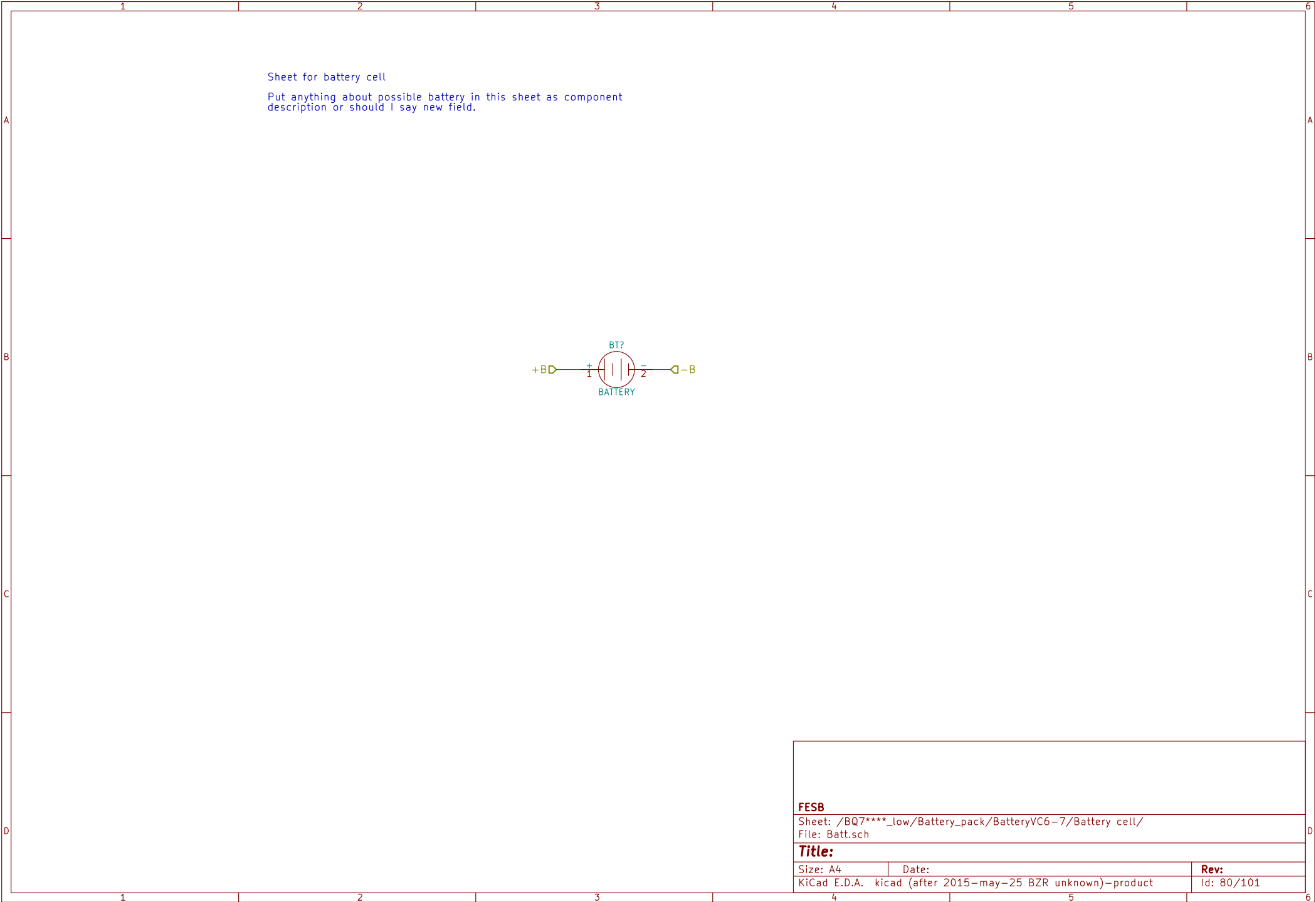
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC6-7/
File: Batt_ball.sch

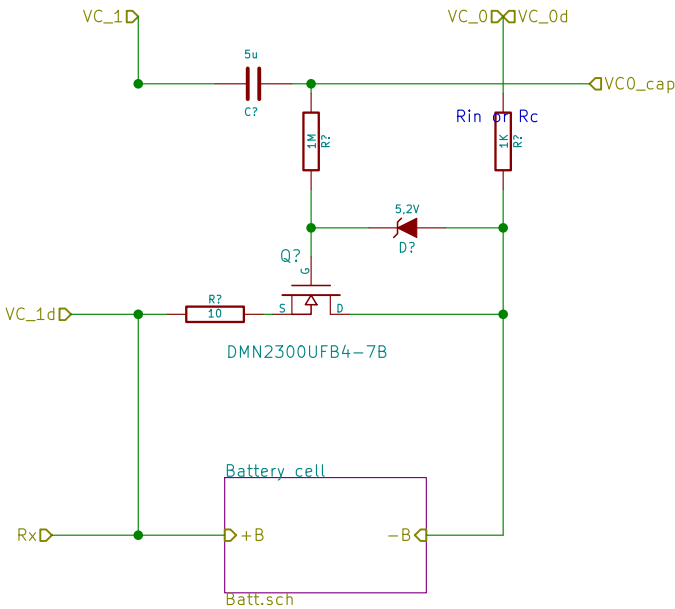
Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 79/101



