

## HIGH-POWER PV MODULES

First Solar Series 6 Plus photovoltaic (PV) modules set the industry benchmark for reliable energy production, optimized design and environmental performance. The advanced design is optimized for every stage of your application, significantly reducing balance of system, shipping, and operating costs.



## PROVEN PERFORMANCE

- With superior temperature coefficient, spectral response and shading behavior, Series 6 Plus modules generate up to 8% more energy per watt than conventional crystalline silicon solar modules
- Unlike crystalline silicon modules, First Solar's thin film technology does not experience the losses associated with LID and LeTID
- Anti-reflective coated glass enhances energy production



## INNOVATIVE MODULE DESIGN

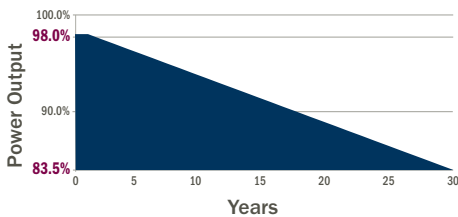
- Under-mount frame provides the cleaning and snow-shedding benefits of a frameless module while protecting edges against breakage
- Innovative SpeedSlots™ combine the robustness of bottom mounting with the speed of top clamping while utilizing fewer fasteners to achieve the industry's fastest installation times and lowest mounting hardware costs
- Dual junction box design optimizes module-to-module connections and eliminates the need for wire management

**430-460 Watts**  
**Up to 18.3% Efficiency**

## INDUSTRY-LEADING MODULE WARRANTY<sup>1</sup>

**98%** WARRANTY START POINT

**0.5%** WARRANTED ANNUAL DEGRADATION RATE



- 30-Year Linear Performance Warranty
- 12-Year Limited Product Warranty
- Industry's first and only Cell Cracking Warranty



## BEST IN-CLASS RELIABILITY & DURABILITY

- Manufactured under one roof with 100% traceable QA/QC
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications
- Inherently immune to and warranted against power loss from cell cracking
- Durable glass/glass construction



## BEST ENVIRONMENTAL PROFILE

- Fastest energy payback time in the industry
- Carbon footprint that is 2.5X lower and a water footprint that is 3X lower than mono crystalline silicon panels on a life cycle basis
- Global PV module recycling services available through First Solar or customer-selected third-party

# FIRST SOLAR SERIES 6 PLUS

MODEL TYPES: FS-6XXX-P / FS-6XXXA-P / FS-6XXX-P-I / FS-6XXXA-P-I  
(XXX = NOMINAL POWER)

## RATINGS AT STANDARD TEST CONDITIONS (1000W/m<sup>2</sup>, AM 1.5, 25°C)<sup>2</sup>

Parameter	Symbol	430	435	440	445	450	455	460
Nominal Power <sup>3</sup> (-0/+5%)	P <sub>MAX</sub> (W)	430	435	440	445	450	455	460
Efficiency (%)	%	17.1	17.3	17.5	17.7	17.9	18.1	18.3
Voltage at P <sub>MAX</sub>	V <sub>MAX</sub> (V)	182.6	183.6	184.7	185.7	186.8	187.8	188.8
Current at P <sub>MAX</sub>	I <sub>MAX</sub> (A)	2.36	2.37	2.38	2.40	2.41	2.42	2.44
Open Circuit Voltage	V <sub>OC</sub> (V)	219.2	219.6	220.0	220.4	221.1	222.0	222.9
Short Circuit Current	I <sub>SC</sub> (A)	2.54	2.55	2.55	2.56	2.57	2.58	2.59
Maximum System Voltage	V <sub>SYS</sub> (V)	1500 <sup>5</sup>						
Limiting Reverse Current	I <sub>R</sub> (A)	5.0						
Maximum Series Fuse	I <sub>CF</sub> (A)	5.0						

## RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m<sup>2</sup>, 20°C air temperature, AM 1.5, 1m/s wind speed)<sup>2</sup>

Parameter	Symbol	324.7	328.5	332.4	336.0	339.9	343.6	347.3
Nominal Power	P <sub>MAX</sub> (W)	324.7	328.5	332.4	336.0	339.9	343.6	347.3
Voltage at P <sub>MAX</sub>	V <sub>MAX</sub> (V)	170.9	172.0	173.1	174.1	175.2	176.2	176.3
Current at P <sub>MAX</sub>	I <sub>MAX</sub> (A)	1.90	1.91	1.92	1.93	1.94	1.95	1.97
Open Circuit Voltage	V <sub>OC</sub> (V)	207.0	207.3	207.7	208.0	208.8	209.6	210.4
Short Circuit Current	I <sub>SC</sub> (A)	2.05	2.06	2.06	2.06	2.07	2.08	2.09

