

This pad builds on [[ultracap-balancer/rev.324]], created by [unnamed author] & dist & Kilpuri & ojoushima & rambo & lapm & Dist

Ultracappien balansointi @ ~12V

Log:

- 2014-07-24 - Dist - Ihan eka versio, kerätään ajatuksia josko tää ees vois toimia =D

https://github.com/rambo/ultracap_balancer

Capit: 2600F @ 2.5V * 3-6kpl => 7.5V - 15V

(eli näitä: <https://www.youtube.com/watch?v=EoWMF3VkI6U>)

Täältä ideoitu: <http://www.instructables.com/id/Lets-learn-about-Super-Capacitors-A-Practical-G/step7/Balancing-Your-Series-Banks/>

Featureita:

[x] Jokaisen kennon rajoitus

[x] Koko paketin latauksen katkaisu mikäli jännite liian korkea

[] 125W max input (tai säädettävä)

Falstadin circuit simulatorin export testiversio:

```
$ 1 5.0E-6 2.688763906446752 40 5.0 50
z 704 272 704 208 1 0.805904783 1.5
r 704 96 704 208 0 33000.0
r 816 96 816 176 0 75000.0
w 816 176 864 176 0
a 864 192 976 192 1 15.0 -15.0 1000000.0
c 864 272 976 272 0 5.0E-11 18.119950814349025
w 976 272 976 192 0
w 864 272 864 208 0
w 656 96 704 96 0
w 704 96 816 96 2
w 656 272 704 272 0
w 816 192 816 176 0
r 704 208 784 208 0 10000.0
w 784 208 864 208 0
f 1024 192 1072 192 0 1.5
r 976 192 1024 192 0 200.0
w 1072 96 816 96 0
w 1072 208 1072 304 0
w 1072 304 816 304 0
w 816 304 768 304 0
w 768 304 656 304 0
w 656 304 656 272 0
r 1072 96 1072 176 0 1.0
r 1072 320 1072 400 0 1.0
w 656 528 656 496 0
w 768 528 656 528 0
w 816 528 768 528 0
```

w 1072 528 816 528 0
w 1072 432 1072 528 0
w 1072 320 816 320 0
r 976 416 1024 416 0 200.0
f 1024 416 1072 416 0 1.5
w 784 432 864 432 0
r 704 432 784 432 0 10000.0
w 816 416 816 400 0
w 656 496 704 496 0
w 704 320 816 320 2
w 656 320 704 320 0
w 864 496 864 432 0
w 976 496 976 416 0
c 864 496 976 496 0 5.0E-11 17.462893934381064
a 864 416 976 416 1 15.0 -15.0 1000000.0
w 816 400 864 400 0
r 816 320 816 400 0 75000.0
r 704 320 704 432 0 33000.0
z 704 496 704 432 1 0.805904783 1.5
w 656 304 656 320 0
g 192 752 192 784 0
w 1072 768 1120 768 0
w 1072 768 656 768 0
w 1072 80 656 80 0
w 656 80 656 96 0
w 656 528 656 544 0
z 704 720 704 656 1 0.805904783 1.5
r 704 544 704 656 0 33000.0
r 816 544 816 624 0 75000.0
w 816 624 864 624 0
a 864 640 976 640 1 15.0 -15.0 1000000.0
c 864 720 976 720 0 5.0E-11 16.805837071770767
w 976 720 976 640 0
w 864 720 864 656 0
w 656 544 704 544 0
w 704 544 816 544 2
w 656 720 704 720 0
w 816 640 816 624 0
r 704 656 784 656 0 10000.0
w 784 656 864 656 0
f 1024 640 1072 640 0 1.5
r 976 640 1024 640 0 200.0
w 1072 544 816 544 0
w 1072 656 1072 752 0
w 1072 752 816 752 0
w 816 752 768 752 0
w 768 752 656 752 0
w 656 752 656 720 0
r 1072 544 1072 624 0 1.0
r 1184 160 1184 640 0 100.0
r 608 528 608 608 0 1.0
w 192 736 192 704 0
w 304 736 192 736 0