This is just mesurment and balancing circuit



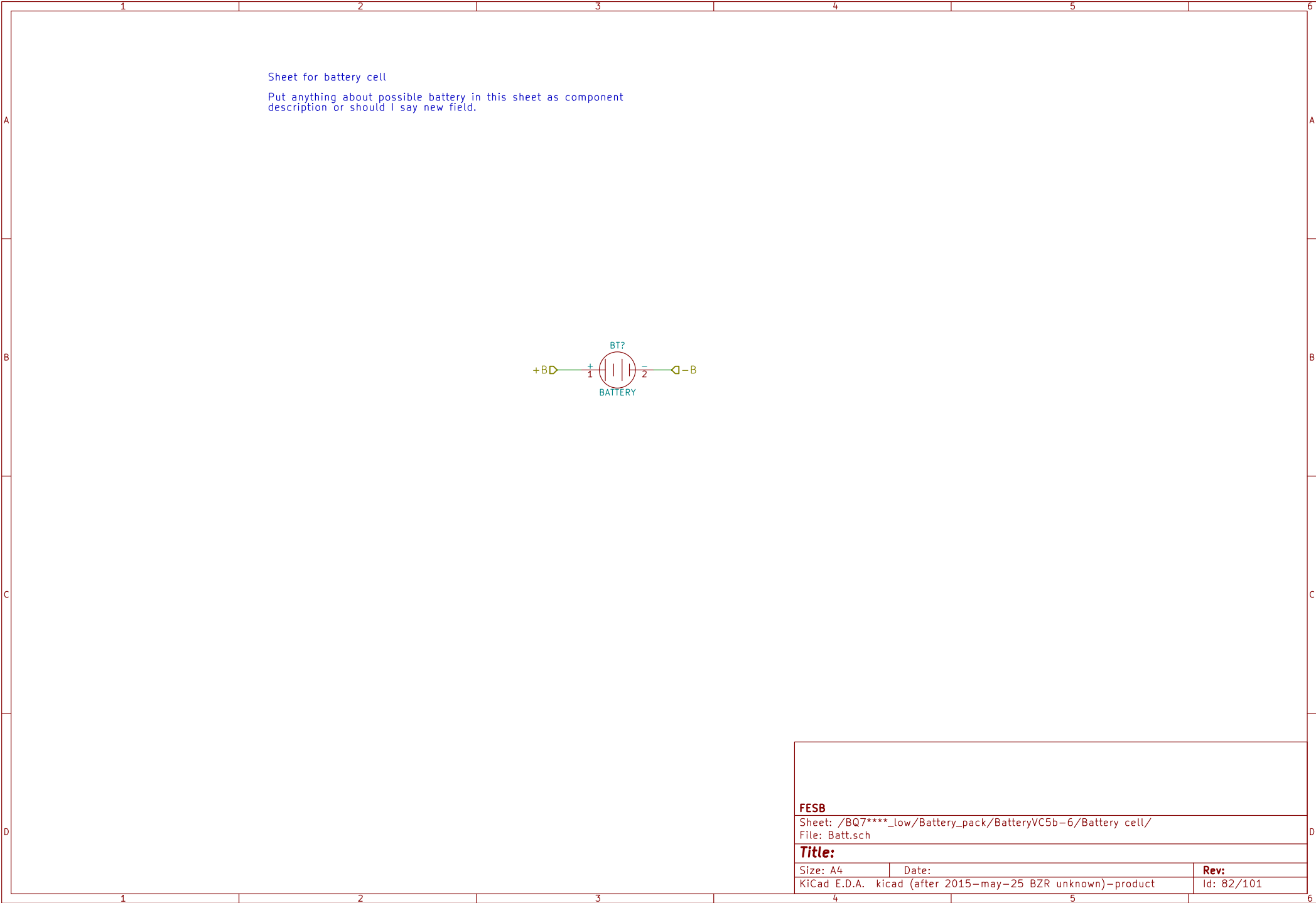
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC5b-6/
File: Batt_ball_cap.sch

