

# Characteristics of a PV module

Manufacturer, model : **Trina Solar, TSM-500DE18M(II)**  
 Availability : Prod. Since 2020  
 Data source : UL 2020

<b>STC power (manufacturer)</b>	<b>Pnom</b>	<b>500 Wp</b>	<b>Technology</b>	<b>Si-mono</b>
Module size (W x L)	1.102 x 2.187	m²	Rough module area	Amodule 2.41 m²
Number of cells	2 x 75		Sensitive area (cells)	Acells 2.21 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	51.7 V	Short-circuit current	Isc 12.28 A
Max. power point voltage	Vmpp	42.8 V	Max. power point current	Impp 11.69 A
=> maximum power	Pmpp	500.3 W	Isc temperature coefficient	mulsc 6.2 mA/°C
<b>One-diode model parameters</b>				
Shunt resistance	Rshunt	300 ohm	Diode saturation current	IoRef 0.012 nA
Serie resistance	Rserie	0.23 ohm	Voc temp. coefficient	MuVoc -158 mV/°C
			Diode quality factor	Gamma 0.97
Specified Pmax temper. coeff.	muPMaxR	-0.36 %/°C	Diode factor temper. coeff.	muGamma -0.001 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	43.1 V	Max. power point current	Impp 11.63 A
Maximum power	Pmpp	500.6 Wc	Power temper. coefficient	muPmpp -0.35 %/°C
Efficiency(/ Module area)	Eff_mod	20.8 %	Fill factor	FF 0.789
Efficiency(/ Cells area)	Eff_cells	22.7 %		

