

Characteristics of a PV module

Manufacturer, model : **Trina Solar, TSM-545DE19M(II)**
 Availability : Prod. Since 2020
 Data source : TSL_2020_7

STC power (manufacturer)	Pnom	545 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	37.7 V	Short-circuit current	Isc 18.47 A
Max. power point voltage	Vmpp	31.4 V	Max. power point current	Impp 17.37 A
=> maximum power	Pmpp	545.4 W	Isc temperature coefficient	mulsc 7.4 mA/°C
One-diode model parameters				
Shunt resistance	Rshunt	1000 ohm	Diode saturation current	IoRef 0.038 nA
Serie resistance	Rserie	0.13 ohm	Voc temp. coefficient	MuVoc -103 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

Model results for standard conditions (STC: T=25° C, G=1000 W/m² , AM=1.5)				
Max. power point voltage	Vmpp	31.0 V	Max. power point current	Impp 17.65 A
Maximum power	Pmpp	546.8 Wc	Power temper. coefficient	muPmpp -0.34 %/°C
Efficiency(/ Module area)	Eff_mod	20.9 %	Fill factor	FF 0.785
Efficiency(/ Cells area)	Eff_cells	22.5 %		