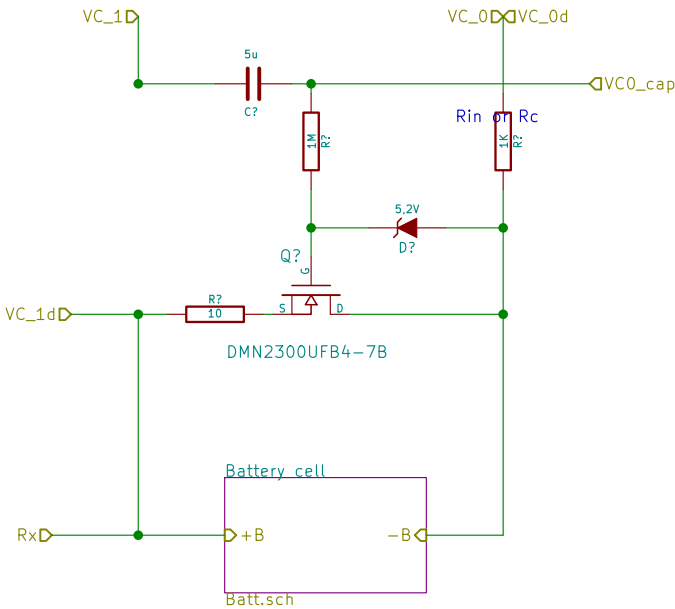
Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 81/101



