



Origin1300 - Solar System Panel Specifications

Your Origin system will be supplied with one of the following sets of panels:

| Manufacturer | Mono Or Poly | Size (Watts) |
|---------------------|---------------------|---------------------|
| Suntech | Mono | 190 |
| Trina | Mono | 190 |

Please note all solar panels supplied are CEC accredited and compliant with IEC/EN61730 and IEC/EN61215 or IEC/EN61646.

The choice of panels will be at the **sole discretion** of our installer subject to such matters as stock availability.

Please see the following specification sheet for further details and panel specifications.

STP190S - 24/Ad+ STP185S - 24/Ad+

190 Watt

MONOCRYSTALLINE SOLAR MODULE

Features



High module conversion efficiency (up to 14.9%), through superior manufacturing technology



Guaranteed 0-5W positive power output tolerance ensures high reliability



Proprietary Gallium-F22 doping process dramatically reduces initial light-induced degradation to <1%, thus delivering better power and performance over time



New Jumbo cells with 4% larger solar cell area produce more power per module



Entire module certified to withstand high wind loads (2400 Pascal) and snow loads (5400 Pascal) *



Trust Suntech to Deliver Reliable Performance Over Time

- World's leading manufacturer of crystalline silicon photovoltaic modules
- Unrivaled manufacturing capacity and world-class technology
- Rigorous quality control meeting the highest international standards : ISO 9001: 2008 and ISO 14001: 2004
- Certification and standards: IEC 61215, IEC 61730, conformity to CE

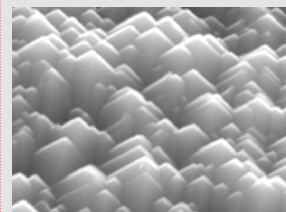
Industry-leading warranty



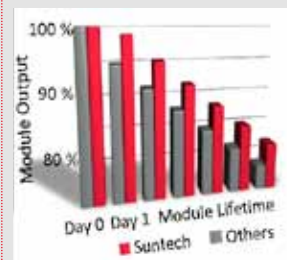
- 25 year transferrable power output warranty: 5 year/95%, 12 year/90%, 18 year/85%, 25 year/80% **
- Based on nominal power
- Warrants 6.7% more power than the market standard over 25 years
- 5 year material and workmanship warranty

* Please refer to Suntech Standard Module Installation Manual for details.

** Please refer to Suntech Product Warranty for details.



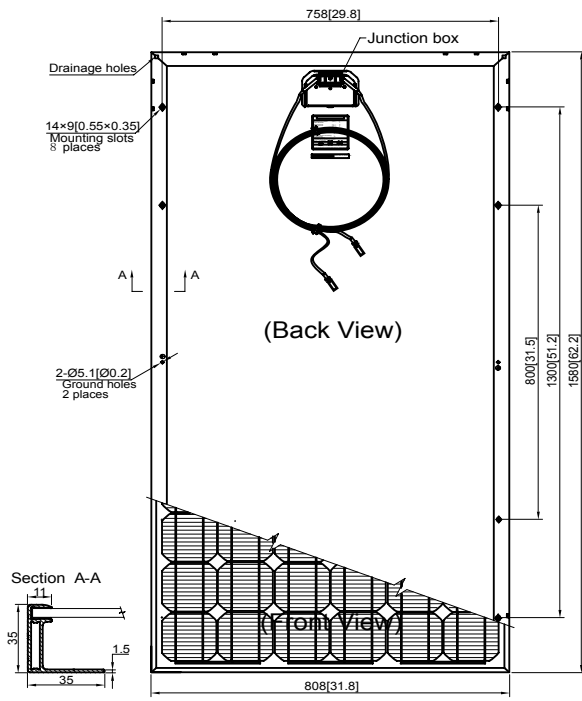
Patented surface pyramids enhance sunlight absorption by redirecting reflected light to other areas on the cell surface to be reabsorbed



Suntech cells feature a breakthrough process that replaces traditional boron doping with gallium doping. The effect of initial light-induced degradation is dramatically reduced, leading to greater power output over the entire module lifetime.

