



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 solution: 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 | 235 W | 240 W | 245 W | 250 W | 255 W* |
|--|--------|--------|--------|--------|--------|
| Maximum Power (P _{max}) | 235 W | 240 W | 245 W | 250 W | 255 W |
| Open Circuit Voltage (V _{oc}) | 36.7 V | 37.0 V | 37.4 V | 37.7 V | 38.0 V |
| Short Circuit Current (I _{sc}) | 8.53 A | 8.63 A | 8.70 A | 8.79 A | 8.89 A |
| Voltage at Maximum Power (V _{mpp}) | 29.2 V | 29.6 V | 30.1 V | 30.4 V | 30.8 V |
| Current at Maximum Power (I _{mpp}) | 8.05 A | 8.11 A | 8.15 A | 8.23 A | 8.29 A |
| Module Efficiency (%) | 14.5 % | 14.8 % | 15.1 % | 15.5 % | 15.8 % |

P_{max}, V_{oc}, I_{sc}, V_{mpp} and I_{mpp} tested at Standard Testing Conditions (STC) defined as irradiance of 1000W/m² 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})

* 255W is only applicable for the module with white back sheet

Electrical Characteristics at Normal Operating Cell Temperature (NOCT)

| Power Class | 235 W | 240 W | 245 W | 250 W | 255 W* |
|--|--------|--------|--------|--------|--------|
| Maximum Power (P _{max}) | 172 W | 175 W | 179 W | 183 W | 186 W |
| Open Circuit Voltage (V _{oc}) | 34.4 V | 34.6 V | 34.8 V | 35.0 V | 35.2 V |
| Short Circuit Current (I _{sc}) | 6.89 A | 6.97 A | 7.05 A | 7.13 A | 7.22 A |
| Voltage at Maximum Power (V _{mpp}) | 26.5 V | 26.8 V | 27.3 V | 27.6 V | 27.9 V |
| Current at Maximum Power (I _{mpp}) | 6.50 A | 6.53 A | 6.56 A | 6.64 A | 6.67 A |
| Module Efficiency (%) | 13.3 % | 13.5 % | 13.8 % | 14.2 % | 14.4 % |

P_{max}, V_{oc}, I_{sc}, V_{mpp} and I_{mpp} tested at Normal Operating Cell Temperature (NOCT) defined as irradiance of 800W/m²; 20°C; Wind speed 1m/s. Measurement tolerance: +/- 3% (P_{max})

*255W is only applicable for the module with white back sheet

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 |

Nomenclature:

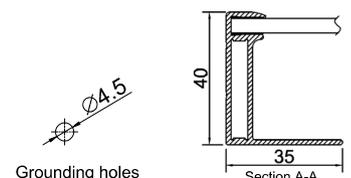
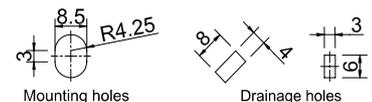
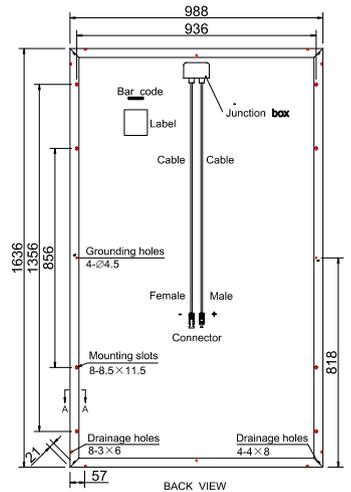
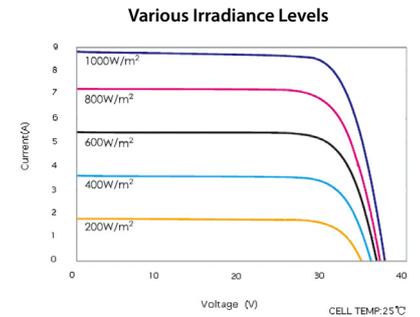
HSL 60 Poly: HSL60P6-PB-1-xxx

HSL 60 Black Poly: HSL60P6-PB-1-xxxB

xxx represents the power class

Performance at Low Irradiance:

The typical relative change in module efficiency at an irradiance of 200 W/m² in relation to 1000 W/m² (both at 25 °C and AM 1.5 spectrum) is less than 5 %.



Mechanical Characteristics

| | |
|--------------------------|---|
| Dimensions | 1636mm × 988mm × 40 mm |
| Weight | 19±0.5kg |
| Frame | Aluminum-alloy |
| Front | 3.2mm tempered glass with anti reflective coating |
| Encapsulant | EVA |
| Back Cover | Composite sheet |
| Cell Technology | Polycrystalline |
| Cell Size | 156 mm × 156 mm (6 in × 6 in) |
| Number of Cells (Pieces) | 60 (6 × 10) |
| Junction Box | Protection class IP 67; with 3 bypass diodes (or 3 pairs, 2 each) |
| Output Cables | Solar cable: 4 mm ² ; length: 1000 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 | 24 pieces per pallet |
| Loading Capacity (40 ft. HQ Container) | 672 pieces |