s_battery_1 (subcircuit)

Attributes

```
inputs:
outputs:
e_left_nodes:
e_right_nodes:
e_top_nodes: p
e_bottom_nodes: n
b_left_nodes:
b_right_nodes:
b_top_nodes:
b_bottom_nodes:
parameters:
  a0_ctl: 4475
  a0_cts: 703.6
  a0_rs: 0.07446
  a0_rtl: 0.04984
  a0_rts: 0.04669
  a0_vsrc: 3.685
  a1_vsrc: 0.2156
  a2_vsrc: -0.1178
  a3_vsrc: 0.3201
  b0_ctl: -6056
  b0_cts: -752.9
  b0_rs: 0.1562
  b0_rtl: 6.603
  b0_rts: 0.3208
  b0_vsrc: -1.031
  b1_ctl: 27.12
  b1_cts: 13.51
  b1_rs: 24.37
  b1_rtl: 155.2
  b1_rts: 29.14
  b1_vsrc: 35
  c_capacity: 3060
  r_self_discharge: 1M
  v0_soc: 1
```

Description

s_battery_1 is the battery model described in the following reference. The battery current and state of charge are made available as output variables IBatt and soc, respectively. The parameter v0_soc is used in setting the initial value of soc in start-up simulation.

Reference:

M. Chen and G.A. Rincon-Mora, "Accurate electrical battery model capable of predicting runtime and IV performance," *IEEE transactions on energy conversion*, vol. 21, pp. 504-511, 2006.