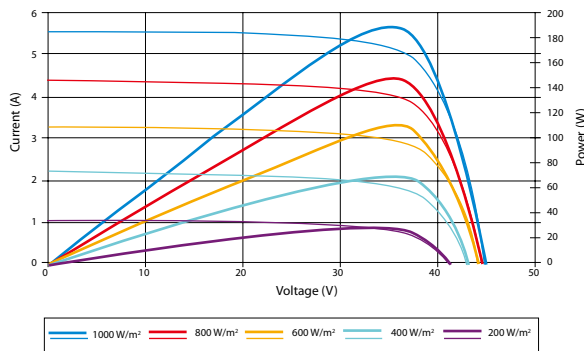
Graph is for illustration only and does not imply any guarantee of module performance. Please check warranty for details.

STP190S - 24/Ad+
STP185S - 24/Ad+



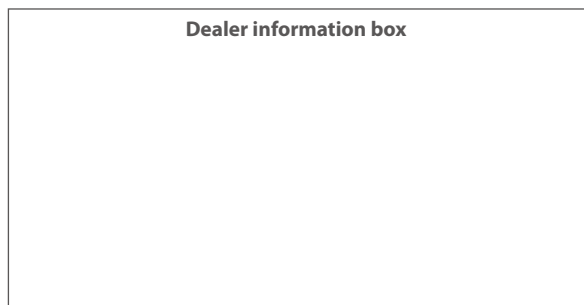
Note: mm [inch]

Current-Voltage & Power-Voltage Curve (190S-24)



Temperature Characteristics

| | |
|---|------------|
| Nominal Operating Cell Temperature (NOCT) | 45±2°C |
| Temperature Coefficient of Pmax | -0.48 %/°C |
| Temperature Coefficient of Voc | -0.34 %/°C |
| Temperature Coefficient of Isc | 0.037 %/°C |



Specifications are subject to change without further notification

Electrical Characteristics

| STC | STP190S-24/Ad+ | STP185S-24/Ad+ |
|---------------------------------|------------------|----------------|
| Optimum Operating Voltage (Vmp) | 36.5 V | 36.4 V |
| Optimum Operating Current (Imp) | 5.20 A | 5.09 A |
| Open - Circuit Voltage (Voc) | 45.2 V | 45.0 V |
| Short - Circuit Current (Isc) | 5.62 A | 5.43 A |
| Maximum Power at STC (Pmax) | 190 W | 185 W |
| Module Efficiency | 14.9% | 14.5% |
| Operating Temperature | -40 °C to +85 °C | -40°C to +85°C |
| Maximum System Voltage | 600 V DC | 600 V DC |
| Maximum Series Fuse Rating | 15 A | 15 A |
| Power Tolerance | 0/+5 W | 0/+5 W |

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5

| NOCT | STP190S-24/Ad+ | STP185S-24/Ad+ |
|---|----------------|----------------|
| Maximum Power (W) | 139 W | 135 W |
| Maximum Power Voltage (V) | 33.1 V | 33.0 V |
| Maximum Power Current (A) | 4.19 A | 4.10 A |
| Open Circuit Voltage (Voc) | 41.3 V | 41.0 V |
| Short Circuit Current (Isc) | 4.56 A | 4.40 A |
| Efficiency Reduction (from 1000 W/m² to 200 W/m²) | <4.5% | <4.5% |

NOCT: Irradiance 800 W/m², ambient temperature 20 °C, wind speed 1 m/s

Mechanical Characteristics

| | |
|---------------|---|
| Solar Cell | Monocrystalline 125 × 125 mm (5 inches) |
| No. of Cells | 72 (6 × 12) |
| Dimensions | 1580 × 808 × 35mm (62.2 × 31.8 × 1.4 inches) |
| Weight | 15.5 kgs (34.1 lbs.) |
| Front Glass | 3.2 mm (0.13 inches) tempered glass |
| Frame | Anodized aluminium alloy |
| Junction Box | IP67 rated |
| Output Cables | H+S RADOX® SMART cable 4.0 mm² (0.006 inches²), symmetrical lengths (-) 1000 mm (39.4 inches) and (+) 1000 mm (39.4 inches), H4 connectors (MC4 compatible) |