This is just mesurment and balancing circuit

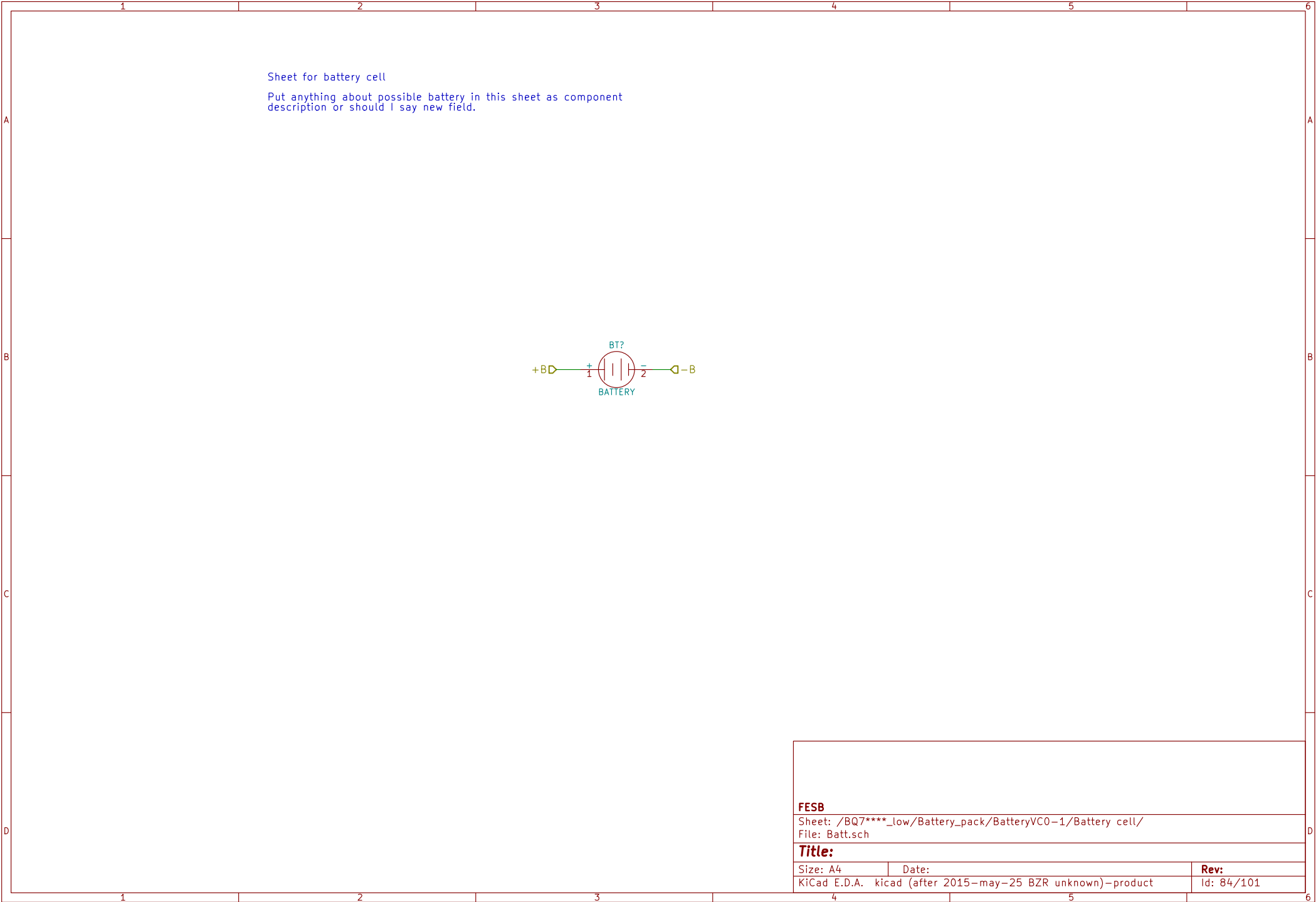


FESB

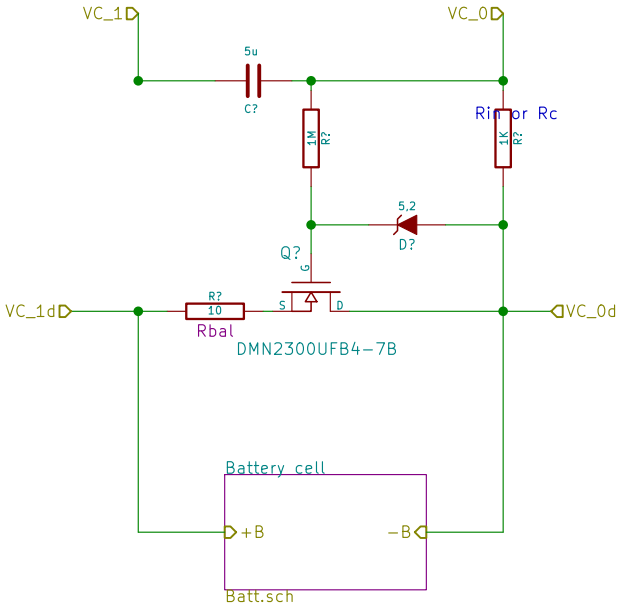
Sheet: /BQ7****_low/Battery_pack/BatteryVC0-1/
File: Batt_ball_cap.sch

Title:

Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 83/101



This is just mesurment and balancing circuit



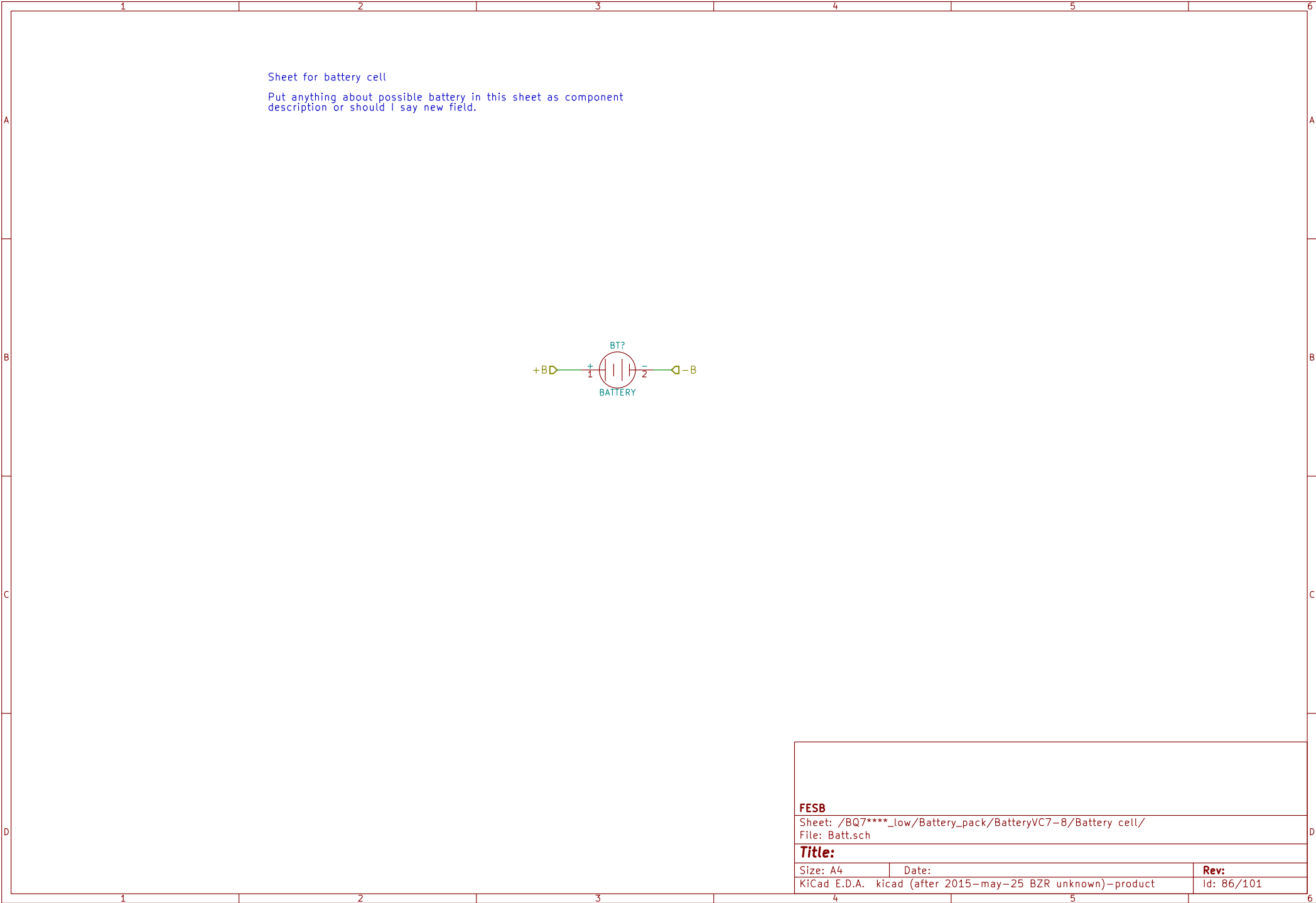
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC7-8/
File: Batt_ball.sch

