Series 7 TR1 thin film solar modules combine First Solar’s thin film technology with an optimized structural design to deliver improved efficiency, enhanced installation velocity, and unmatched lifetime energy performance for large/utility-scale PV projects.

**More Lifetime Energy per Nameplate Watt**
- Industry’s best (0.3%/yr) warranted degradation rate (>89% power output after 30 years)
- Superior temperature coefficient, spectral and shading response

**Unmatched Quality and Reliability**
- End-to-end manufacturing process for globally consistent quality
- Tested and certified to IEC standards and beyond
- Durable glass/glass construction
- Immune to and warranted against power loss from cell cracking
- 30-year Linear Performance Warranty
- 12-year Limited Product Warranty

**Optimized Module Design**
- Optimized back rail mount design enhances installation velocity
- Frameless design improves soiling and snow shedding
- Dual junction box design reduces wire management complexity and cost

**Industry’s Most Eco-efficient PV Solution**
- Industry leading carbon footprint, water footprint and energy payback time
- Globally available PV module recycling services

**America’s Solar Company**
- Designed, responsibly sourced, and manufactured in the USA

Learn more about First Solar and Series 7 TR1 at firstsolar.com/S7

First Solar Lifetime Energy Advantage
From 30 Year Warranted Annual Power Degradation
### Series 7 TR1

#### Electrical Specifications

<table>
<thead>
<tr>
<th>Model Type: FS-7XXXA-TR1 (XXX = Nominal Power)</th>
<th>RATINGS AT STANDARD TEST CONDITIONS (1000W/m², AM 1.5, 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (G +/- 5%) Pmax (W)</td>
<td>505</td>
</tr>
<tr>
<td>Efficiency (%)</td>
<td>%</td>
</tr>
<tr>
<td>Cell Efficiency (%)</td>
<td>%</td>
</tr>
<tr>
<td>Voltage at Pmax Vmax (V)</td>
<td>182.5</td>
</tr>
<tr>
<td>Current at Pmax Imax (A)</td>
<td>2.77</td>
</tr>
<tr>
<td>Open Circuit Voltage Voc (V)</td>
<td>223.9</td>
</tr>
<tr>
<td>Short Circuit Current Isc (A)</td>
<td>3.01</td>
</tr>
<tr>
<td>Maximum System Voltage Vsys (V)</td>
<td>1500</td>
</tr>
<tr>
<td>Limiting Reverse Current Irev (A)</td>
<td>5.0</td>
</tr>
<tr>
<td>Maximum Series Fuse Ifuse (A)</td>
<td>5.0</td>
</tr>
</tbody>
</table>

#### RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (600W/m², 20°C air temperature, AM 1.5, 1m/s wind speed)

| Normal Power Pmax (W) | 378.1 | 381.8 | 385.6 | 389.4 | 393.2 | 396.8 | 400.6 | 404.4 |
| Voltage at Pmax Vmax (V) | 168.8 | 169.7 | 170.6 | 170.8 | 171.7 | 172.5 | 173.4 | 174.3 |
| Current at Pmax Imax (A) | 2.24 | 2.25 | 2.26 | 2.28 | 2.29 | 2.30 | 2.31 | 2.32 |
| Open Circuit Voltage Voc (V) | 211.9 | 212.4 | 212.9 | 213.5 | 214.0 | 214.5 | 215.0 | 215.5 |
| Short Circuit Current Isc (A) | 2.44 | 2.44 | 2.45 | 2.45 | 2.46 | 2.47 | 2.47 | 2.48 |

#### TEMPERATURE CHARACTERISTICS

| Module Operating Temperature Range (°C) | -40 to +85 |
| Temperature Coefficient of Pmax Tp (Pmax) | -0.32%/°C (Temperature Range: 25°C to 75°C) |
| Temperature Coefficient of Voc Tc (Voc) | -0.28%/°C |
| Temperature Coefficient of Isc Tc (Isc) | +0.04%/°C |

#### Mechanical Specifications

- **Length**: 2300mm
- **Width**: 1216mm
- **Area**: 2.80m²
- **Module Weight**: 39.7kg
- **Leadwire**: 2.5mm², 650mm (+) & Bulkhead (-)
- **Connectors**: TE Connectivity PV4-S or alternate
- **Junction Box**: IP68 Rated
- **Bypass Diode**: N/A
- **Cell Type**: Thin film CdTe semiconductor, up to 268 cells
- **Frame Material**: Galvanized steel
- **Front Glass**: Heat strengthened
- **Back Glass**: Heat strengthened
- **Encapsulation**: Laminate material with edge seal
- **Frame to Glass Adhesive**: Silicone
- **Load Rating**: 2400Pa

#### Certifications & Tests

- **CERTIFICATIONS & LISTINGS**
  - UL 61730 1500V Listed
  - IEC 61701 Salt Mist Corrosion
  - IEC 60068-2-68 Dust and Sand Resistance
  - IEC 62716 Ammonia Corrosion

- **EXTENDED DURABILITY TESTS**
  - IEC TS 63209-1 Extended Stress Test
  - 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

### Packagings Information

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Modules Per Pack</th>
<th>Packs per 53' Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS-7XXXA-TR1</td>
<td>46</td>
<td>10</td>
</tr>
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</table>