

Device Modeling Report

Components: Solar Cell

Product Name:GW-E075A

Manufacture:GW Solar

Kawatta-



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OverView

This report shows LTspice simulation results of GW-E075A characteristics from datasheet.

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

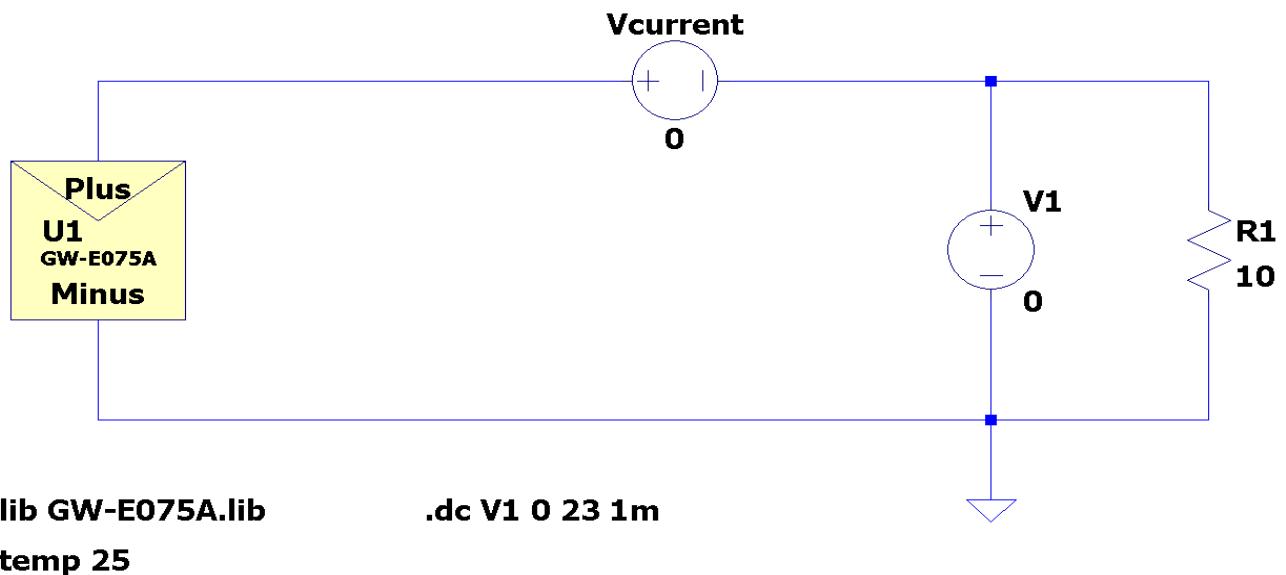
*STC is irradiance 1000W/m², AM1.5 spectrum, module temperature 25°C

*This model only works at 25°C of LTspice setting and works voltage from 0V – 22.5V

Specification of electrical performance form datasheet (STC)

| Parameter | Value |
|------------------------------|-------|
| Maximum Power (Pmax) | 75W |
| Maximum Power Voltage (Vmpp) | 18.2V |
| Maximum Power Current (Impp) | 4.13A |
| Open Circuit Voltage (Voc) | 22.5V |
| Short Circuit Current (Isc) | 4.28A |

Simulation Circuit



*Vcurrent works as Ammeter.

