

Characteristics of a PV module

Manufacturer, model : **VSUN Solar, VSUN 280-60P**

Availability : Prod. Since 2019

Data source : Manufacturer 2020

STC power (manufacturer)	Pnom	280 Wp	Technology	Si-poly
Module size (W x L)	0.990 x 1.640	m ²	Rough module area	Amodule 1.62 m ²
Number of cells	1 x 60		Sensitive area (cells)	Acells 1.47 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	38.5 V	Short-circuit current	Isc 9.36 A
Max. power point voltage	Vmpp	31.4 V	Max. power point current	Impp 8.91 A
=> maximum power	Pmpp	279.8 W	Isc temperature coefficient	mulsc 4.2 mA/°C
One-diode model parameters				
Shunt resistance	Rshunt	350 ohm	Diode saturation current	IoRef 0.037 nA
Serie resistance	Rserie	0.26 ohm	Voc temp. coefficient	MuVoc -129 mV/°C
			Diode quality factor	Gamma 0.95
Specified Pmax temper. coeff.	muPMaxR	-0.41 %/°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	31.6 V	Max. power point current	Impp	8.85 A
Maximum power	Pmpp	280.0 Wc	Power temper. coefficient	muPmpp	-0.40 %/°C
Efficiency(/ Module area)	Eff_mod	17.2 %	Fill factor	FF	0.777
Efficiency(/ Cells area)	Eff_cells	19.0 %			

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