s_solar_module_1 (subcircuit)

Attributes

```
inputs: g ta
outputs:
e_left_nodes:
e_right_nodes:
e_top_nodes: p
e_bottom_nodes: n
parameters:
  coef_iscm: 1e-4
  coef_vocm: -0.1
  iscmr: 0.3
  noct: 20
  ns: 1
  pmaxr: 1
  tr: 25
  vocmr: 0.6
```

Description

s_solar_module_1 is a behavioral model of a solar module with the open-circuit voltage and short-circuit current specified as parameters. The real parameters have the following meaning:

ns: number of cells connected in series (inside the module)

vocmr: open-circuit voltage of the module (under AM 1.5 conditions and 1000 W/m^2)

iscmr: short-circuit current of the module (under AM 1.5 conditions and 1000 W/m^2)

coef_iscm: temperature coefficient for short-circuit current

coef_vocm: temperature coefficient for open-circuit voltage

noct: nominal operating cell temperature (NOCT)

tr: reference temperature for irradiance

pmaxr: module power (under AM 1.5 conditions and 1000 W/m^2)

g_irrad: irradiance in W/m^2

t_ambient: ambient temperature in $^\circ C$.

The output variables g, i, p_net provide the irradiance, current, and power delivered by the module, respectively.

Reference:
L. Castaner and S. Silvestre, "Modelling photovoltaic systems using PSPICE," John Wiley and sons, 2002.