

Device Modeling Report

Components: Solar Cell

Product Name: KC200GT

Manufacture: KYOCERA

Kawatta-



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Last updated 2021/5/3

OverView

This report shows LTspice simulation results of KC200GT characteristics from datasheet.

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

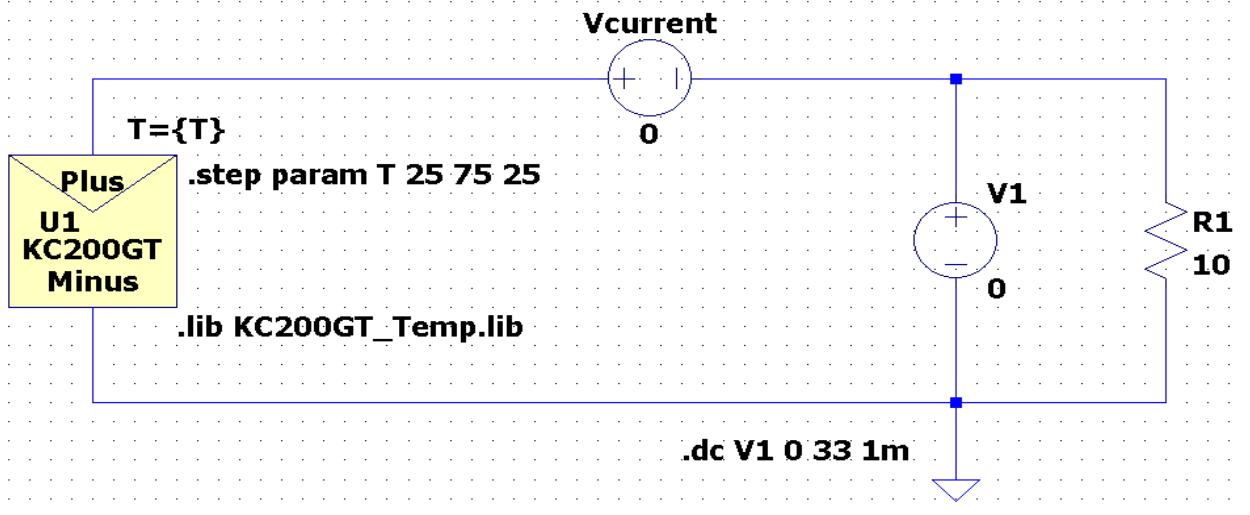
*STC is Irradiance 1000W/m², AM1.5 spectrum, module temperature 25°C

*This model only works voltage from 0V – 32.9V

Specification of electrical performance form datasheet

Parameter	Value
Maximum Power (Pmax) *STC	200W
Maximum Power Voltage (Vmpp) *STC	26.3V
Maximum Power Current (Impp) *STC	7.61A
Open Circuit Voltage (Voc) *STC	32.9V
Short Circuit Current (Isc) *STC	8.21A
Temperature Coefficient of Voc	-0.123 V/°C
Temperature Coefficient of Isc	0.00318 A/°C
Current of 50degree and 75 degree	Please see graph of datasheet

Simulation Circuit



*Vcurrent works as Ammeter.

