

## Characteristics of a PV module

Manufacturer, model : **JINERGY-166, JNMM144-450-9BB-1500-166-NEW-V2**

Data source : 2020.07.08

<b>STC power (manufacturer)</b>	<b>Pnom</b>	<b>450 Wp</b>	<b>Technology</b>	<b>Si-mono</b>
Module size (W x L)	1.038 x 2.094	m <sup>2</sup>	Rough module area	Amodule 2.17 m <sup>2</sup>
Number of cells	2 x 72		Sensitive area (cells)	Acells 1.97 m <sup>2</sup>
<b>Specifications for the model (manufacturer or measurement data)</b>				
Reference temperature	TRef	25 °C	Reference irradiance	GRef 1000 W/m <sup>2</sup>
Open circuit voltage	Voc	50.0 V	Short-circuit current	Isc 11.50 A
Max. power point voltage	Vmpp	41.4 V	Max. power point current	Impp 10.89 A
=> maximum power	Pmpp	450.6 W	Isc temperature coefficient	mulsc 4.6 mA/°C

### One-diode model parameters

Shunt resistance	Rshunt	1500 ohm	Diode saturation current	IoRef 0.011 nA
Serie resistance	Rserie	0.29 ohm	Voc temp. coefficient	MuVoc -141 mV/°C
			Diode quality factor	Gamma 0.98
Specified Pmax temper. coeff.	muPMaxR	-0.35 %/°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/V <sup>2</sup>	(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/m<sup>2</sup>, AM=1.5)

Max. power point voltage	Vmpp	41.1 V	Max. power point current	Impp 10.98 A
Maximum power	Pmpp	450.7 Wc	Power temper. coefficient	muPmpp -0.34 %/°C
Efficiency(/ Module area)	Eff_mod	20.7 %	Fill factor	FF 0.784
Efficiency(/ Cells area)	Eff_cells	22.8 %		

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