

HYUNDAI SOLAR MODULE

DJ SERIES

**G12 PERC Bifacial
Dual-Glass Shingled**

HiE-S645DJ HiE-S650DJ HiE-S655DJ
HiE-S660DJ HiE-S665DJ HiE-S670DJ



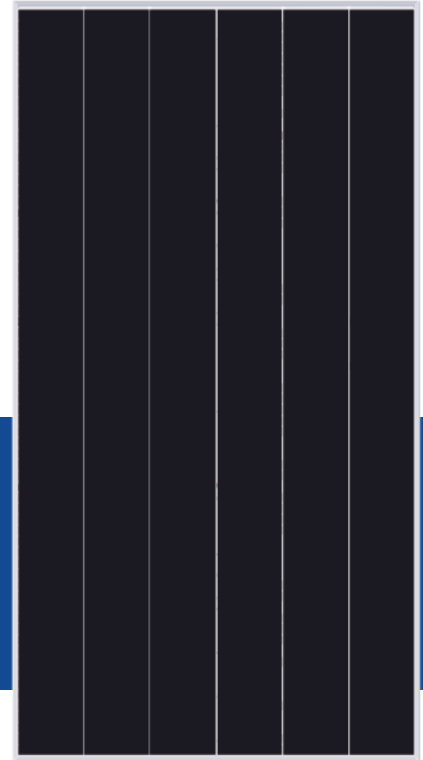
Shingled
Technology



For Utility-Scale
Applications



More Power
Generation
In Low Light



**G12 PERC Bifacial
Dual-Glass Shingled**

G12 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 15-year warranty.



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



- **15-Year Product Warranty**
- On material and workmanship



- **30-Year Performance Warranty**
- Initial year: 98.0%
- Linear warranty after second year: with 0.45%p annual degradation, 84.95% is guaranteed up to 30 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___DJ)					
		645	650	655	660	665	670
Nominal Output (Pmpp)	W	645	650	655	660	665	670
Open Circuit Voltage(Voc)	V	46.6	46.7	46.8	46.9	47.0	47.1
Short Circuit Voltage (Isc)	A	17.74	17.84	17.94	18.04	18.14	18.23
Voltage at Pmax (Vmpp)	V	38.7	38.8	38.8	38.9	39.0	39.1
Current at Pmax (Impp)	A	16.68	16.77	16.86	16.95	17.05	17.14
Module Efficiency	%	20.8	20.9	21.1	21.2	21.4	21.6
Cell Type	-	PERC Mono-Crystalline Silicon Shingled					
Maximum System Voltage	V	1,500					
Temperature Coefficient of Pmax	%/°C	-0.34					
Temperature Coefficient of Voc	%/°C	-0.27					
Temperature Coefficient of Isc	%/°C	0.04					

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

*Tolerance of Pmax:0~+5W.

* Performance deviation of Voc [V], Isc [A], Vm[V] and Im[A]: ±3%.

Mechanical Characteristics

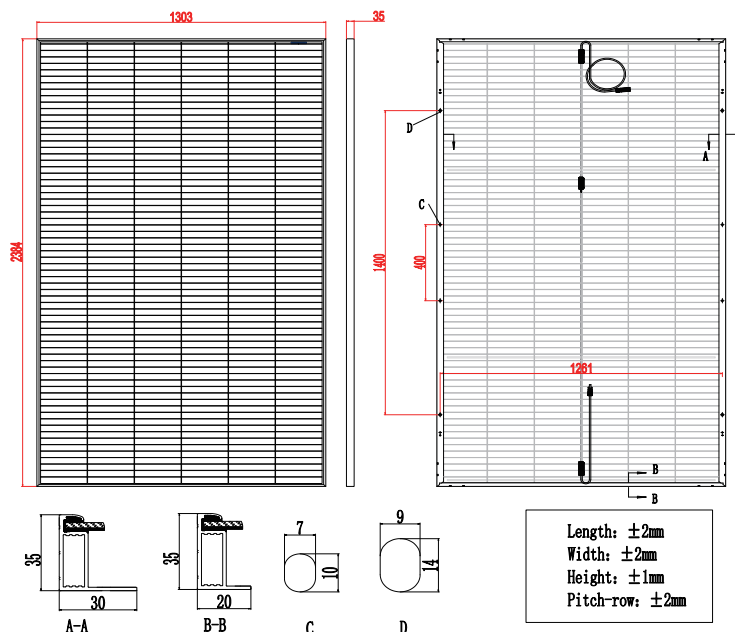
Dimensions	2,384 × 1,303 × 35mm (L × W × H)		
Weight	39kg		
Solar Cells	414 cells, PERC Mono-crystalline Shingled		
Output Cables	4mm ² , +500mm/-1000mm(Vertical), +220mm/-180mm(Horizontal)	Connector	PV-KST4-EVO2/xy_UR PV-KBT4-EVO
Junction Box	IP68, TUV&UL, Three Diodes		
Construction	Front Glass: Tempered glass, 2.0mm Encapsulation: EVA (Ethylene-Vinyl-Acetate)		
Frame	Anodized Aluminum		

Installation Safety Guide

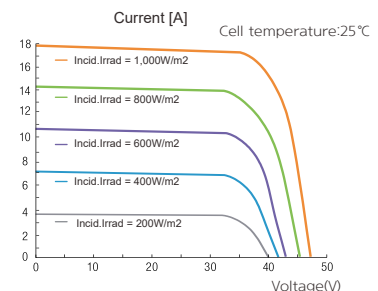
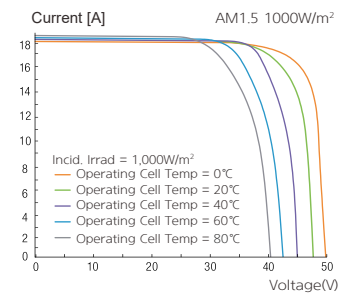
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temperature	42.3°C (±2°C)
Operating Temperature	-40 ~ 85° C
Maximum System Voltage	DC 1,500 / 1,000 (IEC)
Maximum Reverse Current	30A
Maximum Surface Load Capacity	Front 5,400 Pa Rear 2,400 Pa

Module Diagram (Unit: mm)



I-V Curves



Manufactured in China

HYUNDAI
ENERGY SOLUTIONS