

# FS SERIES 2 SOLAR MODULE

THIN-FILM SOLUTIONS FOR HIGH PERFORMANCE PV SYSTEMS



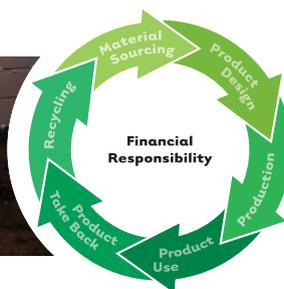
First Solar's FS Series 2 PV Modules represent the latest advancements in thin-film solar module technology. The Series 2 modules are IEC 61646 and Safety Class II (SK II) certified for use in systems up to 1000 VDC. First Solar provides cost effective thin-film module solutions to leading solar project developers and system integrators for large scale, grid connected solar power plants. First Solar application engineers provide technical support and comprehensive product documentation to support the design, installation, and long term operations of high performance PV systems.



Commercial Solar Power Plant

## WARRANTY

- Material and workmanship warranty for five (5) years and a power output warranty of 90% of the nominal output power rating ( $P_{mpp} \pm 5\%$ ) during the first ten (10) years and 80% during twenty-five (25) years subject to the warranty terms and conditions.
- Modules are life cycled managed with a Collection and Recycling Program, providing module owners with no cost, pre-funded end-of-life take back and recycling of the modules.



FS Series 2 Solar Module

## KEY FEATURES

- First Solar's thin film module design produces high energy across a wide range of climatic conditions with excellent low light response and temperature response coefficient
- Proven to perform as predicted with a high Performance Ratio (PR)
- Frameless laminate is robust, cost effective, and recyclable
- Manufactured in highly automated state-of-the-art facilities certified to ISO9001:2000 and ISO14001:2004, quality and environmental management standards
- Tested by leading international institutes and certified for reliability and safety:
  - Safety Class II @1000V
  - Certified to IEC 61646 @1000V
  - CE Mark



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All specifications and warranties apply only to product sold and installed in Europe. For applications in the United States please refer to the US datasheet. (PD-5-401-02 US March 2007)

# FS SERIES 2 SOLAR MODULE

## THIN-FILM SOLUTIONS FOR HIGH PERFORMANCE PV SYSTEMS



### ELECTRICAL SPECIFICATIONS

#### MODEL NUMBERS AND RATINGS AT STC<sup>1\*</sup>

Nominal Values		FS-262	FS-265	FS-267	FS-270	FS-272
Nominal Power (+/-5%)	P <sub>mpp</sub> (W)	62,5	65	67,5	70	72,5
Voltage at P <sub>max</sub>	V <sub>mpp</sub> (V)	62,5	63,7	64,6	67,1	67,9
Current at P <sub>max</sub>	I <sub>mpp</sub> (A)	1,00	1,02	1,05	1,04	1,07
Open Circuit Voltage	V <sub>oc</sub> (V)	86	87	87	89	90
Short Circuit Current	I <sub>sc</sub> (A)	1,17	1,17	1,18	1,19	1,19
Maximum System Voltage	V <sub>sys</sub> (V)	1000				
Temperature Coefficient of P <sub>mpp</sub>	T <sub>k</sub> (P <sub>mpp</sub> )	-0,25%/°C				
Temperature Coefficient of V <sub>oc</sub>	T <sub>k</sub> (V <sub>oc</sub> )	-0,25%/°C				
Temperature Coefficient of I <sub>sc</sub>	T <sub>k</sub> (I <sub>sc</sub> )	+0,04%/°C				
Limiting Reverse Current <sup>2</sup>	I <sub>R</sub> (A)	2				
Maximum Source Circuit Fuse	I <sub>cf</sub> (A)	10				

#### MODEL NUMBERS AND RATINGS AT 800W/m<sup>2</sup>, 45°C, AM 1,5<sup>2\*</sup>

Nominal Values		FS-262	FS-265	FS-267	FS-270	FS-272
Nominal Power (+/-5%)	P <sub>mpp</sub> (W)	46,9	48,8	50,6	52,5	54,4
Voltage at P <sub>max</sub>	V <sub>mpp</sub> (V)	59	60	61	63	64
Current at P <sub>max</sub>	I <sub>mpp</sub> (A)	0,80	0,82	0,84	0,83	0,85
Open Circuit Voltage	V <sub>oc</sub> (V)	80	81	80	83	83
Short Circuit Current	I <sub>sc</sub> (A)	0,96	0,96	0,97	0,97	0,97



FS Series 2 Solar Module

### MECHANICAL DESCRIPTION

Length	1200 mm	Thickness	6,8 mm
Width	600 mm	Area	0,72 mm <sup>2</sup>
Weight	12 kg	Leadwire	3,2 mm <sup>2</sup> , 610 mm
Connectors	Solarline 1 Connector		
Bypass Diode	None		
Cell Type	CdS/CdTe semiconductor, 116 active cells		
Frame Material	None		
Cover Type	3,2 mm heat strengthened front glass laminated to 3,2 mm tempered back glass		
Encapsulation	EVA (Ethyl Vinyl Acetate) with edge seal		

Efficiency at 200W/m<sup>2</sup>: FS-Series 2 modules experience an increase in efficiency of 2% at 200W/m<sup>2</sup> when compared to the efficiency at 1000W/m<sup>2</sup>. Refer to FS Application Note PD-5-420 for detailed analysis of the performance at low light levels.

\* All ratings +/-10%, unless specified otherwise. Specifications are subject to change.

<sup>1</sup> Standard Test Conditions (STC) 1000W/m<sup>2</sup>, AM 1,5, 25°C

<sup>2</sup> The procedure specified in EN50380, Section 3.6.2 is designed for crystalline silicon modules. Because of the cell configuration of thin film modules, extreme voltage and power levels are required to induce reverse currents in the modules, resulting in module temperatures well beyond normal operating ranges or the temperatures intended for the test. Because of this, the IR rating for the module is lower than the fuse requirement for safe operation of the module.



### MECHANICAL DRAWING

