



Hyundai Solar Module

Hyundai Heavy Industries was founded in 1972 and is a Fortune 500 company. The company employs more than 48,000 people, and has a global leading 7 business divisions with sales of 51.3 Billion USD in 2013. As one of our core businesses of the company, Hyundai Heavy Industries is committed to develop and invest heavily in the field of renewable energy.

Hyundai Solar is the largest and the longest standing PV cell and module manufacturer in South Korea. We have 600 MW of module production capacity and provide high-quality solar PV products to more than 3,000 customers worldwide. We strive to achieve one of the most efficient PV modules by establishing an R&D laboratory and investing more than 20 Million USD on innovative technologies.

PERL RG-Series

Multi-crystalline Type

HiS-M265RG | HiS-M270RG | HiS-M275RG

Mono-crystalline Type

HiS-S280RG | HiS-S285RG | HiS-S290RG

Mechanical Characteristics

※ Several models are under certification process.

| | |
|---------------|---|
| Dimensions | 998 mm (39.29")(W) × 1,640 mm (64.57")(L) × 35 mm (1.38")(H) |
| Weight | Approx. 18.7 kg (41.2 lbs) |
| Solar cells | 60 cells in series (6 × 10 matrix) with PERL technology (Hyundai cell, Made in Korea) |
| Output cables | 4 mm ² (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0 m (39.4") |
| Junction box | IP67, weatherproof, IEC certified (UL listed) |
| Bypass diodes | 3 bypass diodes to prevent power decrease by partial shade |
| Construction | Front : Anti-reflective coating low-iron tempered glass, 3.2 mm (0.126") Encapsulant : EVA Back Sheet : Weatherproof film |
| Frame | Clear anodized aluminum alloy type 6063 (Black) |

High Quality

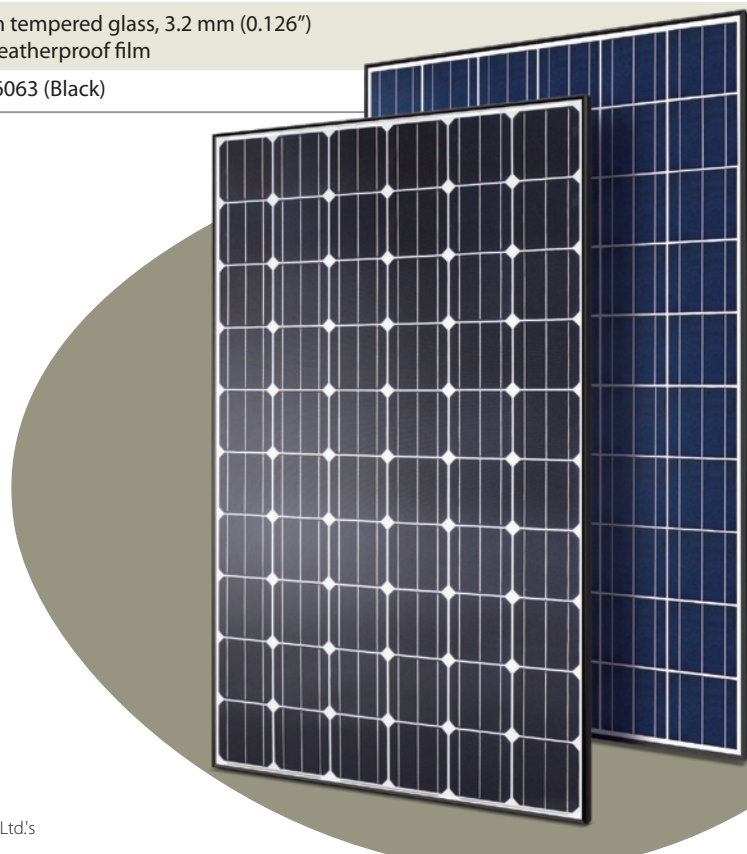
- IEC 61215 (Ed.2) and IEC 61730 by VDE
- UL listed (UL 1703), Type 1 for Class A Fire Rating
- Output power tolerance +3/-0 %
- ISO 9001:2000, ISO 14001:2004 and ISO 50001:2011 Certified
- OHSAS 18001:2007 Certified
- Advanced Mechanical Test (8,000 Pa) Passed (IEC)
/ Mechanical Load Test (40 lbs/ft²) Passed (UL)
- Ammonia Corrosion Resistance Test Passed
- IEC 61701 (Salt Mist Corrosion Test) Passed

Limited Warranty

- 1st year: 97 %
- After 2nd year: 0.7 % annual degradation
80.2 % for 25 years
- ▶ Please refer to the Hyundai Limited Warranty for more details.

※ Important Notice on Warranty

The warranties apply only to the PV modules with Hyundai Heavy Industries Co., Ltd.'s logo (shown below) and product serial number on it.



