

# HYUNDAI SOLAR MODULE

**VG**  
SERIES

## PERC Shingled

HiE-S390VG HiE-S395VG HiE-S400VG  
HiE-S405VG HiE-S410VG



Shingled  
Technology



For Both  
Residential &  
Commercial  
Applications



More Power  
Generation  
In Low Light



## M6 PERC Shingled

M6 PERC Shingled Technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.



## Anti-LID / PID

Both LID(Light Induced Degradation) and PID(Potential Induced Degradation) are strictly eliminated to ensure higher actual yield during lifetime.



## Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow and strong wind.



## Reliable Warranty

Global brand with powerful financial strength provide reliable 25-year warranty.(Europe,Australia and New Zealand only)



## Corrosion Resistant

Various tests under harsh environmental conditions such as ammonia and salt-mist passed.



## UL / VDE Test Labs

Hyundai's R&D center is an accredited test laboratory of both UL and VDE.

### Hyundai's Warranty Provisions

25  
YEARS

- 25-Year Product Warranty (Europe,Australia and New Zealand only)
- On materials and workmanship

25  
YEARS

- 25-Year Performance Warranty
- Initial year: 98.0%
- Linear warranty after second year: with 0.55%p annual degradation, 84.8% is guaranteed up to 25 years

### About Hyundai Energy Solutions

Established in 1972, Hyundai Heavy Industries Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, Hyundai Heavy Industries is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HHI, Hyundai Energy Solutions has strong pride in providing high-quality PV products to more than 3,000 customers worldwide.

### Certification



## Electrical Characteristics

		Mono-Crystalline Module (HiE-S___VG)				
		390	395	400	405	410
Nominal Output (P <sub>mpp</sub> )	W	390	395	400	405	410
Open Circuit Voltage (V <sub>oc</sub> )	V	46.3	46.3	46.4	46.5	46.6
Short Circuit Current (I <sub>sc</sub> )	A	10.87	10.92	10.97	11.02	11.07
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	38.5	38.5	38.6	38.7	38.8
Current at P <sub>max</sub> (I <sub>mp</sub> )	A	10.13	10.26	10.36	10.47	10.57
Module Efficiency	%	19.9	20.2	20.4	20.7	20.9
Cell Type	-	PERC Mono-Crystalline Silicon Shingled				
Maximum System Voltage	V	1,500				
Temperature Coefficient of P <sub>max</sub>	%/°C	-0.34				
Temperature Coefficient of V <sub>oc</sub>	%/°C	-0.27				
Temperature Coefficient of I <sub>sc</sub>	%/°C	0.04				

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

\*Tolerance of P<sub>max</sub>: 0~+5W

\*Performance deviation of V<sub>oc</sub> [V], I<sub>sc</sub> [A], V<sub>m</sub> [V] and I<sub>m</sub> [A]: ±3%.

## Mechanical Characteristics

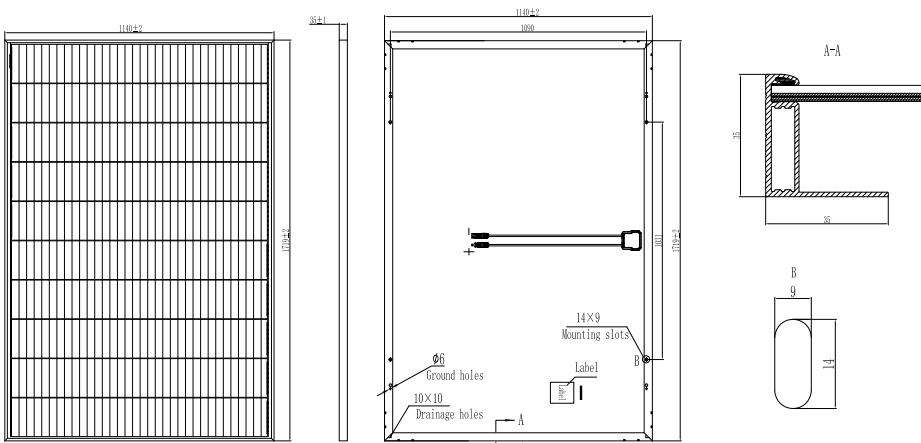
Dimensions	1,719 × 1,140 × 35mm (L × W × H)		
Weight	22kg		
Solar Cells	340 cells, PERC Mono-crystalline Shingled (166 × 166mm)		
Output Cables	Length 1,500mm, 1×4mm <sup>2</sup>	Connector	Stäubli : MC4-Evo2
Junction Box	Rated current : 20A, IP67, TUV&UL		
Construction	Front Glass : White toughened safety glass, 3.2mm Encapsulation : EVA (Ethylene-Vinyl-Acetate)		
Frame	Anodized aluminum		

## 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	42.3 ± 2°C
Operating Temperature	-40 ~ 85°C
Maximum System Voltage	DC 1,500 / 1,000 (IEC)
Maximum Reverse Current	20A
Maximum Surface Load Capacity	Front 5,400 Pa Rear 2,400 Pa

## Module Diagram (unit : mm)



## I-V Curves

