

# SCHOTT PROTECT™ ASI series



**SCHOTT PROTECT™ ASI**  
100/103/105/107/109/111

## At a glance

- Permanently stable energy yields – proven double glass technology from SCHOTT
- High specific energy yield
- Double the required standard
- High output performance
- Long-term stability of encapsulation
- 30 years linear performance guarantee

The global German company SCHOTT Solar started developing and manufacturing components for the solar industry in 1958.

**Permanently stable energy yields:** Due to the double glass structure the SCHOTT PROTECT™ ASI feature excellent long-term stability. In a study conducted by the Fraunhofer-Institute over 26 years, SCHOTT Solar modules still achieved over 90 % of their original performance\*.

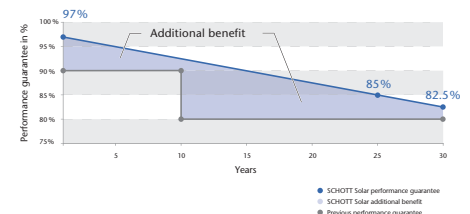
**High specific energy yield:** SCHOTT PROTECT™ ASI modules are characterised by their ability to produce consistent energy output in a range of climatic conditions. Performance remains high, whether in diffused light conditions, high temperatures, poor module ventilation, or even non ideal module orientation.

**Double the required standard:** SCHOTT Solar tests its modules for twice as long as required by the IEC.

**High output performance:** All SCHOTT Solar modules achieve a positive tolerance of their nominal power rating. This ensures a stable high-energy output and a quick return on investment.

**Long-term stability of encapsulation:** SCHOTT PROTECT™ ASI modules with the proven ASI® encapsulation have exceptionally high resistance to UV radiation, as well as to extremes of temperature and weather.

**30 years linear performance guarantee\*\*:** SCHOTT Solar guarantees for a period of one year from date of delivery that the module power output will be at least 97 % of the rated power output. Due to its long and successful experience in solar technology, the manufacturer guarantees from year two through year thirty that the module power output will degrade no more than 0.5 % per year of the rated power output from the date of original sale by SCHOTT Solar. Moreover, SCHOTT Solar offers a product guarantee of 10 years\*\*.



\* certificate available on [www.schottsolar.com/longterm-stability](http://www.schottsolar.com/longterm-stability)

\*\* on the basis of the Conditions on Guarantees valid at the date of purchase available on [www.schottsolar.com/performance-guarantee](http://www.schottsolar.com/performance-guarantee)

## Technical Data

### Data at standard test conditions (STC)\*

Module type		SCHOTT PROTECT™ ASI											
		stabilised value	initial value	stabilised value	initial value	stabilised value	initial value	stabilised value	initial value	stabilised value	initial value	stabilised value	initial value
Nominal power [Wp]	$P_{mpp}$	≥ 100	122.0	≥ 103	125.6	≥ 105	128.0	≥ 107	130.5	≥ 109	132.9	≥ 111	135.4
Voltage at nominal power [V]	$U_{mpp}$	30.5	33.9	30.9	34.3	31.1	34.5	31.3	34.7	31.5	35.0	31.7	35.2
Current at nominal power [A]	$I_{mpp}$	3.28	3.60	3.34	3.67	3.38	3.71	3.42	3.76	3.46	3.80	3.50	3.85
Open-circuit voltage [V]	$U_{oc}$	40.0	41.7	40.6	42.3	41.0	42.7	41.4	43.2	41.8	43.6	42.2	44.0
Short-circuit current [A]	$I_{sc}$	3.89	4.01	3.94	4.06	3.98	4.10	4.01	4.13	4.04	4.17	4.07	4.20
Module efficiency (%)	$\eta$	6.9		7.1		7.2		7.4		7.5		7.7	

STC (1,000 W/m<sup>2</sup>; AM 1.5; cell temperature 25°C)

