



# Series 7 TR1.

## 505-540 Watt Thin Film Solar Module

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

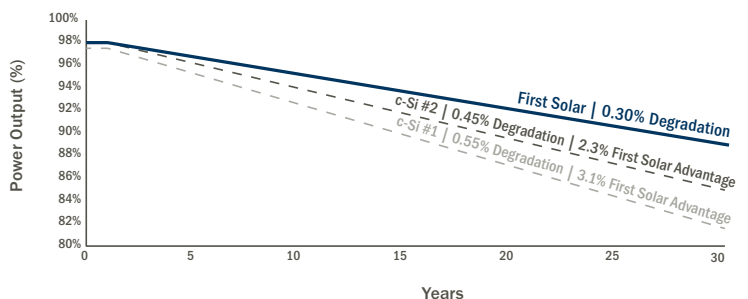
**19.3%**  
HIGH BIN EFFICIENCY

**30YR**  
LINEAR PERFORMANCE  
WARRANTY

**98%**  
WARRANTY START POINT

**0.3%**  
WARRANTED ANNUAL  
DEGRADATION RATE

**First Solar Lifetime Energy Advantage**  
From 30 Year Warranted Annual Power Degradation



Learn more about First Solar and Series 7 TR1 at [firstsolar.com/S7](https://firstsolar.com/S7)

# Series 7 TR1.

## Electrical Specifications

**MODEL TYPES: FS-7XXXA-TR1** (XXX = NOMINAL POWER)  
**RATINGS AT STANDARD TEST CONDITIONS** (1000W/m<sup>2</sup>, AM 1.5, 25°C)<sup>2</sup>

Nominal Power <sup>3</sup> (-0/+5%)	P <sub>MAX</sub> (W)	505	510	515	520	525	530	535	540
Efficiency (%)	%	18.1	18.3	18.4	18.6	18.8	19.0	19.1	19.3
Cell Efficiency (%)	%	18.9	19.1	19.3	19.5	19.7	19.9	20.1	20.3
Voltage at P <sub>MAX</sub>	V <sub>MAX</sub> (V)	182.5	183.4	184.3	185.2	186.0	186.9	187.8	188.7
Current at P <sub>MAX</sub>	I <sub>MAX</sub> (A)	2.77	2.78	2.80	2.81	2.82	2.84	2.85	2.86
Open Circuit Voltage	V <sub>OC</sub> (V)	223.9	224.5	225.0	225.6	226.1	226.7	227.2	227.7
Short Circuit Current	I <sub>SC</sub> (A)	3.01	3.02	3.03	3.04	3.04	3.05	3.06	3.06
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							

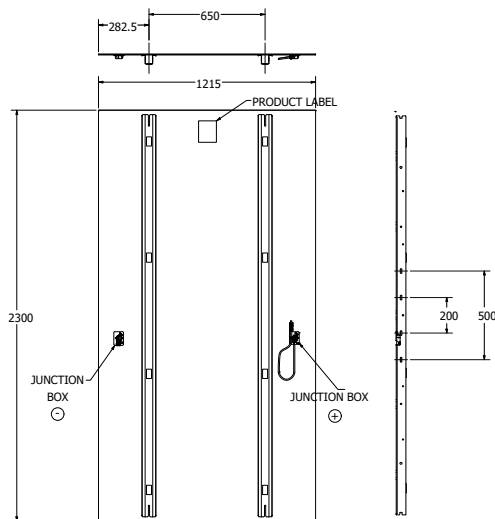
**RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C** (800W/m<sup>2</sup>, 20°C air temperature, AM 1.5, 1m/s wind speed)<sup>2</sup>

Nominal Power	P <sub>MAX</sub> (W)	378.1	381.8	385.6	389.4	393.2	396.8	400.6	404.4
Voltage at P <sub>MAX</sub>	V <sub>MAX</sub> (V)	168.8	169.7	170.6	170.8	171.7	172.5	173.4	174.3
Current at P <sub>MAX</sub>	I <sub>MAX</sub> (A)	2.24	2.25	2.26	2.28	2.29	2.30	2.31	2.32
Open Circuit Voltage	V <sub>OC</sub> (V)	211.9	212.4	212.9	213.5	214.0	214.5	215.0	215.5
Short Circuit Current	I <sub>SC</sub> (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 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 Specifications



### PACKAGING INFORMATION

Model Type	Modules Per Pack	Packs per 53' Container
FS-7XXXA-TR1	46	10



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SUSTAINABLE ENERGY FUTURE

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## Certifications & Tests<sup>4</sup>

### CERTIFICATIONS & LISTINGS

UL 61730 1500V Listed  
 IEC 61215:2021 & 61730-1:2016<sup>5</sup>  
 IEC 61701 Salt Mist Corrosion  
 IEC 60068-2-68 Dust and Sand Resistance  
 IEC 62716 Ammonia Corrosion

### EXTENDED DURABILITY TESTS

IEC 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



### MECHANICAL DESCRIPTION

Length	2300mm
Width	1215mm
Area	2.79m <sup>2</sup>
Module Weight	39.7kg
Leadwire <sup>6</sup>	2.5mm <sup>2</sup> , 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
Back Rail 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

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