ALTERNATIVE ENERGY
QUIZ

A 205W_p HIP-205NKHB1 PV module manufactured by Sanyo (see datasheet in *Appendix*) operates under the solar irradiance of 550 W/m^2 at T_a = 32 ˚C . If the nominal operating cell temperature (NOCT) of the module is 47^{o}C, determine the following output of the PV module under the **real operating condition** (ROC).

(i) Short-circuit current of the PV module, I_{SC_module}.

(ii) Open-circuit voltage of the PV module, V_{OC_module}.

(iii) Maximum power point of the PV module, P_{mp_module}.

(iv) Conversion efficiency of the module at the instantaneous power output.

Appendix - HIP-205NKHB1 PV module by Sanyo

Electrical and Mechanical Characteristics
HIP-205NKHB1,HIP-200NKHB1

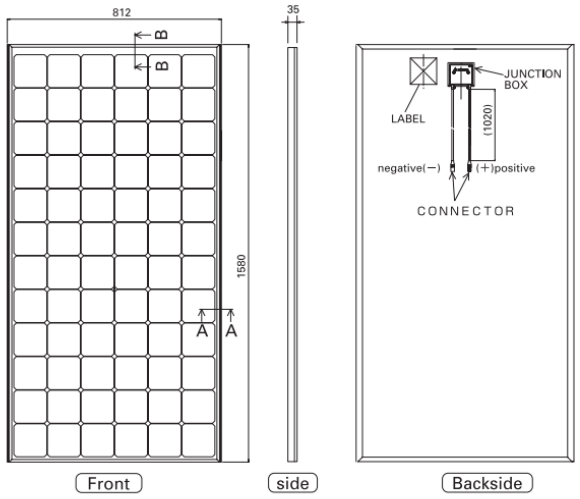
		Models HIP-xxxNKHB1	
Electrical data		**205**	**200**
Maximum power (Pmax)	[W]	205	200
Max. power voltage (Vmp)	[V]	40.7	40.0
Max. power current (Imp)	[A]	5.05	5.00
Open circuit voltage (Voc)	[V]	50.3	49.6
Short circuit current (Isc)	[A]	5.54	5.50
Warranted minimum power (Pmin)	[W]	194.8	190.0
Maximum over current rating	[A]	15	
Output power tolerance	[%]	+10/-5	
Maximum system voltage	[V]	600	
Temperature coefficient of Pmax	[%/°C]	-0.30	-0.33
Voc	[V/°C]	-0.126	-0.129
Isc	[mA/°C]	1.66	1.65

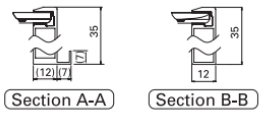
Note 1: Standard Test Conditions: Air mass 1.5, Irradiance = 1000W/m², Cell temperature = 25°C

Note 2: The values in the above table are nominal

Dimensions and weight

unit: mm

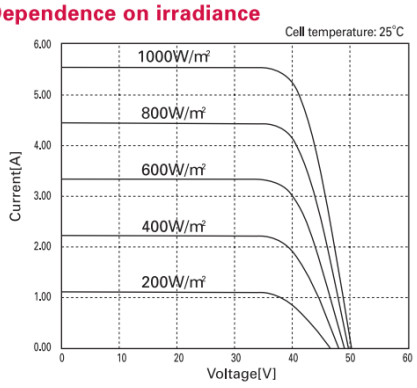




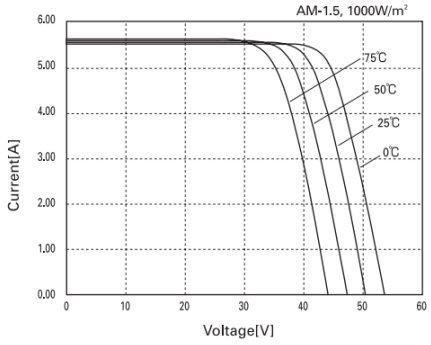
Weight: 15kg

Reference data for model HIP-205NKHB1

Dependence on irradiance



Dependence on temperature



Warranty

Power output: 20 years (80% of minimum output power)
Product workmanship: 2 years
(Based on contract terms)

Certificate Number: PV05-53203-1002

An above number is a certification number by JET.
JET: Japan Electrical Safety & Environment Technology Laboratories

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