

Device Modeling Report

Components: Solar Cell

Product Name:Hypowell_120W

Manufacture:Shenzhen Suojing New Energy Technology

Kawatta-



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Overview

This report shows LTspice simulation results of Hypowell_120W characteristics from datasheet.

I-V and P-V characteristics work in condition of datasheet.

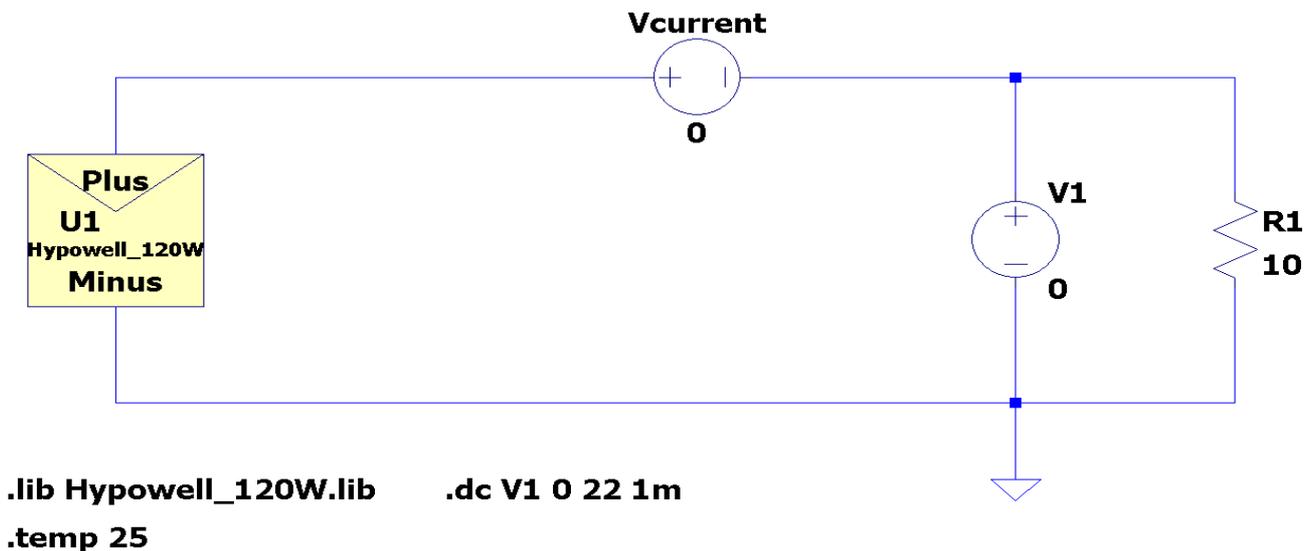
*STC is Irradiance 1000W/m², AM1.5 spectrum, module temperature 25°C

*This model only works at 25°C of LTspice setting and works voltage from 0V – 21.6V

Specification of electrical performance form datasheet (STC)

Parameter	Value
Maximum Power (Pmax)	120W
Maximum Power Voltage (Vmpp)	18V
Maximum Power Current (Impp)	6.66A
Open Circuit Voltage (Voc)	21.6V
Short Circuit Current (Isc)	7.33A

Simulation Circuit



*Vcurrent works as Ammeter.

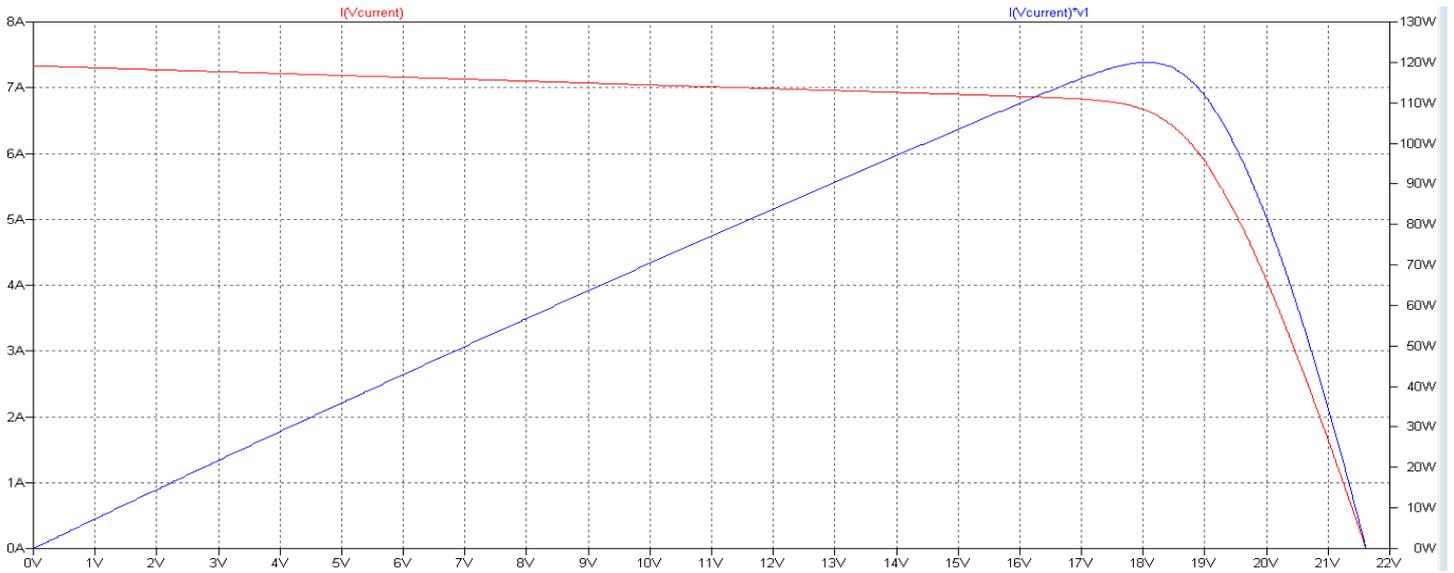
*V1 works as source of dc sweep of Hypowell_120W(0V- 22V).