Electrical Characteristics

| Multi-crystalline Type |

| | | HiS-M□□□RG | | |
|---------------------------------|-----|---|-------|-------|
| | | 265 | 270 | 275 |
| Nominal output (Pmpp) | W | 265 | 270 | 275 |
| Voltage at Pmax (Vmpp) | V | 31.3 | 31.4 | 31.5 |
| Current at Pmax (Impp) | A | 8.5 | 8.6 | 8.7 |
| Open circuit voltage (Voc) | V | 37.9 | 38.0 | 38.2 |
| Short circuit current (Isc) | A | 9.1 | 9.2 | 9.3 |
| Output tolerance | % | +3/-0 | | |
| No. of cells & connections | pcs | 60 in series | | |
| Cell type | - | 6" Multi-crystalline silicon with PERL technology (Hyundai cell, Made in Korea) | | |
| Module efficiency | % | 16.2 | 16.5 | 16.8 |
| Temperature coefficient of Pmpp | %/K | -0.41 | -0.41 | -0.41 |
| Temperature coefficient of Voc | %/K | -0.32 | -0.32 | -0.32 |
| Temperature coefficient of Isc | %/K | 0.039 | 0.039 | 0.039 |

※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

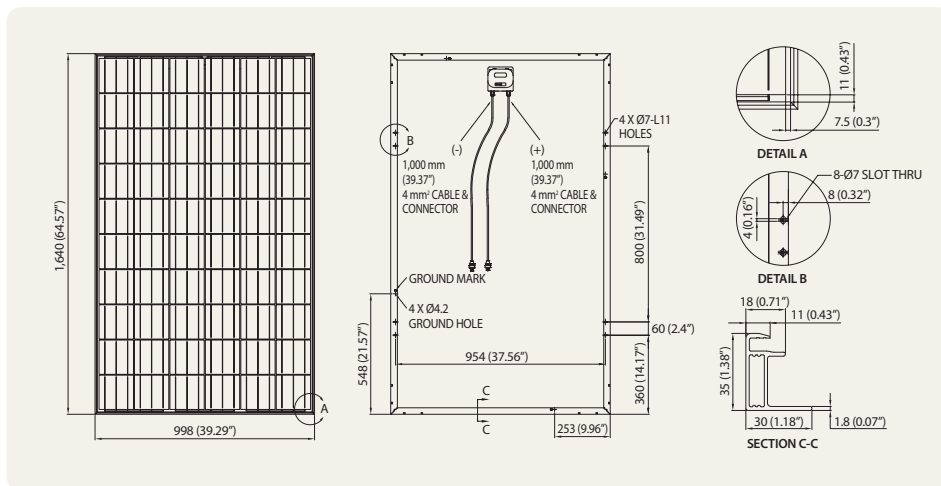
| Mono-crystalline Type |

| | | HiS-S□□□RG | | |
|---------------------------------|-----|--|-------|-------|
| | | 280 | 285 | 290 |
| Nominal output (Pmpp) | W | 280 | 285 | 290 |
| Voltage at Pmax (Vmpp) | V | 31.7 | 31.8 | 32.0 |
| Current at Pmax (Impp) | A | 8.8 | 8.9 | 9.1 |
| Open circuit voltage (Voc) | V | 38.5 | 38.7 | 38.8 |
| Short circuit current (Isc) | A | 9.4 | 9.5 | 9.7 |
| Output tolerance | % | +3/-0 | | |
| No. of cells & connections | pcs | 60 in series | | |
| Cell type | - | 6" Mono-crystalline silicon with PERL technology (Hyundai cell, Made in Korea) | | |
| Module efficiency | % | 17.1 | 17.4 | 17.7 |
| Temperature coefficient of Pmpp | %/K | -0.42 | -0.42 | -0.42 |
| Temperature coefficient of Voc | %/K | -0.30 | -0.30 | -0.30 |
| Temperature coefficient of Isc | %/K | 0.047 | 0.047 | 0.047 |

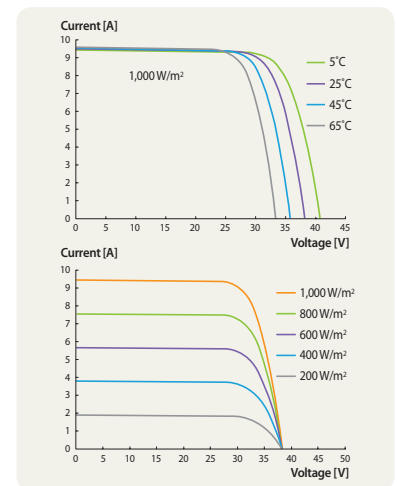
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| Module Diagram |

(unit : mm, inch)



| I-V Curves |



| Installation Safety Guide |

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

| | |
|------------------------------------|-----------------------------------|
| Nominal Operating Cell Temperature | 46°C ± 2 |
| Operating Temperature | -40 - 85°C |
| Maximum System Voltage | DC 1,000 V (IEC) DC 600 V (UL) |
| Maximum Reverse Current | 15 A |

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