

# Device Modeling Report

Components: Solar Cell

Product Name:SX3195

Manufacture:BP Solar

Kawatta-



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## OverView

This report shows LTspice simulation results of SX3195 characteristics from datasheet.

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

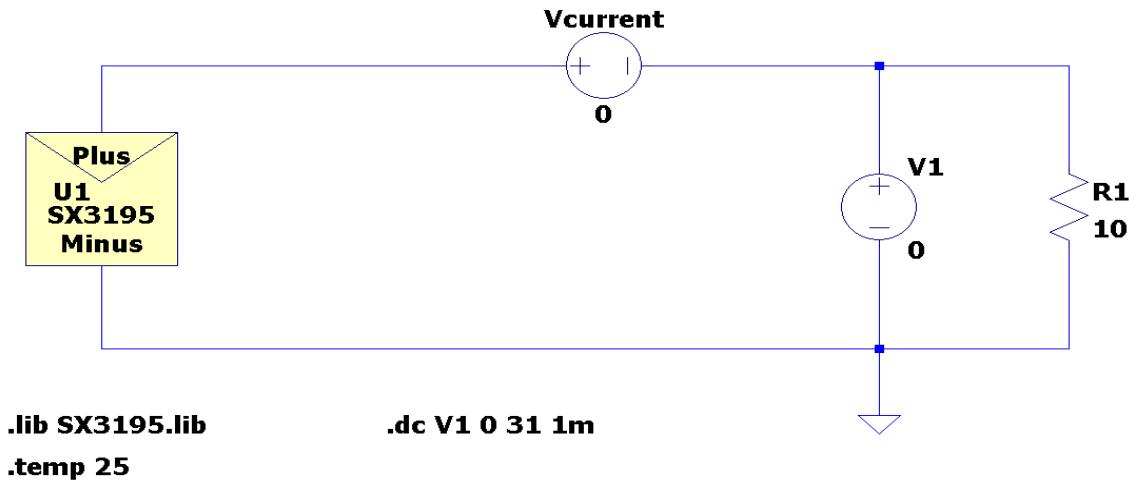
\*STC is Irradiance 1000W/m<sup>2</sup>, AM1.5 spectrum, module temperature 25°C

\*This model only works at 25°C of LTspice setting and works voltage from 0V – 30.7V

## Specification of electrical performance form datasheet (STC)

| Parameter                    | Value |
|------------------------------|-------|
| Maximum Power (Pmax)         | 195W  |
| Maximum Power Voltage (Vmpp) | 24.4V |
| Maximum Power Current (Impp) | 7.96A |
| Open Circuit Voltage (Voc)   | 30.7V |
| Short Circuit Current (Isc)  | 8.6A  |

## Simulation Circuit



\*Vcurrent works as Ammeter.

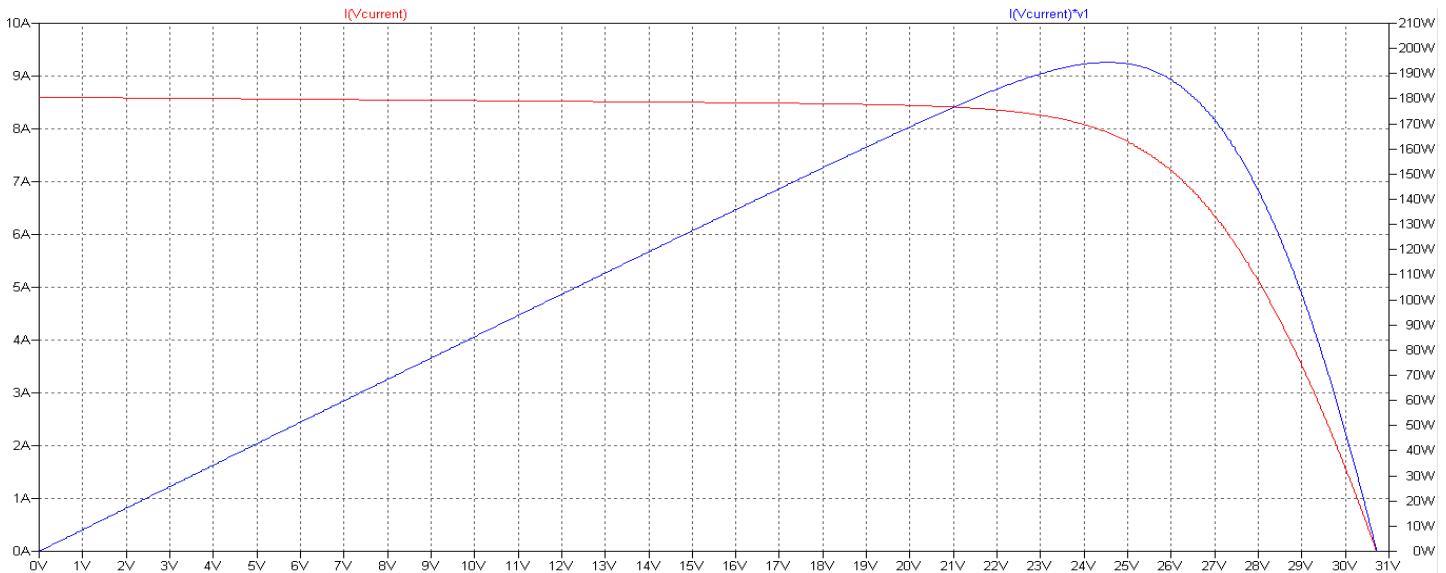
\*V1 works as source of dc sweep of SX3195(0V- 31V).

