

**HSL 72S**

4BB 72 Cell Poly Module

# Hanwha Solar



## Key Features

### Anti-PID

Qualified to Withstand PID (Potential Induced Degradation) \*

### Guaranteed Quality

12 Year Workmanship, 25 Year Linear Performance Warranty \*\*

### Predictable Output

Positive Power Sorting, 0 to +5 Watt

### Innovative Technology

4BB Cell, Improved Module Efficiency and Power

### Harsh Environment Resistance

Verified against Salt Mist and Ammonia Corrosion

### Better Performance

Improved Low Light Irradiance Performance and TCOE

### Efficient Logistics

Compact Design, Efficient Shipping, Easy Handling

\* PID test conditions : module charged -1000V with Al-foil covered surface, 25 °C, 168h

\*\* Please refer to Hanwha Solar Product Warranty for details

## 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

# HSL 72S

## 4BB 72 Cell Poly Module

### Electrical Characteristics

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

Power Class	290 W	295 W	300 W	305 W	310 W	315 W
Maximum Power ( $P_{max}$ )	290 W	295 W	300 W	305 W	310 W	315 W
Open Circuit Voltage ( $V_{oc}$ )	44.4 V	44.6 V	44.8 V	45.0 V	45.1 V	45.3 V
Short Circuit Current ( $I_{sc}$ )	8.49 A	8.60 A	8.70 A	8.81 A	8.91 A	9.02 A
Voltage at Maximum Power ( $V_{mpp}$ )	36.2 V	36.4 V	36.6 V	36.8 V	37.1 V	37.3 V
Current at Maximum Power ( $I_{mpp}$ )	8.02 A	8.11 A	8.20 A	8.29 A	8.36 A	8.45 A
Module Efficiency (%)	14.8 %	15.1 %	15.3 %	15.6 %	15.8 %	16.1 %

$P_{max}$ ,  $V_{oc}$ ,  $I_{sc}$ ,  $V_{mpp}$  and  $I_{mpp}$  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% ( $P_{max}$ )

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

Power Class	290 W	295 W	300 W	305 W	310 W	315 W
Maximum Power ( $P_{max}$ )	213 W	217 W	221 W	224 W	228 W	234 W
Open Circuit Voltage ( $V_{oc}$ )	41.6 V	41.8 V	42.0 V	42.2 V	42.3 V	42.4 V
Short Circuit Current ( $I_{sc}$ )	6.86 A	6.95 A	7.03 A	7.12 A	7.20 A	7.29 A
Voltage at Maximum Power ( $V_{mpp}$ )	33.3 V	33.5 V	33.6 V	33.8 V	34.1 V	34.4 V
Current at Maximum Power ( $I_{mpp}$ )	6.40 A	6.48 A	6.58 A	6.63 A	6.69 A	6.81 A
Module Efficiency (%)	13.6 %	13.9 %	14.1 %	14.3 %	14.6 %	15.0 %

$P_{max}$ ,  $V_{oc}$ ,  $I_{sc}$ ,  $V_{mpp}$  and  $I_{mpp}$  tested at Nominal Operating Cell Temperature (NOCT) defined as irradiance of 800W/m<sup>2</sup>; 20°C; Wind speed 1m/s. Measurement tolerance: +/- 3% ( $P_{max}$ )

#### Temperature Characteristics

Nominal Operating Cell Temperature (NOCT)	45°C +/- 3°C
Temperature Coefficients of Pmax	-0.41 % / °C
Temperature Coefficients of Voc	-0.31 % / °C
Temperature Coefficients of Isc	+0.055 % / °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	1972mm x 992mm x 40 mm
Weight	23±0.5kg
Frame	Aluminum-alloy
Front	3.2mm tempered glass with anti reflective coating
Encapsulant	EVA
Back Cover	Composite sheet
Cell Technology	4 busbar Polycrystalline
Cell Size	156 mm x 156 mm (6 in x 6 in)
Number of Cells (Pieces)	72 (6 x 12)
Junction Box	Protection class IP 67
Output Cables	Solar cable: 4 mm <sup>2</sup> ; length: 1200 mm
Connector	H4 Compatible

### 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/5400Pa

### Packaging and Storage

Storage Temperature	- 40 °C to 85 °C
Packaging Configuration	25 pieces per pallet
Loading Capacity (40 ft. HQ Container)	550 pieces

#### Nomenclature:

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

#### Performance at Low Irradiance:

The typical efficiency at 200 W/m<sup>2</sup> in relation to 1000 W/m<sup>2</sup>, (25°C, AM 1.5) is at least 97 % of STC efficiency.

Various Irradiance Levels

