

# Characteristics of a PV module

Manufacturer, model : **Trina Solar, TSM-540DE19M(II)**  
 Availability : Prod. Since 2020  
 Data source : TSL\_2020\_7

<b>STC power (manufacturer)</b>	<b>Pnom</b>	<b>540 Wp</b>	<b>Technology</b>	<b>Si-mono</b>
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
<b>Specifications for the model (manufacturer or measurement data)</b>				
Reference temperature	TRef	25 °C	Reference irradiance	GRef 1000 W/m²
Open circuit voltage	Voc	37.5 V	Short-circuit current	Isc 18.41 A
Max. power point voltage	Vmpp	31.2 V	Max. power point current	Impp 17.33 A
=> maximum power	Pmpp	540.7 W	Isc temperature coefficient	mulsc 7.4 mA/°C
<b>One-diode model parameters</b>				
Shunt resistance	Rshunt	1000 ohm	Diode saturation current	IoRef 0.039 nA
Serie resistance	Rserie	0.13 ohm	Voc temp. coefficient	MuVoc -102 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
<b>Reverse Bias Parameters, for use in behaviour of PV arrays under partial shadings or mismatch</b>				
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

<b>Model results for standard conditions (STC: T=25° C, G=1000 W/m² , AM=1.5)</b>				
Max. power point voltage	Vmpp	30.8 V	Max. power point current	Impp 17.59 A
Maximum power	Pmpp	542.0 Wc	Power temper. coefficient	muPmpp -0.34 %/°C
Efficiency(/ Module area)	Eff_mod	20.7 %	Fill factor	FF 0.785
Efficiency(/ Cells area)	Eff_cells	22.3 %		

