

Characteristics of a PV module

Manufacturer, model : **JA Solar, JAM54S30-415/MR**

Availability : Prod. Since 2020

Data source : JA Internal

STC power (manufacturer)	Pnom	415 Wp	Technology	Si-mono
Module size (W x L)	1.134 x 1.722	m ²	Rough module area	Amodule 1.95 m ²
Number of cells	2 x 54		Sensitive area (cells)	Acells 1.78 m ²
Specifications for the model (manufacturer or measurement data)				
Reference temperature	TRef	25 °C	Reference irradiance	GRef 1000 W/m ²
Open circuit voltage	Voc	37.5 V	Short-circuit current	Isc 14.02 A
Max. power point voltage	Vmpp	31.6 V	Max. power point current	Impp 13.13 A
=> maximum power	Pmpp	415.0 W	Isc temperature coefficient	mulsc 6.3 mA/°C
One-diode model parameters				
Shunt resistance	Rshunt	3000 ohm	Diode saturation current	IoRef 0.014 nA
Serie resistance	Rserie	0.16 ohm	Voc temp. coefficient	MuVoc -108 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 ²	(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	13.42 A
Maximum power	Pmpp	416.3 Wc	Power temper. coefficient	muPmpp	-0.34 %/°C
Efficiency(/ Module area)	Eff_mod	21.3 %	Fill factor	FF	0.793
Efficiency(/ Cells area)	Eff_cells	23.3 %			

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