



# 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 60.2 Billion USD in 2012. 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

### Mono-crystalline Type

HiS-S275RG | HiS-S280RG | HiS-S285RG

### Mechanical Characteristics

Dimensions	998 mm (39.29")(W) × 1,640 mm (64.57")(L) × 35 mm (1.38")(H)
Weight	Approx. 17.2 kg (37.9 lbs)
Solar cells	60 cells in series (6 × 10 matrix) with PERL technology (Hyundai cell, Made in Korea)
Output cables	4 mm <sup>2</sup> (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0 m (39.4")
Junction box	IP68, 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, 2.8 mm (0.11") Encapsulant : EVA    Back Sheet : Weatherproof film
Frame	Clear anodized aluminum alloy type 6063 (Black color)

### High Quality

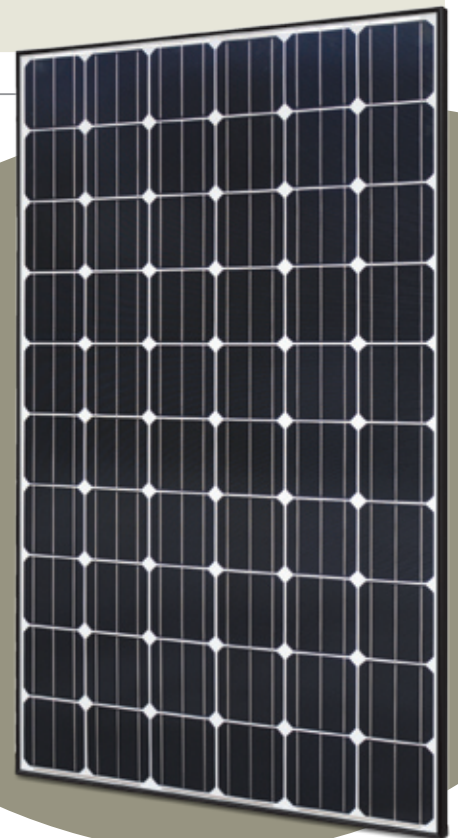
- IEC 61215 (Ed.2) and IEC 61730 by VDE
- UL listed (UL 1703), Class C Fire Rating
- Output power tolerance +3/-0 %
- ISO 9001:2000 and ISO 14001:2004 Certified
- Advanced Mechanical Test (8,000 Pa) Passed (IEC)  
/ Mechanical Load Test (40 lbs/ft<sup>2</sup>) Passed (UL)
- Ammonia Corrosion Resistance Test Passed
- IEC 61701 (Salt Mist Corrosion Test) Passed

### Limited Warranty

- 10 years for product defect
- 10 years for 90 % of warranted min. power
- 25 years for 80 % of warranted min. power

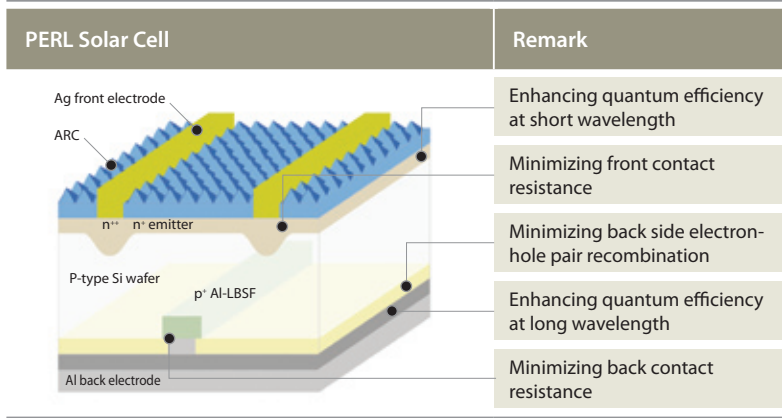
#### ※ Important Notice on Warranty

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



**HYUNDAI**  
HEAVY INDUSTRIES CO.,LTD.

# PERL : Passivated Emitter, Rear Locally-Diffused Cell



## | Higher Cell Efficiency |

Conventional Selective-Emitter Cell : Max. 19.3 %  
 → PERL Cell : Max. 20.4 %

## | Higher Module Output |

275 W, 280 W, 285 W

## | Lower Temperature Coefficient |

Lower output loss at higher temperature

## | Affordable Price |

Premium mono-crystalline technology with affordable price

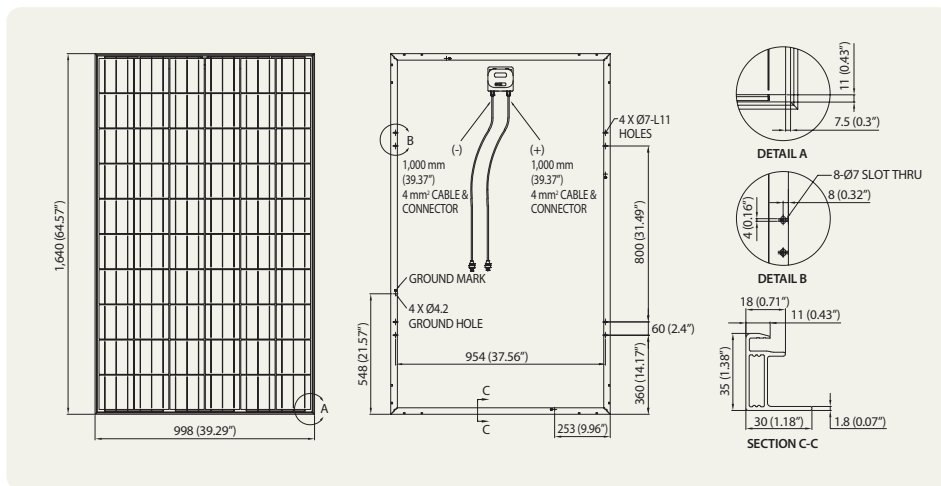
## Electrical Characteristics

### | Mono-crystalline Type |

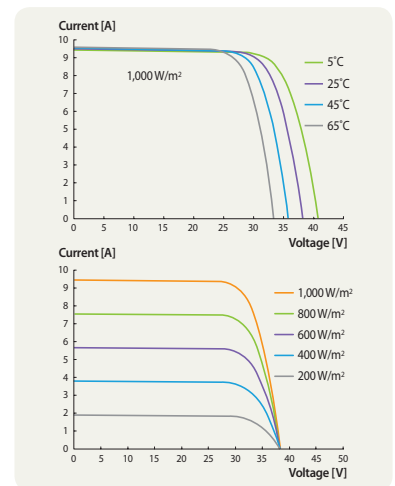
		HiS-S□□□RG		
		275	280	285
Nominal output (Pmpp)	W	275	280	285
Voltage at Pmax (Vmpp)	V	31.3	31.5	31.8
Current at Pmax (Imp)	A	8.8	8.9	9.0
Open circuit voltage (Voc)	V	38.7	38.9	39.2
Short circuit current (Isc)	A	9.3	9.4	9.4
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	-	6" Mono-crystalline silicon with PERL technology (Hyundai cell, Made in Korea)		
Module efficiency	%	16.8	17.1	17.4
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	0.032	0.032	0.032

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

### | Module Diagram |



### | 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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