Packing Configuration

| Container | 20' GP | 40' GP |
|-----------------------|--------|--------|
| Pieces per pallet | 26 | 26 |
| Pallets per container | 12 | 28 |
| Pieces per container | 312 | 728 |

TSM-DC01A

The **Comax** Solution

by TrinaSolar



Module can bear snow loads up to 5400Pa and wind loads up to 2400Pa



Guaranteed power output (0~+3%)



High performance under low light conditions (Cloudy days, mornings and evenings)



Optimized corners, for increased output up to 195W



Independently certified by international certification bodies*



Manufactured according to International Quality and Environment Management System (ISO9001, ISO14001)

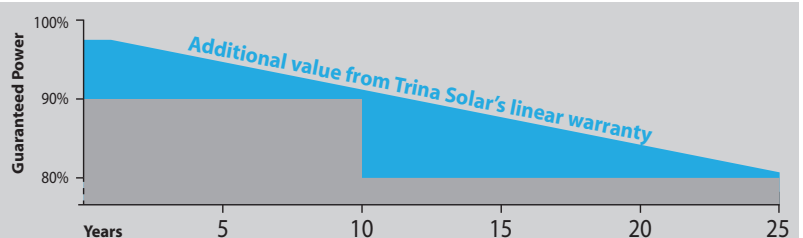


The optimized corners of the cells used in our TSM-DC01A enlarge the module's energy generating surface by 4.2%. Additionally, each cell now has 54 gridlines on the top surface, which improves energy flow. Through these improvements, this module now generates up to 195W. It is the perfect size for residential and small commercial installations.



linear performance warranty

10 year product warranty
25 year linear power warranty



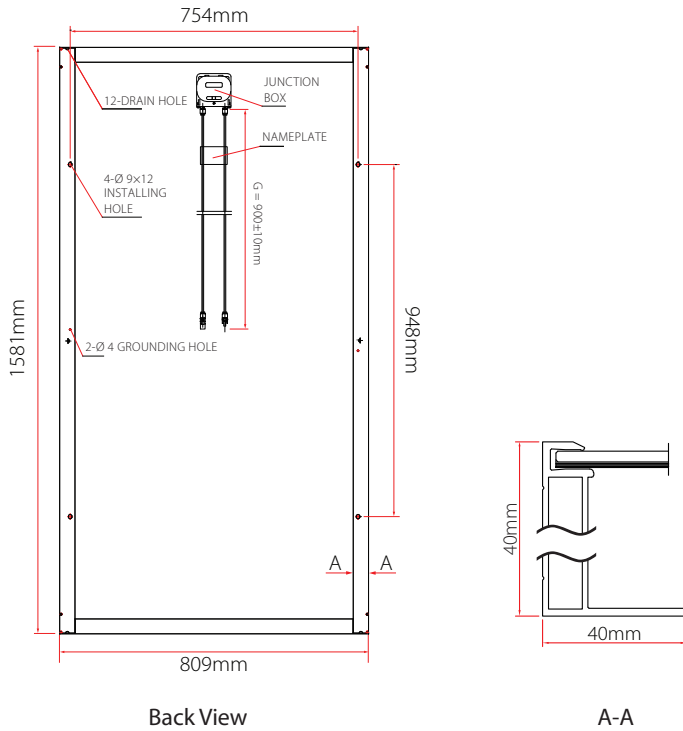
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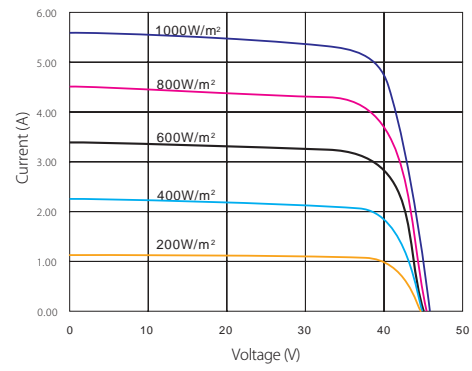
Founded in 1997, Trina Solar is a vertically integrated PV manufacturer, producing everything from ingots to modules, using both mono and multicrystalline technologies. By the end of 2011, the company will have a nameplate module capacity of 1.9GW. Trina Solar's wide range of products are used in residential, commercial, industrial and public utility applications throughout the world.

