

## Five Key Features

- 1 Guaranteed quality: 12 year product warranty, 25 year linear performance warranty\*
- 2 Excellent efficiency: Module peak power up to 260W
- 3 Predictable output: Positive power sorting of 0 to +5W
- 4 Robust design: Module certified to withstand high snow loads, up to 5400Pa \*\*
- 5 Long term responsibility: Free module recycling in PV Cycle member countries

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

\*\*Please refer to Hanwha Solar module Installation Guide.

## Quality and Environmental Certificates

- ISO 9001 quality standards and ISO 14001 environmental standards
- OHSAS 18001 occupational health and safety standards
- Tested according to IEC 61215 and IEC 61730 Class A
- 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

# HSL60 | Mono Black Diamond

## Electrical Characteristics

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

Power Class	235 W	240 W	245 W	250 W	255 W	260 W
Maximum Power ( $P_{max}$ )	235 W	240 W	245 W	250 W	255 W	260 W
Open Circuit Voltage ( $V_{oc}$ )	36.6 V	36.8 V	37.0 V	37.2 V	37.4 V	37.6 V
Short Circuit Current ( $I_{sc}$ )	8.45 A	8.52 A	8.60 A	8.70 A	8.82 A	8.90 A
Voltage at Maximum Power ( $V_{mpp}$ )	30.0 V	30.2 V	30.4 V	30.5 V	30.7 V	30.9 V
Current at Maximum Power ( $I_{mpp}$ )	7.84 A	7.95 A	8.06 A	8.20 A	8.32 A	8.41 A
Module Efficiency (%)	14.2 %	14.5 %	14.8 %	15.1 %	15.4 %	15.7 %
Cell Efficiency (%)	16.4 %	16.8 %	17.1 %	17.4 %	17.8 %	18.2 %

$P_{max}$ ,  $V_{oc}$ ,  $I_{sc}$ ,  $V_{mpp}$  and  $I_{mpp}$  tested at Standard Testing Conditions (STC) defined as irradiance of 1000 W/m<sup>2</sup> at AM 1.5 solar spectrum and a temperature 25 ± 2 °C.

Electrical Characteristics: measurement tolerance of ± 3 %.

### Temperature Characteristics

Normal Operating Cell Temperature (NOCT)	45°C ± 3 °C
Temperature Coefficients of P	- 0.45 % / °C
Temperature Coefficients of V	- 0.34 % / °C
Temperature Coefficients of I	+ 0.03 % / °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

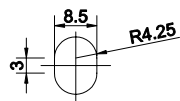
Dimensions	1652mm × 1000mm × 45 mm
Weight	20±0.5kg
Frame	Aluminum-alloy
Front	Tempered glass
Encapsulant	EVA
Back	Composite sheet
Cell Technology	Monocrystalline
Cell Size	156mm × 156 mm (6 in × 6 in)
Number of Cells (Pcs)	60 (6 × 10)
Junction Box	Protection class IP67, with bypass-diode
Output Cables	Solar cable: 4 mm <sup>2</sup> ; length: 900 mm
Connector	Amphenol H4

## System Design

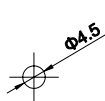
Operating Temperature	- 40 °C to +85 °C
Hail Safety Impact Velocity	25mm at 23m/s
Fire Safety Classification	Class C
Static Load Wind / Snow	2400 Pa / 5400 Pa

## Packaging and Storage

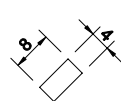
Storage Temperature	- 40 °C to +85 °C
Packaging Configuration	22 pieces per pallet
Loading Capacity (40 ft. Container)	572 pieces



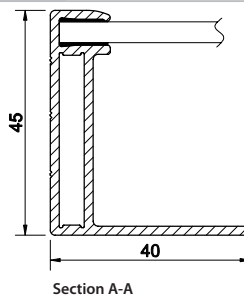
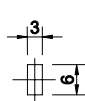
Mounting holes



Grounding holes



Drainage holes



Section A-A

### Nomenclature

Full product name:

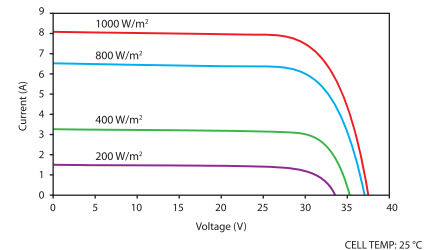
HSL60M6-HA-1-xxxB

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



CELL TEMP. 25 °C

Basic Design

