

Hyundai Solar Module Black | MG-Series |



- **Multi-crystalline Type**
HiS-M223MG | HiS-M225MG | HiS-M228MG
HiS-M230MG | HiS-M233MG | HiS-M235MG
- **Mono-crystalline Type**
HiS-S238MG | HiS-S240MG | HiS-S243MG

Mechanical Characteristics

Dimensions	983 mm (38.7") (W) × 1645 mm (64.76") (L) × 35 mm (1.38") (H)
Weight	Approx. 19.0 kg (41.9 lbs)
Solar cells	60 cells in series (6 × 10 matrix)
Output cables	4 mm ² (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0 m (39.4")
Junction box	IP65, weatherproof, IEC certified (UL listed)
Bypass diodes	3 bypass diodes to prevent power decrease by partial shade
Construction	Front : High transmission low-iron tempered glass, 3.2 mm (0.126") Encapsulant : EVA Back Sheet : Weatherproof film (Black)
Frame	Clear anodized aluminum alloy type 6063 (Black)

High Quality

- IEC 61215 (Ed.2) and IEC 61730 by TÜV Rheinland
- UL listed (UL 1703), Class C Fire Rating
- Output power tolerance +3/-0%
- ISO 9001:2000 and ISO 14001:2004 Certified
- Advanced Mechanical Test (5,400 Pa) Passed (IEC) /Mechanical Load Test (40 lbs/ft²) Passed (UL)
- IEC 61701 (Salt Mist Corrosion Test) Passed

Limited Warranty

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

Fast and Inexpensive Mounting

- Delivered ready for connection
- Pre-confectioned cables
- IEC (UL) certified and weatherproof connectors
- Integrated bypass diodes

※ 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.



• Qualified, IEC 61215
• Safety tested, IEC 61730
• Periodic inspection



Electrical Characteristics

I Multi-crystalline Type I

		HiS-M MG					
		223	225	228	230	233	235
Nominal output (Pmpp)	W	223	225	228	230	233	235
Voltage at Pmax (Vmpp)	V	30.1	30.1	30.2	30.2	30.3	30.4
Current at Pmax (Impp)	A	7.5	7.5	7.6	7.7	7.7	7.8
Open circuit voltage (Voc)	V	36.7	36.8	36.9	37.1	37.2	37.3
Short circuit current (Isc)	A	8.0	8.0	8.1	8.1	8.2	8.2
Output tolerance	%	+3/-0					
No. of cells & connections	pcs	60 in series					
Cell type	—	6" Multi-crystalline silicon					
Module efficiency	%	13.8	13.9	14.1	14.2	14.4	14.5
Temperature coefficient of Pmpp	%/K	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Temperature coefficient of Voc	%/K	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32
Temperature coefficient of Isc	%/K	0.056	0.056	0.056	0.056	0.056	0.056

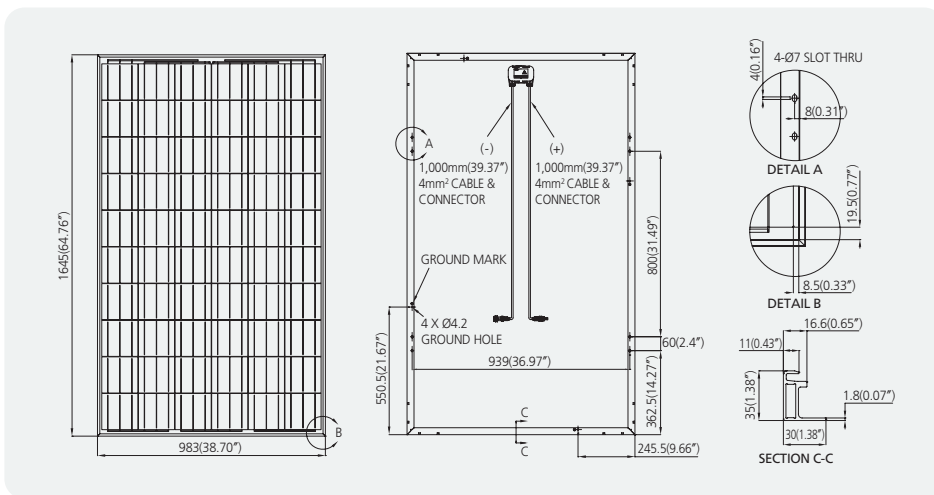
※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

I Mono-crystalline Type I

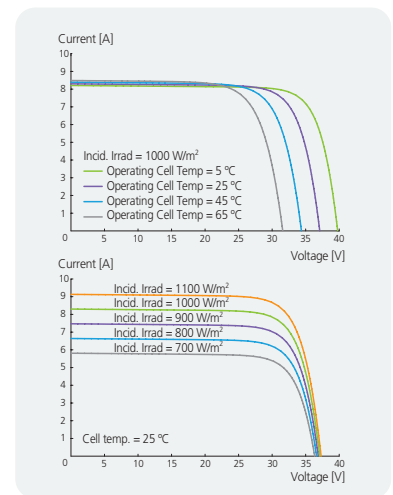
		HiS-S MG		
		238	240	243
Nominal output (Pmpp)	W	238	240	243
Voltage at Pmax (Vmpp)	V	30.8	30.9	31.0
Current at Pmax (Impp)	A	7.8	7.8	7.9
Open circuit voltage (Voc)	V	37.3	37.4	37.5
Short circuit current (Isc)	A	8.3	8.3	8.4
Output tolerance	%	+3/-0		
No. of cells & connections	pcs	60 in series		
Cell type	—	6" Mono-crystalline silicon		
Module efficiency	%	14.7	14.8	15.0
Temperature coefficient of Pmpp	%/K	-0.44	-0.44	-0.44
Temperature coefficient of Voc	%/K	-0.34	-0.34	-0.34
Temperature coefficient of Isc	%/K	0.052	0.052	0.052

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

I Module Diagram I



I I-V Curves I



I Installation Safety Guide I

- 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