Only by matching an efficient cost-structure with proven performance will we, as an industry, achieve grid parity. And at Trina Solar, we have both.

Dimensions of PV module TSM-DC01A



I-V Curves of PV module TSM-190DC01A



| | |
|----------------|-------------|
| Efficiency | up to 15.2% |
| Wattage | up to 195W |
| Years warranty | 25 |

Certification



| Electrical Data @ STC | TSM-185DC01A | TSM-190DC01A | TSM-195DC01A |
|---------------------------------------|--------------|--------------|--------------|
| Peak Power Watts- P_{MAX} (WP) | 185 | 190 | 195 |
| Power Output Tolerance- P_{MAX} (%) | 0/+3 | 0/+3 | 0/+3 |
| Maximum Power Voltage- V_{MAX} (V) | 36.1 | 36.8 | 37.4 |
| Maximum Power Current- I_{MPP} (A) | 5.14 | 5.18 | 5.22 |
| Open Circuit Voltage- V_{OC} (V) | 44.6 | 45.1 | 45.6 |
| Short Circuit Current- I_{SC} (A) | 5.48 | 5.52 | 5.56 |
| Module Efficiency η_m (%) | 14.5 | 14.9 | 15.2 |

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m², Cell Temperature 25°C)

Mechanical Data

| | |
|-------------------|---|
| Solar cells | Monocrystalline 125 x 125mm (5 inches) |
| Cells orientation | 72 cells (6x12) |
| Module dimension | 1581 x 809 x 40mm (62.24 x 31.85 x 1.57inches) |
| Weight | 15.6kg (34.4lb) |
| Glass | High transparency solar glass 3.2mm (0.13inches) |
| Frame | Anodized aluminium alloy |
| J-Box | IP 65 rated |
| Cables/Connector | Photovoltaic Technology cable 4.0mm ² (0.006inches ²), 900mm (35.4inches), MC4 |

Temperature Ratings

| | |
|---|-------------|
| Nominal Operating Cell Temperature (NOCT) | 46°C (±2°C) |
| Temperature Coefficient of P_{MPP} | - 0.45%/°C |
| Temperature Coefficient of V_{OC} | - 0.35%/°C |
| Temperature Coefficient of I_{SC} | 0.05%/°C |

Maximum Ratings

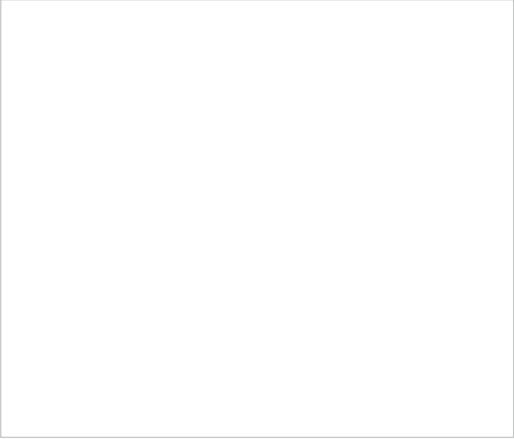
| | |
|-------------------------|-----------|
| Operational Temperature | -40~+85°C |
| Maximum System Voltage | 1000VDC |
| Max Series Fuse Rating | 10A |

Warranty

10 years workmanship warranty
 25 years linear performance warranty
 (Please refer to Trina Solar product warranty for details)

Packaging Configuration

| | |
|---------------------------|---------|
| Modules per box | 23 pcs |
| Modules per 40' container | 644 pcs |



TSM_EU_2011_RevB