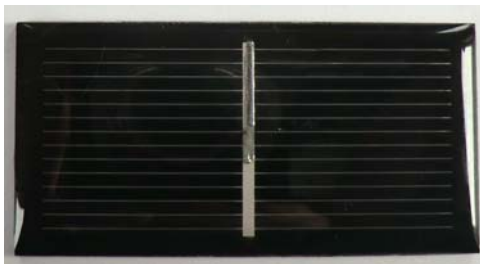
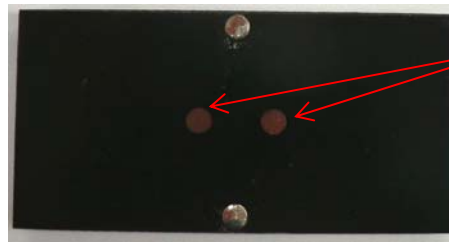


SUSEmod5 – an inexpensive, robust solar module for PV experiments



Front



Back

The two Cu plates in the middle are the (marked) poles of the solar cell. Cell connectors or hookup wires can be soldered onto them.

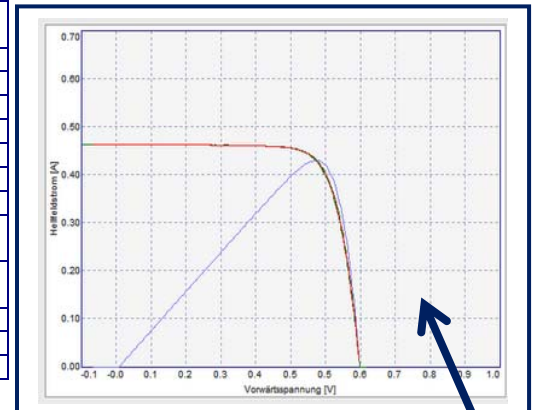
The solar module **SUSEmod5** contains a solar cell with exactly half the area of the well-known SUSE solar cell 52 x 52 mm, length 52 mm and width 26 mm. The solar cell is embedded break-proof in a plastic plate of the dimensions 60 x 30 mm. The surface on the solar cell is grouted/laminated super-transparent with plastic. On the back side there are 2 soldering contacts to solder on the positive and negative conductors (hookup wire). On the rear side the solar module can be stuck to smooth surfaces with double-faced adhesive tape or with glue.

Module: Plastic base plate rectangular 60 x 30 mm with super-transparent surface, mechanically very robust

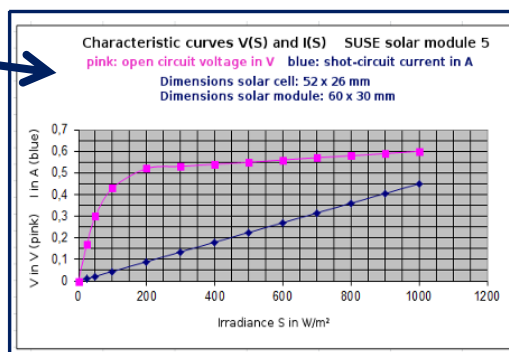
Solar cell: Monocrystalline solar cell 52 x 26 mm

Technical data with an irradiation of 1000 W/m², T = 25°C, AM = 1.5

Physical value	Symbol	Numerical value	Physical unit	Annotations
Dimensions		52 x 26	mm	Monocrystalline cell
Open circuit voltage	V_{oc}	0,63	V	Typical for silicon
Short circuit current	I_{sc}	0,46	A	Proportional to light intensity S
El. power	P	0,21	W	With solar spectrum AM 1,5
Efficiency factor	η	mind. 16,0	%	Quality feature
Filling factor	FF	77	%	FF is a Quality feature
Current density	j	34,0	mA/cm ²	j is a Quality feature
Thermal behavior U_{oc}		- 0,36	% /K	The voltage decreases with an increase in temp. with 0.36 per 1K
Thermal behavior I_{sc}		+ 0,06	% /K	The short circuit current increases with 0.06 % per 1 K
Voltage at MPP	V_{MPP}	0,52	V	
Current at MPP	I_{MPP}	0,43	A	
Power at MPP	P_{MPP}	0,22	W	



The **V(S)** (pink) and **I(S)** (blue) characteristic curves
The characteristic curves show the dependency of the open circuit voltage V and the short-circuit current I on the irradiance S (Light intensity).
0 = absolute darkness
1000 = bright sunshine in the summer half-year with deep blue sky



The I(V) and the P(V) characteristic curves

The red I(V) characteristic curve shows the dependency of the solar cell current on the solar cell voltage with a resistive load of the solar cell. The intersection point with the x-axis is the open circuit voltage of the solar cell, the intersection point with the y-axis is the short-circuit current.
The power curve (blue) shows the maximum power point (MPP).