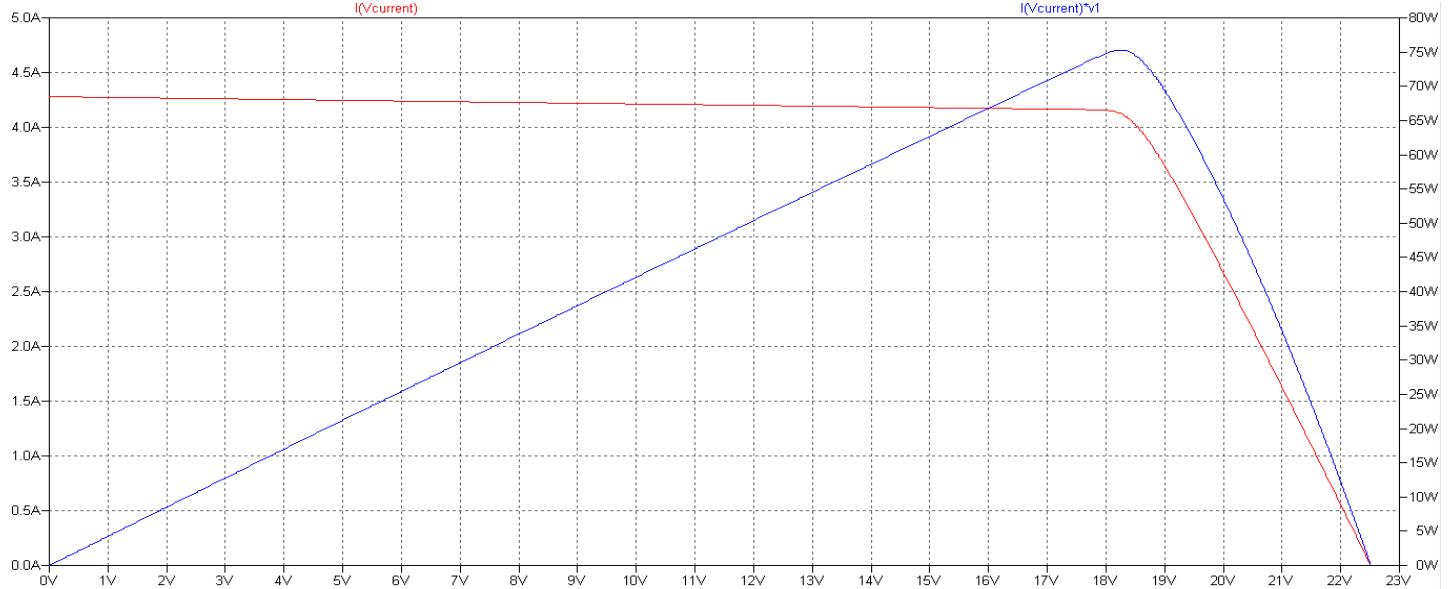
*V1 works as source of dc sweep of GW-E075A(0V- 23V).

(*This model works from voltage 0V – 22.5V)

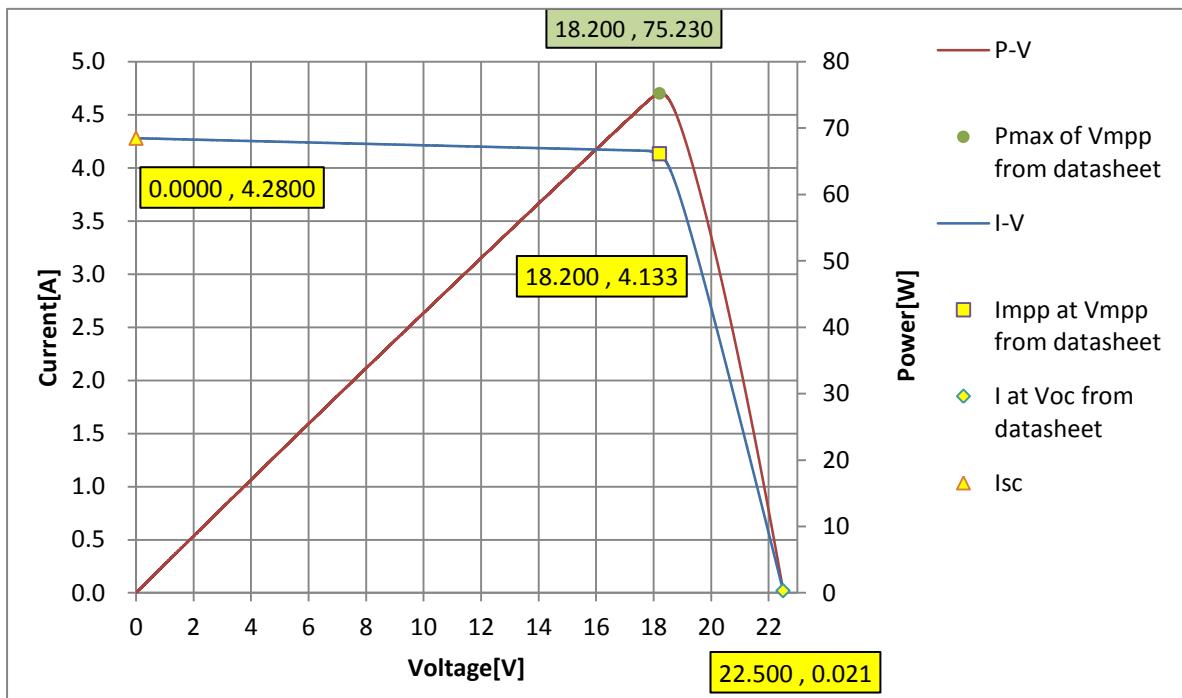
*R1 is load resistance (arbitrary value, EX:10Ω).

*“.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 | 4.280 | 4.280 | 0.000% |
| Voc | 22.500 | 22.519 | 0.084% |
| Vmpp | 18.200 | 18.247 | 0.258% |
| Impp | 4.130 | 4.124 | -0.144% |
| Pmax(Impp*Vmpp) | 75.166 | 75.252 | 0.114% |