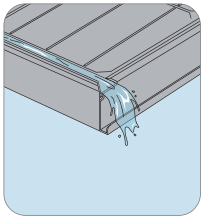


VBHN245SJ25
VBHN240SJ25
VBHN235SJ25

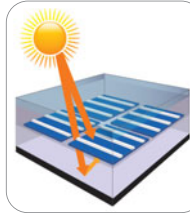


Water drainage frame

- Rain water is drained off the module surface.
- This avoids not only water accumulation, but also water stains after drying.
- Even in low-angle installations, water drainage corners keep the module clean.

Power from both sides

- HIT cells generate solar electricity simultaneously on the front and on the back side.
- This additional amount of light is combined with the light taken up by the front side of the module.

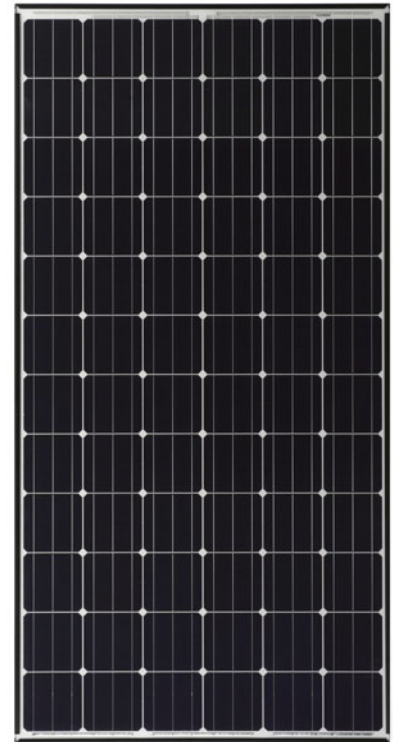


Vertically integrated factory

- Efficient production flow improves product quality as entire process from wafer to cell is done at the same location.
- No risk of damage of individual components during transportation between factories.

19.4%*
194 W/m²

*VBHN245SJ25



Cell technology

Our solar cell is made of a thin monocrystalline silicon wafer surrounded by ultra-thin amorphous silicon layers. This product offers the industry's leading performance and value, using state-of-the-art manufacturing techniques. The development of the solar cell was supported in part by the New Energy and Industrial Technology Development Organization (NEDO).

Quality

Panasonic is truly committed to quality since it began developing and manufacturing solar PV technology in 1975. Our long track record is supported by our claim-rate of only 0.0036% (as of September 2013).

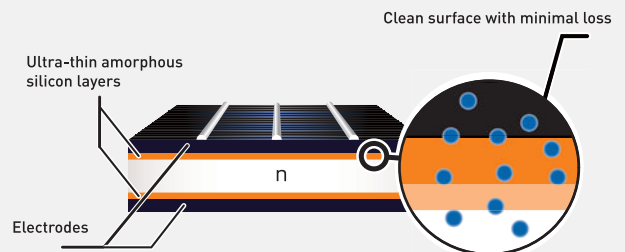
Special features

The solar modules are 100% emission free, have no moving parts and produce no noise. The dimensions of the HIT modules enable a space saving installation and the achievement of maximum output power possible on a given roof area.

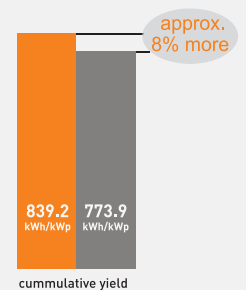
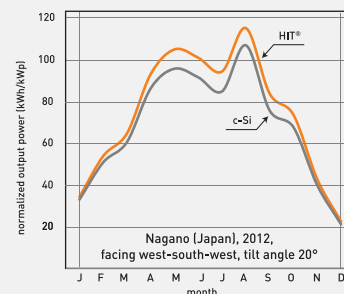
High performance at high temperatures

With its very low temperature coefficient of only -0.29%/°C, our solar cell can maintain a higher efficiency than a conventional crystalline silicon solar cell, even at high temperatures.

Solar cell structure



Yield comparison



HIT™
Photovoltaic Module

"HIT" is a trademark of Panasonic Group.

