



# Poly-Crystalline TPB156×156-60-P



Special attention has been given to the use of high quality components. High strength frames ensure that modules will exceed physical load requirements. Snow pressure of 5400PA and wind pressure of 2400PA are standards for nbsolar modules.



The company meets the rigorous requirement of ISO9001 Quality Management System, ISO14001 Environmental Management System and OHSAS18001 Occupation Health Safety Management System. It can guarantee nbsolar has strict and efficiency management and manufacturing environment.



Each module produces positive power up to 5W greater than product rating power.



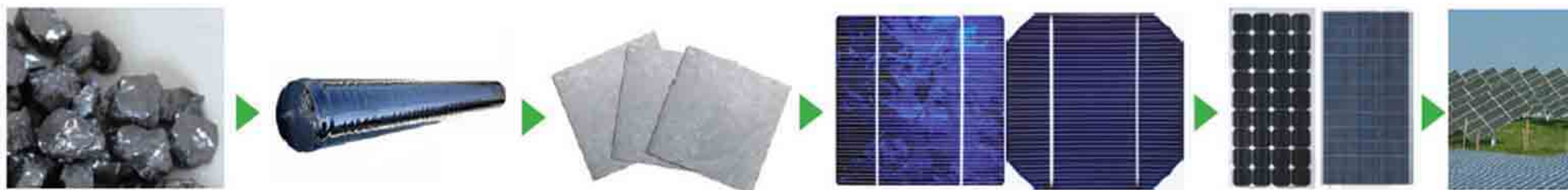
With over 30 years experience in manufacturing solar modules, nbsolar has the experience and advanced technology to produce modules with 15% plus efficiency. High performance in low light conditions ensures the maximum available energy production.



The modules are certified by all major authorities, like TÜV, UL, VDE, MCS, JET, CEC and others.



The nbsolar modules carry a 10 year workmanship limited warranty and a 25 year linear performance limited warranty. The nbsolar is a company with proven worldwide performance and trusted by all.



The completed production line of nbsolar profoundly ensures the quality of nbsolar products and the competition advantage of the company.





## Poly-Crystalline

TPB156×156-60-P 230W 235W 240W 245W

### Electrical Characteristics at Standard Test Conditions (STC):

Maximum Power (Pmax):	230W	235W	240W	245W
Power Tolerance:	0~+5W	0~+5W	0~+5W	0~+5W
Rated Voltage at Pmax (Vmp):	29.1V	29.2V	29.3V	29.4V
Rated Current at Pmax (Imp):	7.91A	8.05A	8.19A	8.34A
Open-circuit Voltage (Voc):	36.6V	36.7V	36.8V	36.9V
Short-circuit Current (Isc):	8.37A	8.47A	8.58A	8.68A
Module Efficiency (ηm):	14.1%	14.4%	14.7%	15.0%

• STC: Irradiance 1000W/m<sup>2</sup>, Cell temperature 25°C, Air mass AM1.5 according to EN60904-3.

### Electrical Characteristics at Nominal Operating Cell Temperature (NOTC):

Maximum Power (Pmax):	167.7W	171.3W	174.6W	178.2W
Rated Voltage at Pmax (Vmp):	26.5V	26.6V	26.7V	26.8V
Rated Current at Pmax (Imp):	6.33A	6.44A	6.54A	6.65A </td
Open-circuit Voltage (Voc):	33.9V	34.0V	34.1V	34.2V
Short-circuit Current (Isc):	6.78A	6.86A	6.95A	7.03A

• NOTC: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C/s, wind Speed 1m/s.  
 • Average efficiency reduction of 4.5% at 200W/m<sup>2</sup> according to EN60904-1.