w 352 736 304 736 0
w 608 736 352 736 0
w 608 640 608 736 0
w 608 528 352 528 0
r 512 624 560 624 0 200.0
f 560 624 608 624 0 1.5
w 320 640 400 640 0
r 240 640 320 640 0 10000.0
w 352 624 352 608 0
w 192 704 240 704 0
w 240 528 352 528 2
w 192 528 240 528 0
w 400 704 400 640 0
w 512 704 512 624 0
c 400 704 512 704 0 5.0E-11 15.491856053119394
a 400 624 512 624 1 15.0 -15.0 1000000.0
w 352 608 400 608 0
r 352 528 352 608 0 75000.0
r 240 528 240 640 0 33000.0
z 240 704 240 640 1 0.805904783 1.5
w 192 512 192 528 0
w 192 752 192 736 0
w 192 288 192 304 0
z 240 480 240 416 1 0.805904783 1.5
r 240 304 240 416 0 33000.0
r 352 304 352 384 0 75000.0
w 352 384 400 384 0
a 400 400 512 400 1 15.0 -15.0 1000000.0
c 400 480 512 480 0 5.0E-11 16.148780923727642
w 512 480 512 400 0
w 400 480 400 416 0
w 192 304 240 304 0
w 240 304 352 304 2
w 192 480 240 480 0
w 352 400 352 384 0
r 240 416 320 416 0 10000.0
w 320 416 400 416 0
f 560 400 608 400 0 1.5
r 512 400 560 400 0 200.0
w 608 304 352 304 0
w 608 416 608 512 0
w 608 512 352 512 0
w 352 512 304 512 0
w 304 512 192 512 0
w 192 512 192 480 0
r 608 304 608 384 0 1.0
w 656 768 208 768 0
w 208 768 208 752 0
w 208 752 192 752 0
w 656 752 640 752 0
w 640 752 640 288 0
w 640 288 192 288 0
r 816 640 816 752 0 68000.0

r 816 416 816 528 0 68000.0
r 816 192 816 304 0 68000.0
r 352 400 352 512 0 68000.0
r 352 624 352 736 0 68000.0
c 656 96 656 272 0 0.1 0.6573983448610052
c 192 528 192 704 0 0.1 0.6571218126472285
c 656 320 656 496 0 0.1 0.6573983292695624
c 192 304 192 480 0 0.1 0.6572664834350637
c 656 544 656 720 0 0.1 0.6573978752767387
r 160 304 160 480 0 100.0
w 160 480 192 480 0
w 160 304 192 304 0
w 160 528 192 528 0
w 160 704 192 704 0
r 160 528 160 704 0 50.0
c 1120 768 1120 160 0 1.0E-5 -3.278629096960466
s 1184 160 1184 80 0 0 false
w 1072 80 1120 80 0
w 1232 768 1184 768 0
r 1120 80 1120 160 0 1.0
d 1280 768 1280 160 1 0.805904783
w 1232 768 1280 768 0
l 1184 640 1184 768 0 1.0 0.0056427886008307455
w 1120 768 1184 768 0
w 1120 80 1184 80 0
w 1280 160 1184 160 0
a 304 160 384 160 1 15.0 -15.0 1000000.0
178 464 128 560 128 0 1 0.2 -1.3907839721255254E-5 0.05 1000000.0 0.02 20.0
g 464 208 464 240 0
w 304 96 656 96 0
r 224 176 304 176 0 10000.0
w 176 240 224 240 0
r 224 96 224 176 0 33000.0
z 224 240 224 176 1 0.805904783 1.5
w 224 96 304 96 0
r 304 96 304 144 0 75000.0
w 304 144 288 144 0
r 288 144 288 240 0 9200.0
w 288 240 224 240 0
g 176 240 144 240 0
R 464 128 416 128 0 0 40.0 20.0 0.0 0.0 0.5
d 384 160 400 160 1 0.805904783
r 560 112 624 128 0 1.0
w 624 128 656 96 0
r 400 160 416 160 0 50.0
d 464 176 464 160 1 0.805904783
w 464 160 416 160 0
c 416 192 416 160 0 9.999999999999999E-5 7.032523645968679E-4
w 464 208 464 176 0
w 464 208 416 192 0
162 560 400 560 432 1 2.1024259 1.0 0.0 0.0
g 560 432 560 448 0
g 1024 224 1024 240 0

162 1024 192 1024 224 1 2.1024259 1.0 0.0 0.0
g 1024 448 1024 464 0
162 1024 416 1024 448 1 2.1024259 1.0 0.0 0.0
g 1024 672 1024 688 0
162 1024 640 1024 672 1 2.1024259 1.0 0.0 0.0
g 560 656 560 672 0
162 560 624 560 656 1 2.1024259 1.0 0.0 0.0
o 137 64 0 35 1.25 25.6 0 -1
o 139 64 0 35 1.25 25.6 0 -1
o 141 64 0 35 1.25 25.6 0 -1
o 140 64 0 35 1.25 25.6 0 -1
o 138 64 0 35 1.25 25.6 0 -1
o 76 64 0 35 2.5 0.025 1 -1