Title:

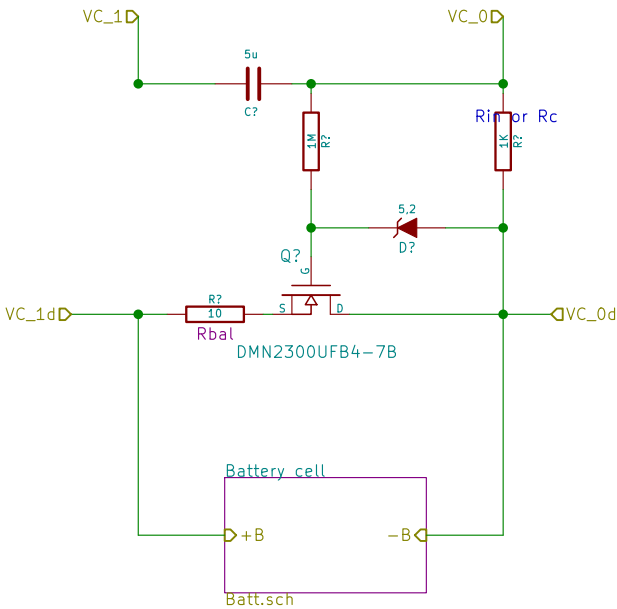
Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev:
Id: 85/101



FESB		
Sheet: /BQ7****_low/Battery_pack/BatteryVC7-8/Battery cell/		
File: Batt.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 86/101

This is just mesurment and balancing circuit



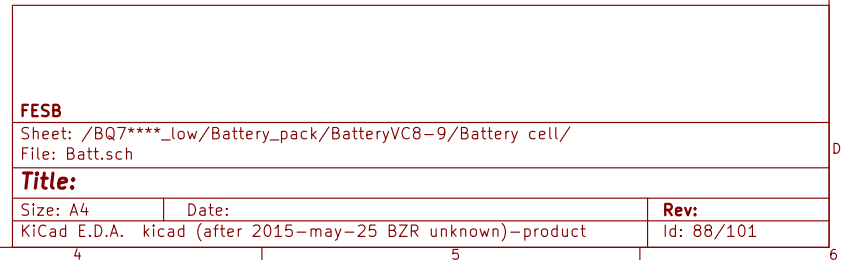
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC8-9/
File: Batt_ball.sch

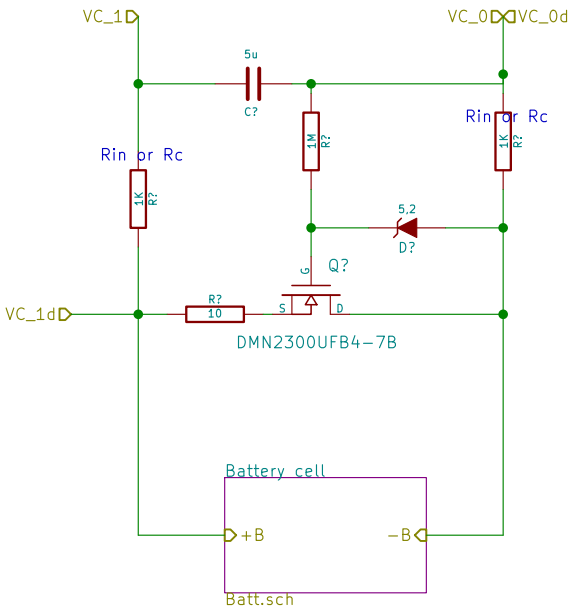
Title:

Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 87/101

Put anything about possible battery in this sheet as component description or should I say new field.