(\*This model works from voltage 0V – 30.7V)

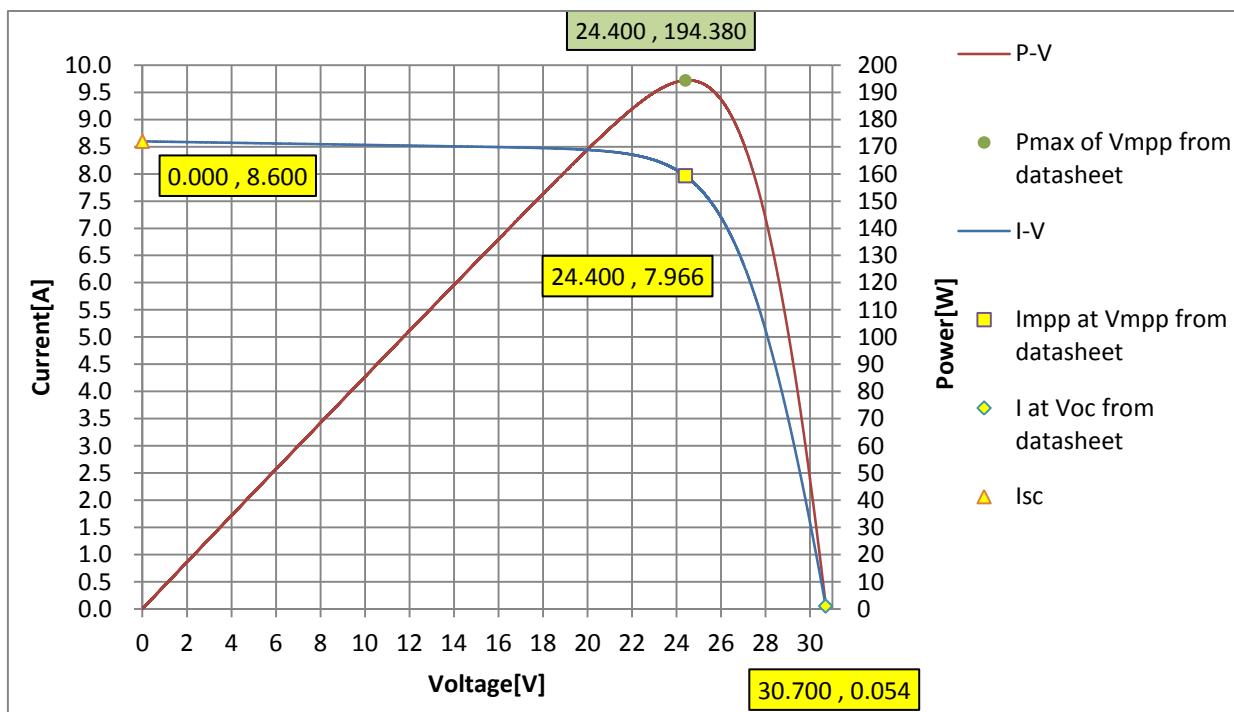
\*R1 is load resistance (arbitrary value, EX:10Ω).

\*“.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  |
|-----------------|---------------|------------|---------|
| Isc             | 8.600         | 8.600      | 0.000%  |
| Voc             | 30.700        | 31.000     | 0.977%  |
| Vmpp            | 24.400        | 24.516     | 0.475%  |
| Impp            | 7.960         | 7.930      | -0.375% |
| Pmax(Impp*Vmpp) | 194.224       | 194.416    | 0.099%  |