First Solar Series 6™
ADVANCED THIN FILM SOLAR TECHNOLOGY

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.

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 with market-leading hail impact certification

BEST ENVIRONMENTAL PROFILE
• Fastest energy payback time in the industry
• Carbon footprint that is up to 6X lower and a water footprint that is up to 24X times lower than conventional c-Si solar panels on a life cycle basis
• Global PV module recycling services available through First Solar or customer-selected third-party

420-450 Watts
Up to 18.2% Efficiency

INDUSTRY-LEADING MODULE WARRANTY
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
**FIRST SOLAR SERIES 6™**

**MODEL TYPES AND RATINGS AT STANDARD TEST CONDITIONS (1000W/m², AM 1.5, 25°C)**

<table>
<thead>
<tr>
<th>NOMINAL VALUES</th>
<th>FS-6420</th>
<th>FS-6425</th>
<th>FS-6430</th>
<th>FS-6435</th>
<th>FS-6440</th>
<th>FS-6445</th>
<th>FS-6450</th>
<th>FS-6455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power² (-0/+5%) P_MAX (W)</td>
<td>420</td>
<td>425</td>
<td>430</td>
<td>435</td>
<td>440</td>
<td>445</td>
<td>450</td>
<td>450</td>
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<tr>
<td>Efficiency (%)</td>
<td>17.0</td>
<td>17.2</td>
<td>17.4</td>
<td>17.6</td>
<td>17.8</td>
<td>18.0</td>
<td>18.2</td>
<td>18.4</td>
</tr>
<tr>
<td>Voltage at P_MAX V_MAX(V)</td>
<td>180.4</td>
<td>181.5</td>
<td>182.6</td>
<td>183.6</td>
<td>184.7</td>
<td>185.7</td>
<td>186.8</td>
<td>187.9</td>
</tr>
<tr>
<td>Current at P_MAX I_MAX(A)</td>
<td>2.33</td>
<td>2.34</td>
<td>2.36</td>
<td>2.37</td>
<td>2.38</td>
<td>2.40</td>
<td>2.41</td>
<td>2.42</td>
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<tr>
<td>Open Circuit Voltage V_OC(V)</td>
<td>218.5</td>
<td>219.8</td>
<td>219.2</td>
<td>219.6</td>
<td>220.0</td>
<td>220.4</td>
<td>221.1</td>
<td>221.5</td>
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<tr>
<td>Short Circuit Current I_SC(A)</td>
<td>2.54</td>
<td>2.54</td>
<td>2.54</td>
<td>2.55</td>
<td>2.55</td>
<td>2.56</td>
<td>2.57</td>
<td>2.58</td>
</tr>
<tr>
<td>Maximum System Voltage V_MAX(V)</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
<td>1500²</td>
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<tr>
<td>Limiting Reverse Current I_R(A)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Maximum Series Fuse I_SP(A)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
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</tr>
</tbody>
</table>

**RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m², 20°C air temperature, AM 1.5, 1m/s wind speed)²**

<table>
<thead>
<tr>
<th>Temperature Characteristics</th>
<th>FS-6420</th>
<th>FS-6425</th>
<th>FS-6430</th>
<th>FS-6435</th>
<th>FS-6440</th>
<th>FS-6445</th>
<th>FS-6450</th>
<th>FS-6455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Operating Temperature Range (°C)</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
</tr>
<tr>
<td>Temperature Coefficient of P_MAX Tₚ(P_MAX)</td>
<td>-0.32%/°C [Temperature Range: 25°C to 75°C]</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
<td>-0.32%/°C</td>
</tr>
<tr>
<td>Temperature Coefficient of V_OC Tᵥ(V_OC)</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
<td>-0.28%/°C</td>
</tr>
<tr>
<td>Temperature Coefficient of I_SC Tᵢ(I_SC)</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
<td>+0.04%/°C</td>
</tr>
</tbody>
</table>

**MECHANICAL DESCRIPTION**

- **Length**: 2009mm
- **Width**: 1232mm
- **Thickness**: 49mm
- **Area**: 2.47m²
- **Module Weight**: 34.5kg
- **Leadwire**: 2.5mm², 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**: 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

**CERTIFICATIONS AND TESTS**

- **IEC**: 61215:2016 & 61730-1:2016², CE
- **UL**: 1703 1500V Listed², UL 61730 1500V Listed
- **REGионаL CERTIFICATIONS**: InMetro, SII, BIS, FSEC, MyHijau
- **QUALITY & EHS**
  - Buy American Act (BAA) Compliant
  - ISO 9001:2015
  - ISO 14001:2015
  - ISO 45001:2018
  - EPEAT Silver Registered

**EXTENDED DURABILITY TESTS**

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

**Q**ualify & **E**HS

- **ISO 45001:2018**
- **ISO 14001:2015**
- **ISO 9001:2015**
- **FSEC**
- **SII**
- **InMetro**
- **UL**
- **FLEC**
- **FSEC**
- **UL**
- **FLEC**
- **FSEC**

**DISCLAIMER**

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