

## Five Key Features

- 1 Guaranteed quality: 12 year product warranty, 25 year linear performance warranty \*
- 2 Predictable output: Positive power sorting of 0 to + 5 W
- 3 Innovative solutions: Anti-reflective coating for high sunlight absorption
- 4 Robust design: certified to withstand up to 4000 Pa wind load and up to 7000 Pa snow load\*\*
- 5 Anti-PID : Modules are qualified to withstand PID(Potential Induced Degradation)\*\*\*

\* Please refer to Hanwha Solar Product Warranty for details  
 \*\* Please refer to Hanwha Solar Module Installation Guide  
 \*\*\* PID test conditions : module charged -1000V with Al-foil covered surface, 25 °C, 168h

## Quality and Environmental Certificates

- ISO 9001 quality standards and ISO 14001 environmental standards
- OHSAS 18001 occupational health and safety standards
- IEC 61215 & IEC 61730 Application Class A certifications
- Conformity to CE



## About Hanwha Solar

Hanwha Solar is a vertically integrated manufacturer of photovoltaic modules designed to meet the needs of the global energy consumer.

- High reliability, guaranteed quality, and excellent cost-efficiency due to vertically integrated production and control of the supply chain
- Optimization of product performance and manufacturing processes through a strong commitment to research and development
- Global presence throughout Europe, North America and Asia, offering regional technical and sales support

# Electrical Characteristics

## Electrical Characteristics at Standard Test Conditions (STC)

Power Class	285 W	290 W	295 W	300 W	305 W
Maximum Power (P <sub>max</sub> )	285 W	290 W	295 W	300 W	305 W
Open Circuit Voltage (V <sub>oc</sub> )	44.3 V	44.5 V	44.8 V	44.9 V	45.1 V
Short Circuit Current (I <sub>sc</sub> )	8.65 A	8.69 A	8.75 A	8.78 A	8.85 A
Voltage at Maximum Power (V <sub>mpp</sub> )	35.1 V	35.4 V	35.8 V	36.1 V	36.3 V
Current at Maximum Power (I <sub>mpp</sub> )	8.13 A	8.20 A	8.26 A	8.32 A <td 8.42 A	
Module Efficiency (%)	14.8 %	15.0 %	15.3 %	15.5 %	15.8 %

P<sub>max</sub>, V<sub>oc</sub>, I<sub>sc</sub>, V<sub>mpp</sub> and I<sub>mpp</sub> tested at Standard Testing Conditions (STC) defined as irradiance of 1000W/m<sup>2</sup> at AM 1.5 solar spectrum and a temperature of 25±2°C. Module power class have positive power sorting: 0 to +5W. Measurement tolerance: +/- 3% (P<sub>max</sub>)

## Electrical Characteristics at Normal Operating Cell Temperature (NOCT)

Power Class	285 W	290 W	295 W	300 W	305 W
Maximum Power (P <sub>max</sub> )	208 W	212 W	216 W	220 W	223 W
Open Circuit Voltage (V <sub>oc</sub> )	41.3 V	41.5 V	41.7 V	41.8 V	42.0 V
Short Circuit Current (I <sub>sc</sub> )	7.00 A	7.03 A	7.08 A	7.10 A	7.18 A
Voltage at Maximum Power (V <sub>mpp</sub> )	31.8 V	32.1 V	32.5 V	32.7 V	32.9 V
Current at Maximum Power (I <sub>mpp</sub> )	6.55 A	6.61 A	6.65 A	6.73 A	6.78 A
Module Efficiency (%)	13.5 %	13.7 %	14.0 %	14.2 %	14.4 %

P<sub>max</sub>, V<sub>oc</sub>, I<sub>sc</sub>, V<sub>mpp</sub> and I<sub>mpp</sub> tested at Normal Operating Cell Temperature (NOCT) defined as irradiance of 800W/m<sup>2</sup>; 45±3°C; Wind speed 1m/s. Measurement tolerance: +/- 3% (P<sub>max</sub>)

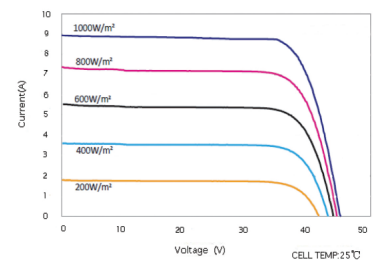
## Nomenclature

Full product name:  
HSL72P6-PB-1-xxx  
xxx represents the power class

## Performance at Low Irradiance:

The typical relative change in module efficiency at an irradiance of 200 W/m<sup>2</sup> in relation to 1000 W/m<sup>2</sup> (both at 25 °C and AM 1.5 spectrum) is less than 5 %.

Various Irradiance Levels



## Temperature Characteristics

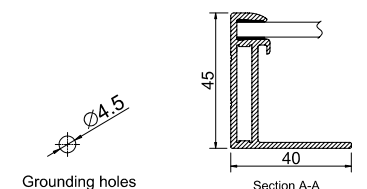
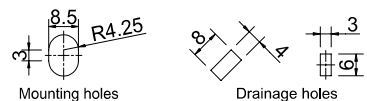
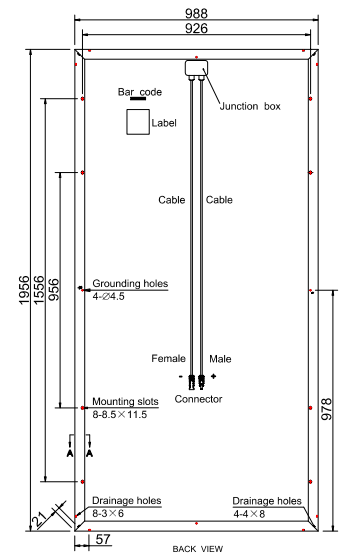
Normal Operating Cell Temperature (NOCT)	45°C +/- 3°C
Temperature Coefficients of P	- 0.43 % / °C
Temperature Coefficients of V	- 0.31 % / °C
Temperature Coefficients of I	+ 0.05 % / °C

## Maximum Ratings

Maximum System Voltage	1000 V (IEC)
Series Fuse Rating	15 A
Maximum Reverse Current	Series fuse rating multiplied by 1.35

# Mechanical Characteristics

Dimensions	1956mm × 988mm × 45 mm
Weight	27±0.5kg
Frame	Aluminum-alloy
Front	4mm tempered glass with anti reflective coating
Encapsulant	EVA
Back Cover	Composite sheet
Cell Technology	Polycrystalline
Cell Size	156 mm × 156 mm (6in × 6in)
Number of Cells (Pieces)	72 (6 × 12)
Junction Box	Protection class IP 67; with 3 bypass diodes (or 3 pairs, 2 each)
Output Cables	Solar cable: 4 mm <sup>2</sup> ; length: 1200 mm
Connector	Amphenol H4



## System Design

Operating Temperature	- 40 °C to 85 °C
Hail Safety Impact Velocity	25 mm at 23 m/s
Fire Safety Classification (IEC 61730)	Class C
Static Load Wind / Snow	4000Pa/7000Pa

## Packaging and Storage

Storage Temperature	- 40 °C to 85 °C
Packaging Configuration	22 pieces per pallet
Loading Capacity (40 ft. HQ Container)	484 pieces