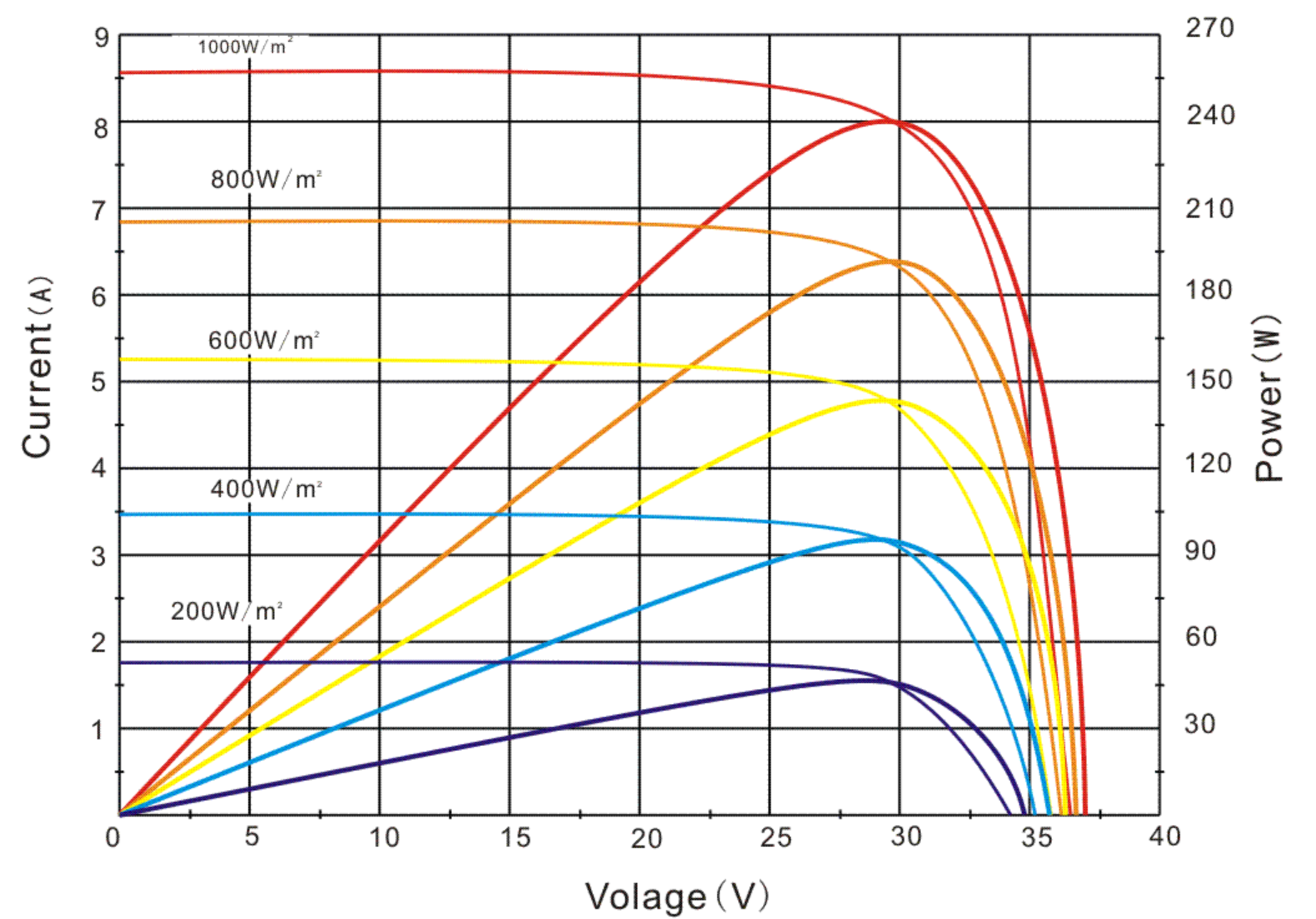
### Thermal Characteristics:

Nominal Operating Cell Temperature (NOCT):	46°C
Temperature Coefficient of Pmax (γ Pmp):	-0.45%/°C
Temperature Coefficient of Voc (β Voc):	-0.32%/°C
Temperature Coefficient of Isc (α Isc):	+0.05%/°C