This is just mesurment and balancing circuit



FESB

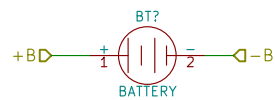
Sheet: /BQ7****_low/Battery_pack/BatteryVC9-10/
File: Batt_bal_end.sch

Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 89/101

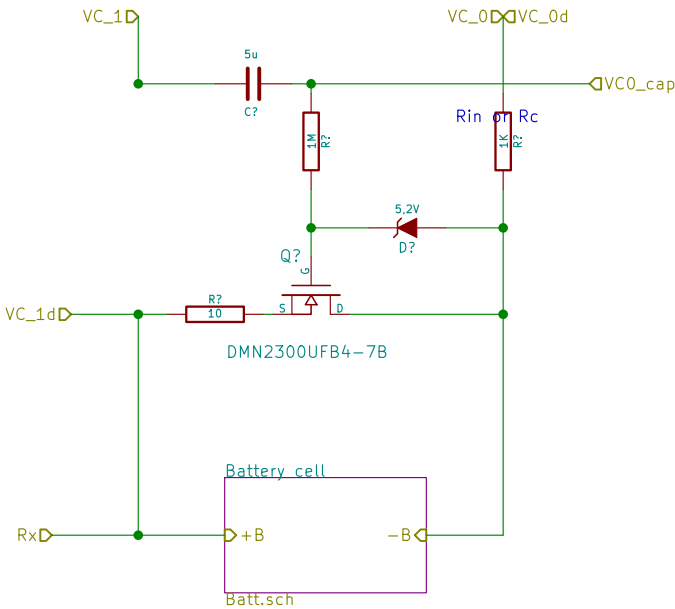
Put anything about possible battery in this sheet as component description or should I say new field.



Sheet: /BQ7****_low/Battery_pack/BatteryVC9-10/Battery cell/
File: Batt.sch

Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 90/101

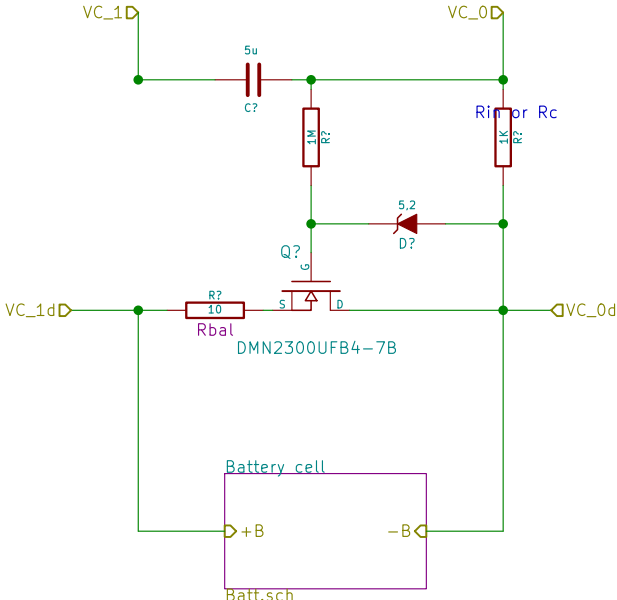
This is just mesurment and balancing circuit



FESB		
Sheet: /BQ7****_low/Battery_pack/BatteryVC10B-11/		
File: Batt_ball_cap.sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product		Id: 91/101

	1	2	3	4	5	6
A	<div>Sheet for battery cell</div> <div>Put anything about possible battery in this sheet as component description or should I say new field.</div>					
B						
C						
D	<div></div> <div> <div>FESB</div> <div> <div>Sheet: /BQ7****_low/Battery_pack/BatteryVC10B-11/Battery cell/</div> <div>File: Batt.sch</div> <div>Title:</div> <div> <div>Size: A4</div> <div>Date:</div> <div>Rev:</div> </div> <div> <div>KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product</div> <div>Id: 92/101</div> </div> </div> </div>					
	1	2	3	4	5	6

This is just measurement and balancing circuit



FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC11-12/
File: Batt_ball.sch

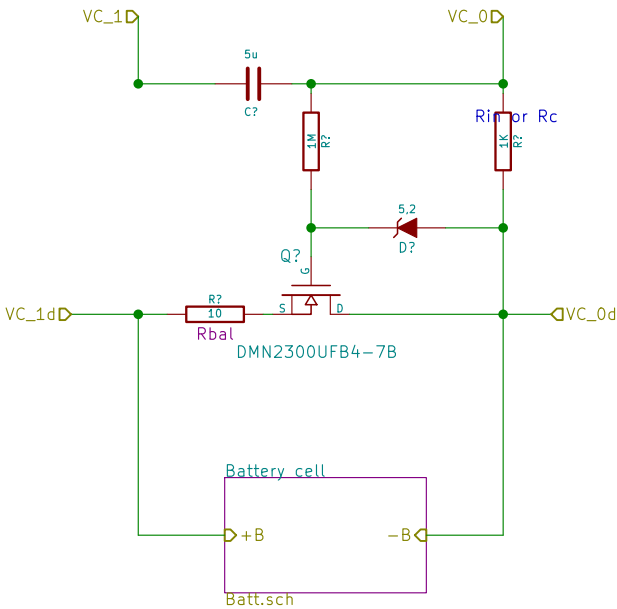
Title:

