

## solar\_module\_1.ece



### Attributes

```
mainnodes: p n
outvar:
+ i1=cur(p)_of_rs
+ pwr_elec=pwr_elec_of_ece
rparms:
+ ns=1
+ vocmr=1
+ iscmr=1
+ coef_iscm=0
+ coef_vocm=0
+ noct=20
+ tr=25
+ pmaxr=1
+ g_irrad=1000
+ t_ambient=25
```

### Description

solar\_module\_1.ece 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<sup>2</sup>)

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

**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<sup>2</sup>)

**g\_irrad:** irradiance in  $\text{W/m}^2$

**t\_ambient:** ambient temperature in  $^{\circ}\text{C}$ .

The output variables **i1** and **pwr\_elec** are the module current and module power, respectively.

AC behaviour is not implemented.

**Reference:**

L. Castaner and S. Silvestre, “Modelling photovoltaic systems using PSPICE,” John Wiley and sons, 2002.