

# 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\*

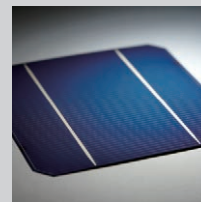


Manufactured according to International Quality and Environment Management System (ISO9001, ISO14001)



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.

Trina Solar, **the best €/kWh** value under the sun



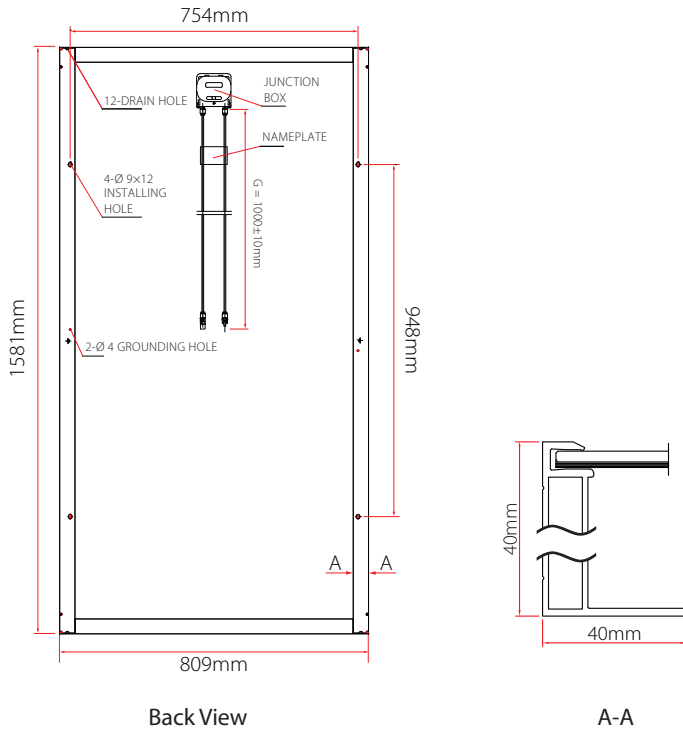
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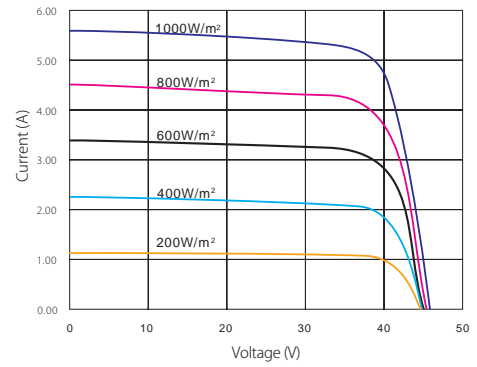
Founded in 1997, Trina Solar is a vertically integrated PV manufacturer, producing everything from ingots to modules, using both mono and multicrystalline technologies. At the end of 2011, the company had a nameplate module capacity of 1.7GW. Trina Solar's wide range of products are used in residential, 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-180DC01A | TSM-185DC01A | TSM-190DC01A | TSM-195DC01A |
|---------------------------------------|--------------|--------------|--------------|--------------|
| Peak Power Watts- $P_{MAX}$ (WP)      | 180          | 185          | 190          | 195          |
| Power Output Tolerance- $P_{MAX}$ (%) | 0/+3         | 0/+3         | 0/+3         | 0/+3         |
| Maximum Power Voltage- $V_{MAX}$ (V)  | 35.6         | 36.1         | 36.8         | 37.4         |
| Maximum Power Current- $I_{MPP}$ (A)  | 5.08         | 5.14         | 5.18         | 5.22         |
| Open Circuit Voltage- $V_{OC}$ (V)    | 44.2         | 44.6         | 45.1         | 45.6         |
| Short Circuit Current- $I_{SC}$ (A)   | 5.44         | 5.48         | 5.52         | 5.56         |
| Module Efficiency $\eta_m$ (%)        | 14.1         | 14.5         | 14.9         | 15.2         |

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m<sup>2</sup>, 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 <sup>2</sup> (0.006inches <sup>2</sup> ), 1000mm (39.4inches), 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**

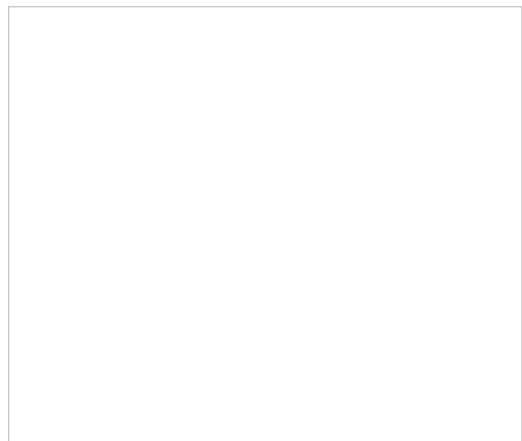
|                         |           |
|-------------------------|-----------|
| Operational Temperature | -40~+85°C |
| Maximum System Voltage  | 1000VDC   |
| Max Series Fuse Rating  | 10A       |

**Warranty**

|                                     |
|-------------------------------------|
| 5 years workmanship warranty        |
| 10 years warranty, 90% power output |
| 25 years warranty, 80% power output |

**Packaging Configuration**

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



TSM\_EU\_2011\_RevA