Size: A4	Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product	

Rev:
Id: 93/101

	1	2	3	4	5	6
A	<div> <div>Sheet for battery cell</div> <div>Put anything about possible battery in this sheet as component description or should I say new field.</div> </div>					
B	<div> </div>					
C						
D	<div> <div></div> <div> <div>FESB</div> <div> <div>Sheet: /BQ7****_low/Battery_pack/BatteryVC11-12/Battery cell/</div> <div>File: Batt.sch</div> <div>Title:</div> <div> <div>Size: A4</div> <div>Date:</div> <div>Rev:</div> </div> <div> <div>KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product</div> <div>Id: 94/101</div> </div> </div> </div> </div>					
	1	2	3	4	5	6

This is just mesurment and balancing circuit



FESB

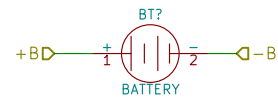
Sheet: /BQ7****_low/Battery_pack/Battery12-13/
File: Batt_ball.sch

Title:

Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

Rev: Id: 95/101

Put anything about possible battery in this sheet as component description or should I say new field.



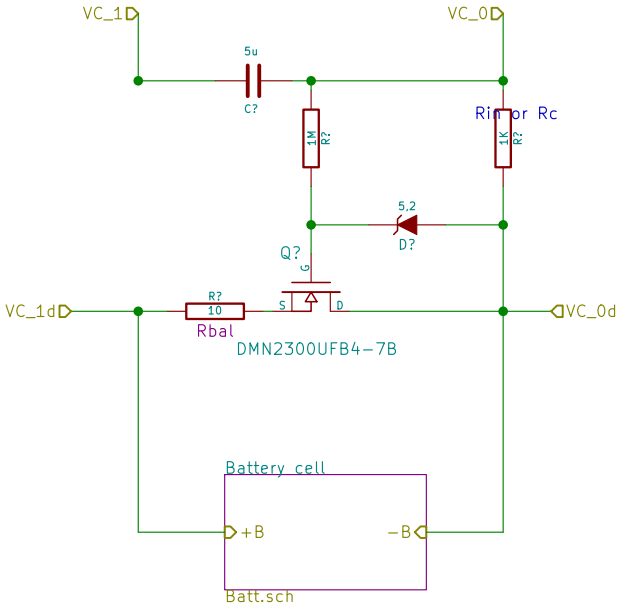
Sheet: /BQ7****_low/Battery_pack/Battery12-13/Battery cell/
File: Batt.sch

Size: A4	Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product	

cad (after 2015-may-25 BZR unknown)-product

Id: 96/101

This is just mesurment and balancing circuit



FESB

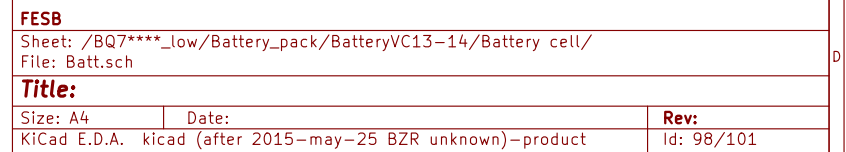
Sheet: /BQ7****_low/Battery_pack/BatteryVC13-14/
File: Batt_ball.sch

Title:

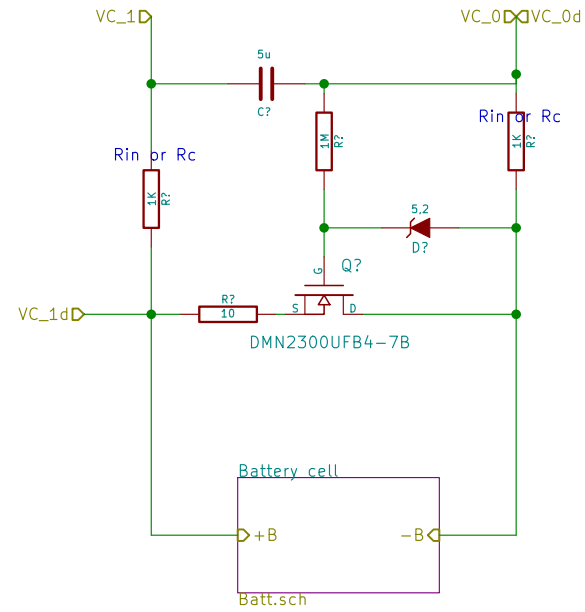
Size: A4 Date: KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

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Put anything about possible battery in this sheet as component description or should I say new field.