## TEMPERATURE CHARACTERISTICS

Module Operating Temperature Range	(°C)	-40 to +85
Temperature Coefficient of P <sub>MAX</sub>	T <sub>K</sub> (P <sub>MAX</sub> )	-0.32%/°C [Temperature Range: 25°C to 75°C]
Temperature Coefficient of V <sub>OC</sub>	T <sub>K</sub> (V <sub>OC</sub> )	-0.28%/°C
Temperature Coefficient of I <sub>SC</sub>	T <sub>K</sub> (I <sub>SC</sub> )	+0.04%/°C

## MECHANICAL DESCRIPTION

Length	2024mm
Width	1245mm
Area	2.52m <sup>2</sup>
Module Weight	34.9kg (FS-6XXX-P / FS-6XXXA-P) 34.2kg (FS-6XXX-P-I / FS-6XXXA-P-I)
Leadwire <sup>6</sup>	2.5mm <sup>2</sup> , 733mm (+) & Bulkhead (-)
Connectors	TE Connectivity PV4-S, MC4-EVO 2, or alternate
Junction Box	IP68 Rated
Bypass Diode	N/A
Cell Type	Thin film CdTe semiconductor, up to 264 cells
Frame Material	Anodized Aluminum
Front Glass	Heat strengthened
Back Glass	Heat strengthened
Encapsulation	Laminate material with edge seal
Frame to Glass Adhesive	Silicone
Load Rating <sup>7,8</sup>	2400Pa

## PACKAGING INFORMATION

Model Type	Modules Per Pack	Packs per 40' Container
FS-6XXX-P / FS-6XXXA-P	27	18
FS-6XXX-P-I / FS-6XXXA-P-I	29	18

### Disclaimer

The information included in this Module Datasheet is subject to change without notice and is provided for informational purposes only. No contractual rights are established or should be inferred because of user's reliance on the information contained in this Module Datasheet. Please refer to the appropriate Module User Guide and Module Product Specification document for more detailed technical information regarding module performance, installation and use.

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## CERTIFICATIONS AND TESTS <sup>4</sup>

### IEC

61215:2016 & 61730-1:2016<sup>5</sup>, CE  
61701 Salt Mist Corrosion  
60068-2-68 Dust and Sand Resistance

### UL

UL 61730 1500V Listed

### REGIONAL CERTIFICATIONS

InMetro SII  
BIS  
MyHijau  
Buy American Act (BAA) Compliant

### EXTENDED DURABILITY TESTS

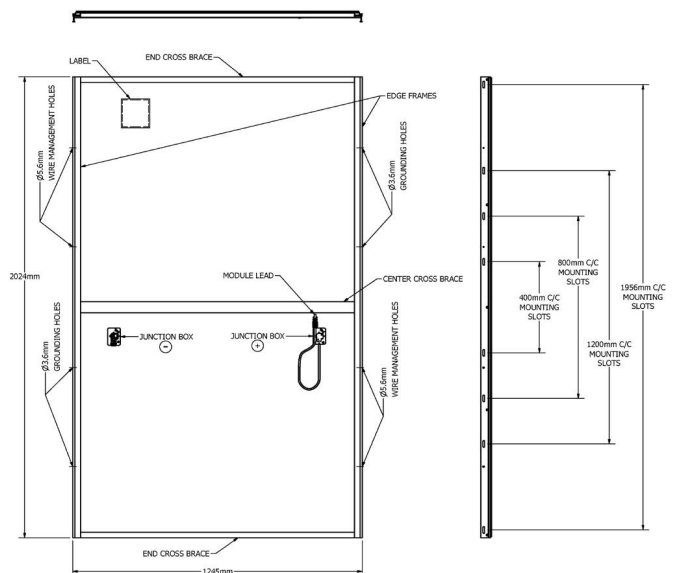
ANSI/CAN/CSA-C450-18  
Long-Term Sequential  
Thresher Test  
PID Resistant

### QUALITY & EHS

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018  
ISO 14064-3:2006  
EPEAT Silver Registered



## MECHANICAL DRAWING



Install in portrait only

- Limited power output and product warranties subject to warranty terms and conditions
- All ratings ±10%, unless specified otherwise. Specifications are subject to change
- Measurement uncertainty applies
- Testing Certifications/Listings pending
- IEC 61730-1:2016 Class II
- Leadwire length from junction box exit to connector mating surface
- 1500Pa tentative load rating for 1956mm mounting slots. Higher loads may be acceptable, subject to testing
- Model Types FS-6XXX-P-I and FS-6XXXA-P-I meet UL 61730 with a reduced mechanical design load. Consult Module User Guide for additional details