Model	Cell efficiency	Module efficiency	Output/m ²
VBHN245SJ25	22.0%	19.4%	194 W/m ²
VBHN240SJ25	21.6%	19.0%	190 W/m ²
VBHN235SJ25	21.1%	18.6%	186 W/m ²

Electrical data (at STC)

	VBHN245SJ25	VBHN240SJ25	VBHN235SJ25
Max. power (Pmax) [W]	245	240	235
Max. power voltage (Vmp) [V]	44.3	43.6	43.0
Max. power current (Imp) [A]	5.54	5.51	5.48
Open circuit voltage (Voc) [V]	53.0	52.4	51.8
Short circuit current (Isc) [A]	5.86	5.85	5.84
Max. over current rating [A]	15		
Production tolerance power [%]	+10/0*		
Max. system voltage [V]	1000		

Note: Standard Test Conditions: Air mass 1.5; Irradiance = 1000W/m²; cell temp. 25°C
*Each panel output is measured by Panasonic at the time of production.

Temperature characteristics

Temperature (NOCT) [°C]	44.0		
Temp. coefficient of Pmax [%/°C]	-0.29		
Temp. coefficient of Voc [V/°C]	-0.133	-0.131	-0.130
Temp. coefficient of Isc [mA/°C]	1.76	1.76	1.75

At NOCT (Normal Operating Conditions)

Max. power (Pmax) [W]	187.4	183.2	178.4
Max. power voltage (Vmp) [V]	42.5	41.7	41.0
Max. power current (Imp) [A]	4.41	4.39	4.35
Open circuit voltage (Voc) [V]	50.3	49.7	48.9
Short circuit current (Isc) [A]	4.71	4.71	4.70

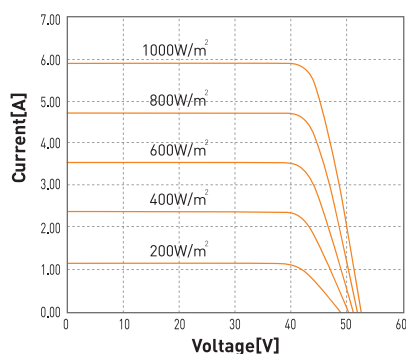
Note: Nominal Operating Cell Temp.: Air mass 1.5; Irradiance = 800W/m²;
Air temperature 20°C; wind speed 1 m/s

At low irradiance (20%)

Max. power (Pmax) [W]	47.0	45.9	45.0
Max. power voltage (Vmp) [V]	43.2	42.2	41.6
Max. power current (Imp) [A]	1.09	1.09	1.08
Open circuit voltage (Voc) [V]	49.6	49.0	48.4
Short circuit current (Isc) [A]	1.17	1.17	1.17

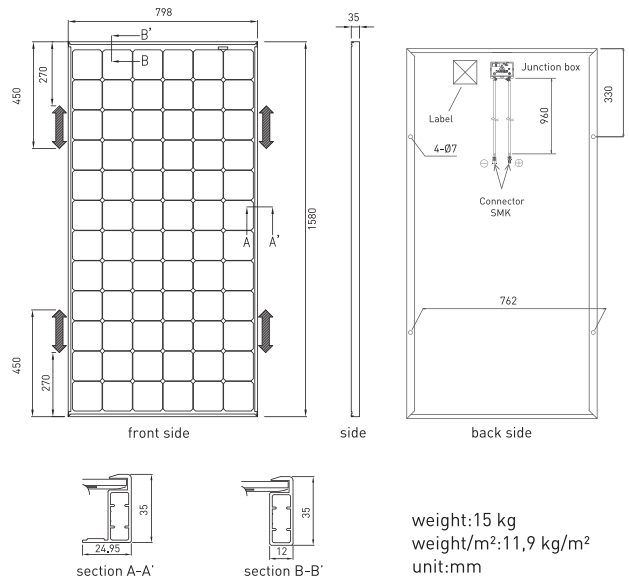
Note: Low irradiance: Air mass 1.5; Irradiance = 200W/m²; cell temp. = 25°C

Dependence on irradiance



Reference data for model VBHN245SJ25

Dimensions and weight



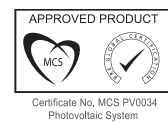
Warranty

Power output: 10 years (90% of Pmin)
25 years (80% of Pmin)
Product workmanship: 10 years (based on warranty document)

Materials

Cell material: 5 inch HIT cells
Glass material: AR coated tempered glass
Frame materials: Black anodized aluminium
Connectors type: SMK

Certificates



IEC61215
IEC61730-1
IEC61730-2



Member of



manufactured by SANYO Electric Co., Ltd.

CAUTION! Please read the installation manual carefully before using the products.

Panasonic Corporation Eco Solutions Company

<http://panasonic.net/ecosolutions/solar>