This is just mesurment and balancing circuit



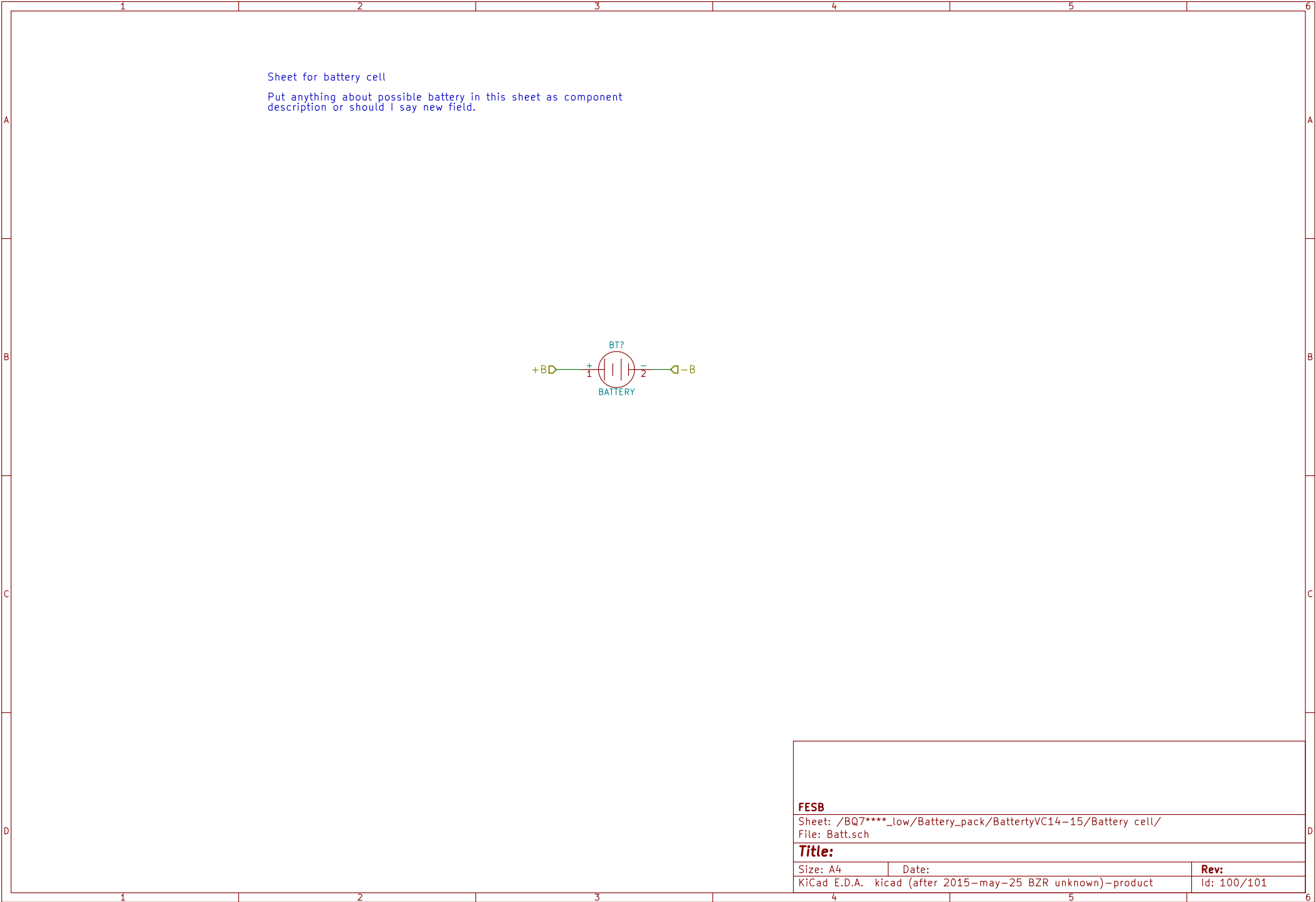
FESB

Sheet: /BQ7****_low/Battery_pack/BatteryVC14-15/
File: Batt_ball_end.sch

Title:

Size: A4 Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product

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DC/DC convert characteristics
in:100V ?? ;
out: 120-80V 30-5A(max out current can be lower)

Short
This could be main DC/DC converter from battery to motors
20kW
But about 10A-30A for charging would be satisfying

VinD

GNDin▷

Data pins

- ON/OFF
- FAULT
- Icont
- Vcont
- RESET
- FAULTSTOP

▷ Vout

▷ GNDout

FESB

Sheet: /DC/DC converter/
File: DCDC.sch

Title:

Size: A4	Date:
KiCad E.D.A. kicad (after 2015-may-25 BZR unknown)-product	

Rev:
Id: 101/101