



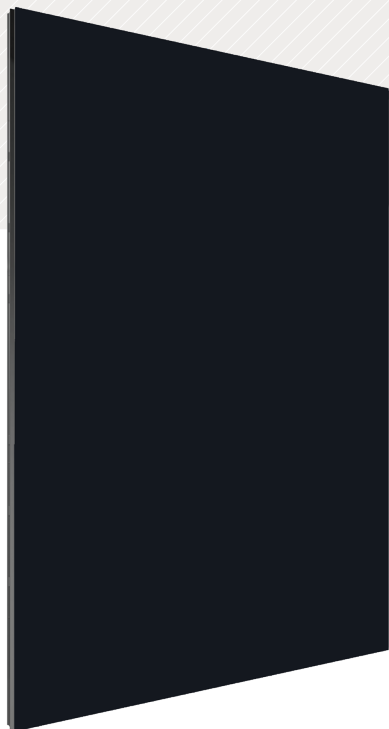
# First Solar Series 6™

ADVANCED THIN FILM SOLAR TECHNOLOGY

MODULE DATASHEET

## HIGH-POWER PV MODULES

First Solar Series 6™ 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.

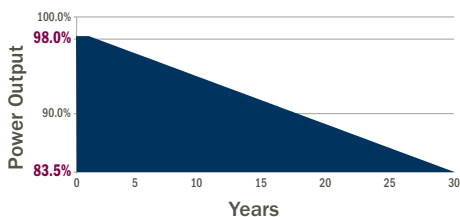


**420-450 Watts**  
**Up to 18.2% Efficiency**

## 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



## PROVEN PERFORMANCE

- With superior temperature coefficient, spectral response and shading behavior, Series 6 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



## 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™

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

| NOMINAL VALUES                      |                      | FS-6420<br>FS-6420A | FS-6425<br>FS-6425A | FS-6430<br>FS-6430A | FS-6435<br>FS-6435A | FS-6440<br>FS-6440A | FS-6445<br>FS-6445A | FS-6450<br>FS-6450A |
|-------------------------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Nominal Power <sup>3</sup> (-0/+5%) | P <sub>MAX</sub> (W) | 420                 | 425                 | 430                 | 435                 | 440                 | 445                 | 450                 |
| Efficiency (%)                      | %                    | 17.0                | 17.2                | 17.4                | 17.6                | 17.8                | 18.0                | 18.2                |
| Voltage at P <sub>MAX</sub>         | V <sub>MAX</sub> (V) | 180.4               | 181.5               | 182.6               | 183.6               | 184.7               | 185.7               | 186.8               |
| Current at P <sub>MAX</sub>         | I <sub>MAX</sub> (A) | 2.33                | 2.34                | 2.36                | 2.37                | 2.38                | 2.40                | 2.41                |
| Open Circuit Voltage                | V <sub>OC</sub> (V)  | 218.5               | 218.9               | 219.2               | 219.6               | 220.0               | 220.4               | 221.1               |
| Short Circuit Current               | I <sub>SC</sub> (A)  | 2.54                | 2.54                | 2.54                | 2.55                | 2.55                | 2.56                | 2.57                |
| 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>

|                             |                      |       |       |       |       |       |       |       |
|-----------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Nominal Power               | P <sub>MAX</sub> (W) | 317.2 | 320.9 | 324.7 | 328.5 | 332.4 | 336.0 | 339.9 |
| Voltage at P <sub>MAX</sub> | V <sub>MAX</sub> (V) | 168.7 | 169.8 | 170.9 | 172.0 | 173.1 | 174.1 | 175.2 |
| Current at P <sub>MAX</sub> | I <sub>MAX</sub> (A) | 1.88  | 1.89  | 1.90  | 1.91  | 1.92  | 1.93  | 1.94  |
| Open Circuit Voltage        | V <sub>OC</sub> (V)  | 206.3 | 206.6 | 207.0 | 207.3 | 207.7 | 208.0 | 208.8 |
| Short Circuit Current       | I <sub>SC</sub> (A)  | 2.04  | 2.05  | 2.05  | 2.06  | 2.06  | 2.06  | 2.07  |

## 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                   | 2009mm  |
| Width                    | 1232mm  |
| Thickness                | 49mm  |
| Area                     | 2.47m <sup>2</sup>                            |
| Module Weight            | 34.5kg  |
| Leadwire <sup>6</sup>    | 2.5mm <sup>2</sup> , 720mm (+) & Bulkhead (-) |
| Connectors               | MC4-EVO 2 or TE Connectivity PV4-S            |
| 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</sup> | 2400Pa  |

## PACKAGING INFORMATION

|                         |    |                             |   |
|-------------------------|----|-----------------------------|---|
| Modules Per Pack        | 27 | Pack Dimensions (L x W x H) | 2200 x 1300 x 1164mm (86 x 51 x 45.8in) |
| Packs per 40' Container | 18 | Pack Weight                 | 1032kg                                  |

### 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 1703 1500V Listed<sup>5</sup>  
UL 61730 1500V Listed

## REGIONAL CERTIFICATIONS

InMetro SII  
BIS FSEC  
MyHijau  
Buy American Act (BAA) Compliant

## EXTENDED DURABILITY TESTS

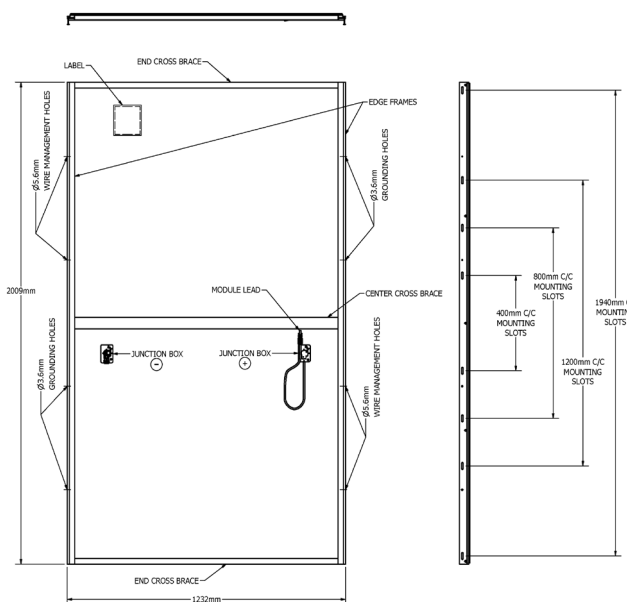
ANSI/CAN/CSA-C450-18  
Long-Term Sequential  
Thresher Test  
PID Resistant

## QUALITY & EHS

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018  
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 | ULC (Canada) 1703 1000V listed
- Leadwire length from junction box exit to connector mating surface
- 1000Pa tentative design load rating for 1940mm mounting slots. Higher loads may be acceptable, subject to testing