

# 현대 태양광 모듈

## MF-Series

### Mono-crystalline Type (단결정모듈)

HiS-S220MF | HiS-S223MF | HiS-S225MF | HiS-S230MF | HiS-S235MF | HiS-S240MF

### Mechanical Characteristics

|               |  |
|---------------|--|
| Dimensions    | 983mm (38.7")(W) × 1,476mm (58.11")(L) × 35mm (1.38")(H)   |
| Weight        | Approx. 16.6kg (36.6lbs)   |
| Solar cells   | 54 cells in series (6 × 9 matrix)  |
| Output cables | 4mm <sup>2</sup> (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed), Length 1.0m (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, 3.2mm (0.126")<br>Encapsulant : EVA      Back Sheet : Weatherproof film |
| Frame         | Clear anodized aluminum alloy type 6063  |

### 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 (5,400Pa) Passed (IEC)  
/ Mechanical Load Test (40lbs/ft<sup>2</sup>) Passed (UL)
- Ammonia Corrosion Resistance Test Passed
- IEC 61701 (Salt Mist Corrosion Test) Passed

### Fast and Inexpensive Mounting

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

### Limited Warranty

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

#### ※ 보증관련 유의사항

태양광모듈 보증은 현대중공업 로고와 시리얼 넘버가 부착된 정품 제품에만 유효합니다.



# Electrical Characteristics

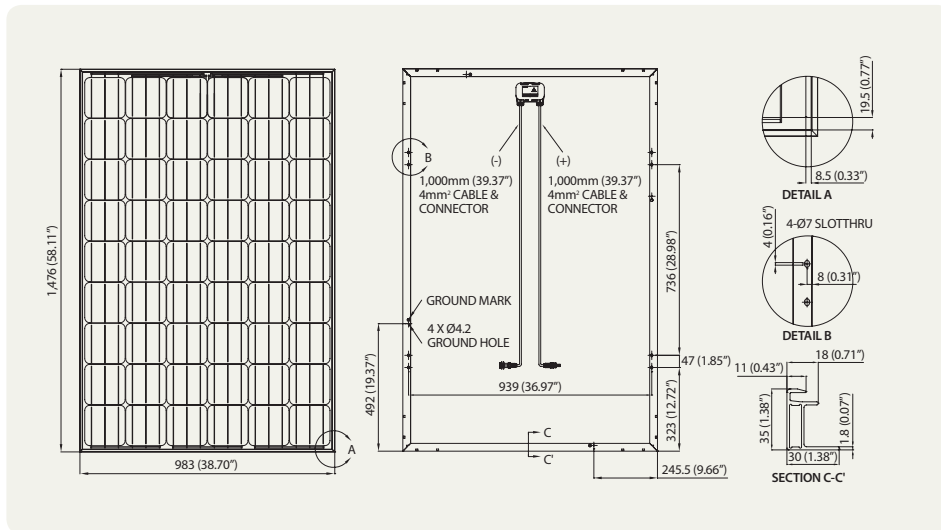
## | Mono-crystalline Type (단결정모듈) |

|                                 |     | HiS-S□□□MF                  |       |       |       |       |       |
|---------------------------------|-----|-----------------------------|-------|-------|-------|-------|-------|
|                                 |     | 220                         | 223   | 225   | 230   | 235   | 240   |
| Nominal output (Pmpp)           | W   | 220                         | 223   | 225   | 230   | 235   | 240   |
| Voltage at Pmax (Vmpp)          | V   | 27.6                        | 27.6  | 27.8  | 28.1  | 28.3  | 28.6  |
| Current at Pmax (Impp)          | A   | 8.0                         | 8.1   | 8.1   | 8.2   | 8.3   | 8.4   |
| Open circuit voltage (Voc)      | V   | 33.6                        | 33.7  | 33.7  | 33.8  | 33.9  | 34.0  |
| Short circuit current (Isc)     | A   | 8.5                         | 8.5   | 8.6   | 8.7   | 8.8   | 8.9   |
| Output tolerance                | %   | +3/-0                       |       |       |       |       |       |
| No. of cells & connections      | pcs | 54 in series                |       |       |       |       |       |
| Cell type                       | -   | 6" Mono-crystalline silicon |       |       |       |       |       |
| Module efficiency               | %   | 15.2                        | 15.4  | 15.5  | 15.9  | 16.2  | 16.5  |
| Temperature coefficient of Pmpp | %/K | -0.45                       | -0.45 | -0.45 | -0.45 | -0.45 | -0.45 |
| Temperature coefficient of Voc  | %/K | -0.33                       | -0.33 | -0.33 | -0.33 | -0.33 | -0.33 |
| Temperature coefficient of Isc  | %/K | 0.032                       | 0.032 | 0.032 | 0.032 | 0.032 | 0.032 |

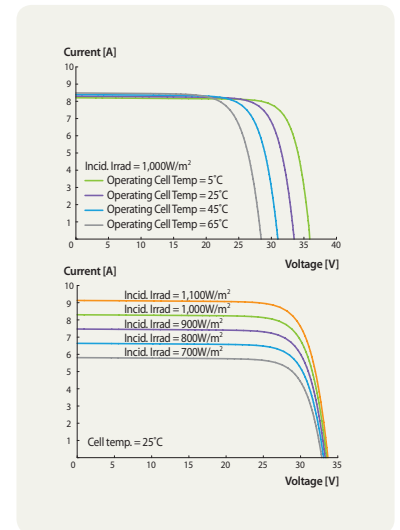
※ All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

## | Module Diagram |

(unit : mm, inch)



## | I-V Curves |

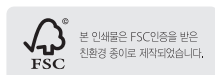


## | 설치시 유의사항 |

- 전문 기술자만이 설치 및 유지·보수 작업을 할 수 있으며 고압 직류전압에 유의하십시오.
- 모듈 뒷면이 상하거나 굽지 않도록 유의하십시오.
- 모듈은 젖은 상태로 설치하지 마십시오.

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

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