(*This model works from voltage 0V – 21.6V)

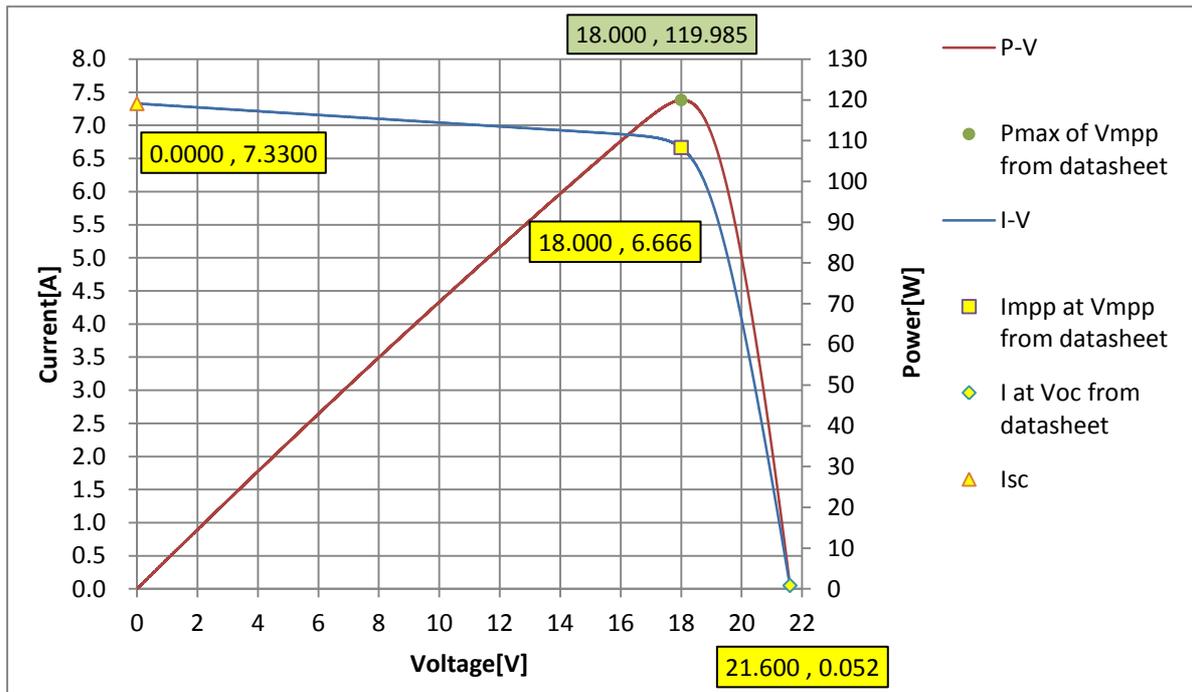
*R1 is load resistance (arbitrary value, EX:10Ω).

*“.temp” works as temperature in STC(25°C)

Simulation result



Results of applied to voltage value of datasheet(Electrical performance in STC)



Error between specification and Simulation.

Symbol	Specification	Simulation	%Error
I_{sc}	7.330	7.330	0.000%
V_{oc}	21.600	21.619	0.088%
V_{mpp}	18.000	18.044	0.244%
I_{mpp}	6.660	6.650	-0.146%
$P_{max}(I_{mpp} \cdot V_{mpp})$	119.880	119.997	0.098%