

# SCHOTT Solar thin film solar modules

SCHOTT ASI™ 78/81/86/89

The long-established German company SCHOTT Solar is a world leader in the photovoltaic industry and has more than 50 years of experience in the development and production of components for solar applications.

The ASI® thin film technology is the result of extensive experience and the most modern production standards. Thin film solar modules with ASI® cell technology guarantee long-lasting high performance and an above-average energy output year after year.

**High energy output:** SCHOTT ASI™ modules are characterised by their ability to produce an excellent energy output in a range of climatic conditions. Performance remains high, whether in diffused light conditions, in high temperatures, with poor module ventilation, with partial obscuring of module surfaces, or even with non ideal module orientation.

**Simple and low-cost installation:** The bypass diode is integrated into the junction box. With a low modular current of 17 V and a high maximum system current of 1000 V connection is simple, fast and low-cost.

**Top quality and guaranteed long life:** SCHOTT ASI™ modules, made in Germany, ensure a lasting high-energy output and a quick return on investment.

- 20 years performance guarantee and five years product warranty
- Certified to IEC 61646 and IEC 61730
- Tested for twice as long as is required by the IEC

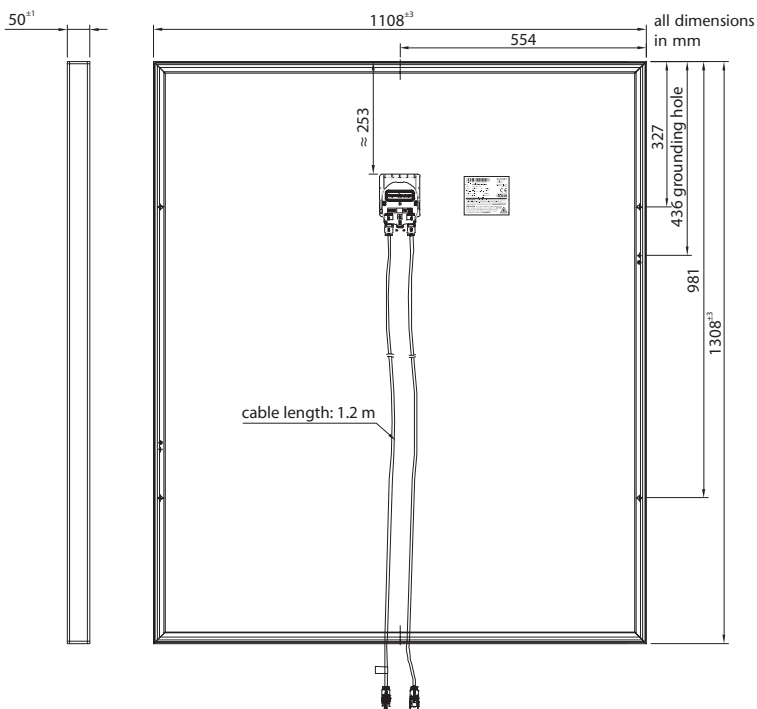
**Increased reverse current:** SCHOTT ASI™ modules have a high resistance to reverse current, minimising the wiring costs.

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

- High energy output
- Simple and low-cost installation
- Top quality and guaranteed long life
- Increased reverse current
- Long-term stability of encapsulation



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**SCHOTT**  
solar

## Technical Data

### Electrical data

Electrical data refer to Standard Test Conditions (STC):  
Irradiance 1000 W/m<sup>2</sup>, spectrum Air Mass 1.5 and cell temperature 25°C



	Product name	SCHOTT ASI™ 78		SCHOTT ASI™ 81		SCHOTT ASI™ 86		SCHOTT ASI™ 89	
		stabilised value	initial value	stabilised value	initial value	stabilised value	initial value	stabilised value	initial value
Nominal power [Wp]	P <sub>nom</sub>	78	95	81	99	86	105	89	109
Voltage at nominal power [V]	U <sub>mpp</sub>	17.0	19.0	17.1	19.0	17.2	19.0	17.3	19.0
Current at nominal power [A]	I <sub>mpp</sub>	4.58	5.00	4.73	5.20	5.00	5.50	5.15	5.70
Open-circuit voltage [V]	U <sub>oc</sub>	22.8	23.7	23.0	24.0	23.3	24.3	23.5	24.5
Short-circuit current [A]	I <sub>sc</sub>	5.72	5.90	5.82	6.00	5.92	6.10	6.01	6.20
Modular efficiency level (%)	η	5.4		5.6		5.9		6.1	

Rating tolerance for power output is ± 4 % and rating tolerance for all other parameters is ± 10 %.

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

Irradiance 800 W/m<sup>2</sup>, spectrum Air Mass 1.5, windspeed 1m/ s and cell temperature 20°C



Nominal power [Wp]	P <sub>nom</sub>	61	63	67	69
Voltage at nominal power [V]	U <sub>mpp</sub>	16.0	16.1	16.2	16.3
Open-circuit voltage [V]	U <sub>oc</sub>	20.8	21.0	21.3	21.5
Short-circuit current [A]	I <sub>sc</sub>	4.59	4.68	4.76	4.83
Temperature [°C]	T <sub>NOCT</sub>	49	49	49	49

The rated power may vary by ± 5 % and all other electrical parameters by ± 10 %.

### Temperature coefficients



Power [%/K]	T <sub>K</sub> (P <sub>n</sub> )	-0.20	-0.20	-0.20	-0.20
Open-circuit voltage [mV/K]	T <sub>K</sub> (U)	-71	-71	-72	-73
Short-circuit current [mA/K]	T <sub>K</sub> (I)	4.58	4.66	4.74	4.81

### Characteristic data



Solar cells per module	56
Cell Type	a-Si/a-Si tandem (amorphous silicon)
Connection	Junction box IP65 with bypass diode, 4 mm <sup>2</sup> -solar cable with Tyco-Connectors, length of pole 1.2 m each
Dimensions	
junction box [mm]	138 x 90 x 22
Front panel	tempered float glass 4 mm
Frame material	aluminium - black

### Dimensions and weight



Dimensions [mm]	1,108 x 1,308 (tolerance ± 3 mm)
Thickness [mm]	50 (tolerance ± 1 mm)
Weight [kg]	18

### Limits



System voltage [V <sub>DC</sub> ]	1000
Maximum reverse current I <sub>R</sub> [A]*	15
Operating module temperature [K]	-40... +85
Maximum load (to IEC 61646)	Pressure: 2,400 N/m <sup>2</sup> or 245 kg/m <sup>2</sup> Suction: 2,400 N/m <sup>2</sup> or 245 kg/m <sup>2</sup>
Fire classification (to IEC 61730)	A
Application classification (to IEC 61730)	C

\* No external current in excess of U<sub>oc</sub> shall be applied to the module.

### Permission and certificates



The modules are certified to IEC 61646 ed. 2 and IEC 61730, Electrical Protection Class II and the CE-guidelines.

The **installation manual** contains additional information on installation and operation.

All information complies with the requirements of the standard EN 50380.



MANAGEMENTSYSTEM  
Certified by DQS according to  
DIN EN ISO 9001:2000 · Reg.-No. 2184  
DIN EN ISO 14001:2005 · Reg.-No. 2184  
OHSAS 18001:1999 · Reg.-No. 2184

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