

Characteristics of a PV module

Manufacturer, model : **Trina Solar, TSM-530DEG19MC.20(II)**
 Availability : Prod. Since 2020
 Data source : TSL_2020_7

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|------------------------------------------------------------------------------------------------------|---------------|---------------|----------------------------------|--------------------|
| STC power (manufacturer) | Pnom | 530 Wp | Technology | Si-mono |
| Module size (W x L) | 1.096 x 2.384 | m² | Rough module area | Amodule 2.61 m² |
| Number of cells | 2 x 55 | | Sensitive area (cells) | Acells 2.43 m² |
| Specifications for the model (manufacturer or measurement data) | | | | |
| Reference temperature | TRef | 25 °C | Reference irradiance | GRef 1000 W/m² |
| Open circuit voltage | Voc | 37.3 V | Short-circuit current | Isc 18.19 A |
| Max. power point voltage | Vmpp | 31.0 V | Max. power point current | Impp 17.11 A |
| => maximum power | Pmpp | 530.4 W | Isc temperature coefficient | mulsc 7.3 mA/°C |
| One-diode model parameters | | | | |
| Shunt resistance | Rshunt | 1200 ohm | Diode saturation current | IoRef 0.045 nA |
| Serie resistance | Rserie | 0.14 ohm | Voc temp. coefficient | MuVoc -101 mV/°C |
| | | | Diode quality factor | Gamma 0.99 |
| Specified Pmax temper. coeff. | muPMaxR | -0.34 %/°C | Diode factor temper. coeff. | muGamma 0.000 1/°C |
| Reverse Bias Parameters, for use in behaviour of PV arrays under partial shadings or mismatch | | | | |
| Reverse characteristics (dark) | BRev | 3.20 mA/V² | (quadratic factor (per cell)) | |
| Number of by-pass diodes per module | | 3 | Direct voltage of by-pass diodes | -0.7 V |

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|-----------------------------------------------------------------------------------|-----------|----------|---------------------------|-------------------|
| Model results for standard conditions (STC: T=25° C, G=1000 W/m² , AM=1.5) | | | | |
| Max. power point voltage | Vmpp | 30.6 V | Max. power point current | Impp 17.38 A |
| Maximum power | Pmpp | 531.8 Wc | Power temper. coefficient | muPmpp -0.34 %/°C |
| Efficiency(/ Module area) | Eff_mod | 20.4 % | Fill factor | FF 0.784 |
| Efficiency(/ Cells area) | Eff_cells | 21.9 % | | |