Power tolerance (as measured by flasher): -0 W / +1.99 W / +2.99 W

### Data at normal operating cell temperature (NOCT)\*

Nominal power [Wp]	$P_{mpp}$	78.0	80.3	81.9	83.5	85.0	86.6
Voltage at nominal power [V]	$U_{mpp}$	28.7	29.0	29.2	29.4	29.6	29.8
Open-circuit voltage [V]	$U_{oc}$	36.5	37.1	37.4	37.8	38.2	38.5
Short-circuit current [A]	$I_{sc}$	3.11	3.15	3.18	3.21	3.23	3.26
Temperature [°C]	$T_{NOCT}$	49.0	49.0	49.0	49.0	49.0	49.0

NOCT (800 W/m<sup>2</sup>, AM 1.5, windspeed 1 m/s, ambient temperature 20°C)

### Data at low irradiation

Nominal power [Wp]	$P_{mpp}$	20.0	20.6	21.0	21.4	21.8	22.2
Voltage at nominal power [V]	$U_{mpp}$	30.5	30.9	31.1	31.3	31.5	31.7
Current at nominal power [A]	$I_{mpp}$	0.66	0.67	0.68	0.68	0.69	0.70
Open-circuit voltage [V]	$U_{oc}$	36.0	36.6	36.9	37.3	37.6	38.0
Short-circuit current [A]	$I_{sc}$	0.78	0.79	0.80	0.80	0.81	0.81
Module efficiency (%)	$\eta$	6.9	7.1	7.2	7.4	7.5	7.7

Irradiance 200 W/m<sup>2</sup>, spectrum AM 1.5, cell temperature 25°C

Measurement accuracy at irradiance of 200 W/m<sup>2</sup>: ±10 %.

### Temperature coefficients

Power [%/K]	$P_{mpp}$	-0.20
Open-circuit voltage [%/K]	$U_{oc}$	-0.33
Short-circuit current [%/K]	$I_{sc}$	+0.08

### Characteristic data

Solar cells per module	72 (3 x 24)
Cell type	a-Si/a-Si tandem (amorphous silicon)
Junction box	2 x IP65 by Lumberg, without bypass diode, single-pole, sealed with 2K silicon; 2.5 mm <sup>2</sup> solar cable
Connector	LC4 connector
Dimensions junction box [mm]	40.1 x 54.4 x 10.5
Front panel	thermally treated float glass 1.8 mm
Backside panel	hardened back glass 3.2 mm
Frame material	aluminium, black

### Dimensions and weight

Dimensions [mm]	1,308 x 1,108
Thickness [mm]	35
Weight [kg]	20.8

### Limits

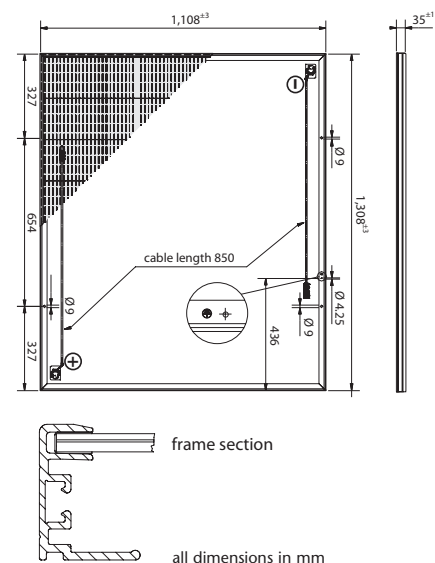
Maximum system voltage [V <sub>DC</sub> ]	1,000
Maximum reverse current $I_R$ [A]**	10
Operating module temperature [°C]	-40 ... +85
Maximum load (to IEC 61646)	pressure: 5,400 N/m <sup>2</sup> or 550 kg/m <sup>2</sup> suction: 2,400 N/m <sup>2</sup> or 245 kg/m <sup>2</sup>
Application classification (to IEC 61730)	A
Fire classification (to IEC 61730)	C

\*\* No external voltage in excess of  $U_{oc}$  shall be applied to the module.

### Permission and certificates

The modules are certified to IEC 61646 and IEC 61730, Electrical Protection Class II and the CE-guidelines and are also RoHS conform. Moreover SCHOTT Solar is certified and registered to ISO 9001.

\* Power measurement accuracy: ±5 %



The **installation manual** contains additional information on installation and operation. SCHOTT Solar AG reserves the right to make specification changes in this datasheet without notice. All information complies with the requirements of the standard EN 50380.



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