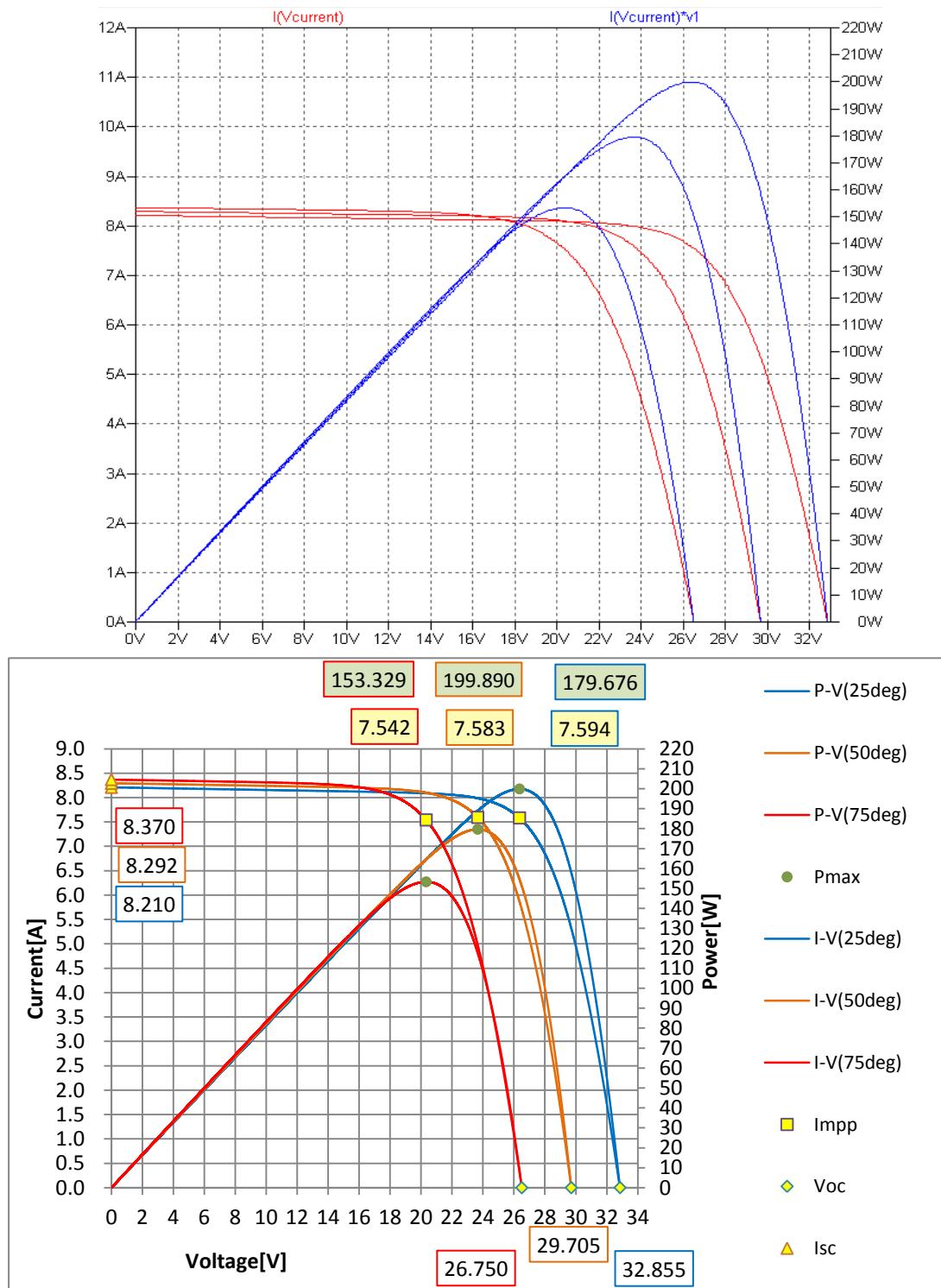
*V1 works as source of dc sweep of KC200GT(0V- 33V).

(*This model works from voltage 0V – 32.9V)

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

*T is parameters of temparature of KC200GT

Simulation result



Error between specification and Simulation.

Symbol	25degree			50degree			75degree		
	Specification	Simulation	%Error	Specification	Simulation	%Error	Specification	Simulation	%Error
Isc	8.222	8.210	-0.146%	8.301	8.292	-0.110%	8.381	8.370	-0.129%
Voc	32.900	32.855	-0.137%	29.825	29.705	-0.402%	26.750	26.509	-0.901%
Vmpp	26.300	26.360	0.228%	23.677	23.661	-0.069%	20.413	20.330	-0.407%
Impp	7.610	7.583	-0.354%	7.689	7.594	-1.234%	7.621	7.542	-1.043%
Pmax(Impp*Vmpp)	200.000	199.889	-0.055%	182.046	179.676	-1.302%	155.579	153.329	-1.446%

change history

DATE	DETAILS
2021/1/4	New
2021/5/2	Figures and graphs are changed for adding temperature characteristics. Sentences about 25 degree characteristics are deleted. "Results of applied to voltage value of datasheet(Electrical performance in STC)" are changed to graph of "Simulation result".