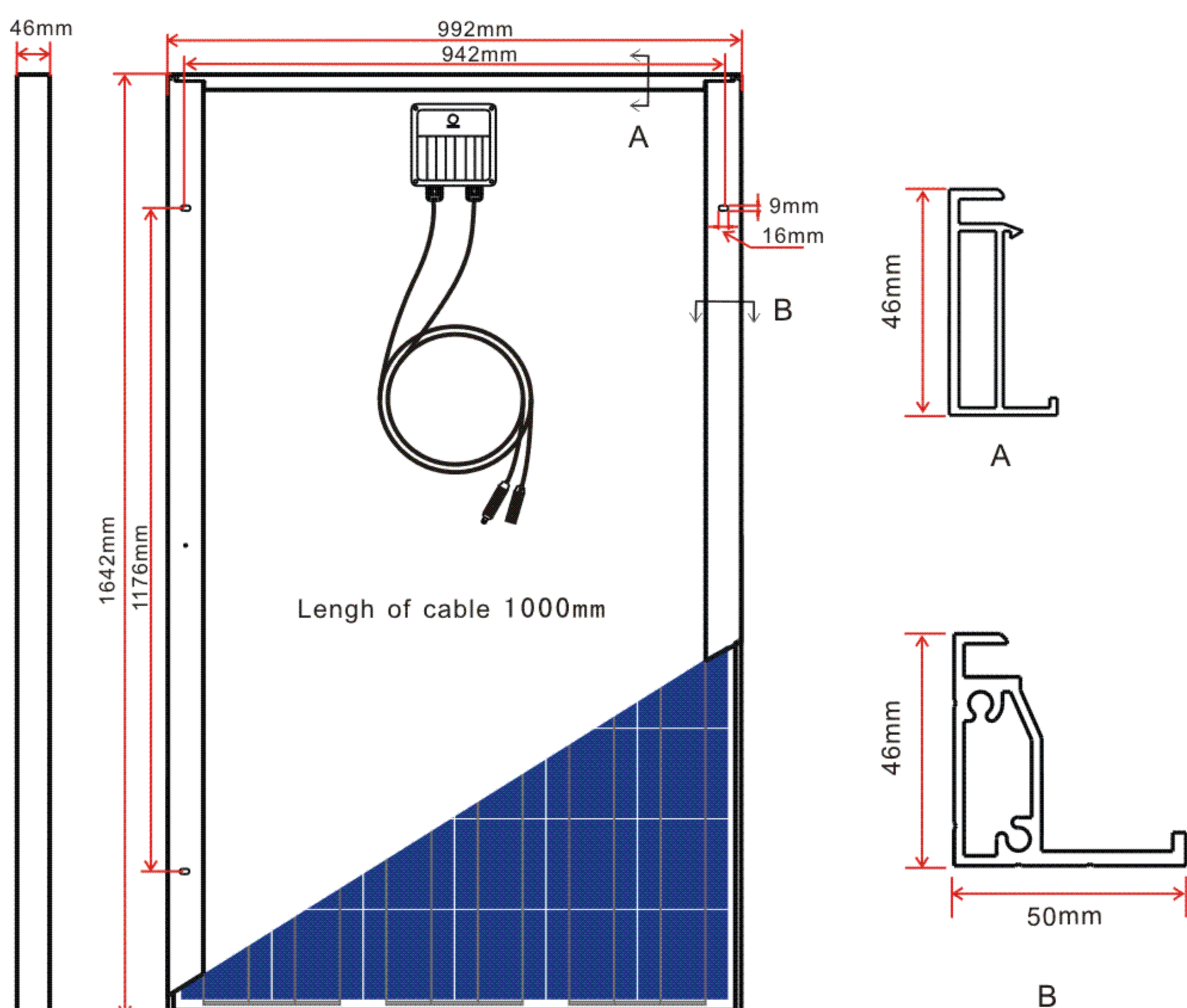
### Construction Characteristics:

Front Cover:	low-iron tempered glass/3.2mm
Cell:	60 pcs poly-crystalline 156×156mm
Frame:	anodized aluminum alloy/silver
Junction Box (protection degree):	IP65
Cable (length/cross-sectional area):	1000mm/4mm <sup>2</sup>
Connector (protection degree):	IP65
Module Dimension (L×W×H):	1642×992×46mm
Weight:	20.0kg

### I-V (240W)



### Dimensions (tolerance ±2mm)



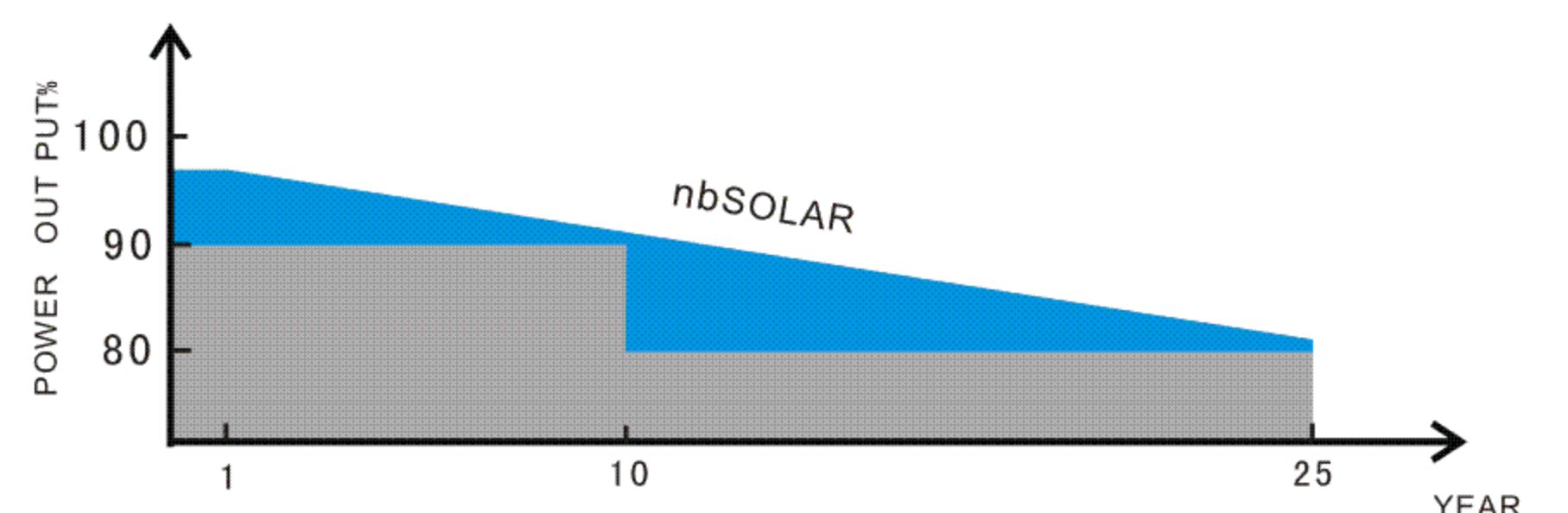
### Rating Characteristics:

Maximum System Voltage:	1000VDC (IEC), 600VDC (UL)
Application Class:	Class A
Fire Resistance Class:	Class C (UL)
Maximum Over-Current Rating:	16A (IEC), 15A (UL)
Operating Temperature:	85% Rh, -40°C ~ +85°C (IEC), -40°C ~ +90°C (UL)
Maximum Snow Loads (front):	5400Pa
Maximum Wind Loads (front & back):	2400Pa
Maximum Hailstone Impact (diameter @ 23m/s):	25mm

### Packing Characteristics:

Number of Modules Per Pallet:	20 pcs
Number of Pallets Per 40' Container:	28 pallets
Gross Weight Per Pallet:	420kg

### Warranty:



Please refer to nbSolar Power Product Warranty for details.

