

HD HYUNDAI SOLAR MODULE



DG
SERIES

G12 PERC Shingled

HiE-S405DG HiE-S410DG
HiE-S415DG HiE-S420DG
HiE-S425DG



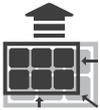
Shingled
Technology



For Both Residential
& Commercial
Applications



More Power
Generation
In Low Light



G12 PERC 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

HD HYUNDAI

Global brand with powerful financial strength provide reliable 25-year warranty. (Australia and Europe Only)



Corrosion Resistant

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



Certified Test Labs

HD Hyundai's R&D center is an accredited test laboratory of UL, international certification institutions, and guarantees the best quality in the world through rigorous product testing.

HD Hyundai's Warranty Provisions



- 15-Year Product Warranty
- On materials and workmanship
25-year for Australia and Europe Only



- 25-Year Performance Warranty
- Initial year : 98.0%
- Linear warranty after second year:
with 0.55%p annual degradation,
84.80% is guaranteed up to 25 years

About HD Hyundai Energy Solutions

Established in 1972, HD Hyundai 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, HD Hyundai 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 HD Hyundai, HD 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__DG)				
		425	420	415	410	405
Nominal Output (P _{mpp})	W	425	420	415	410	405
Open Circuit Voltage (V _{oc})	V	41.7	41.6	41.5	41.4	41.3
Short Circuit Current (I _{sc})	A	13.03	12.92	12.80	12.65	12.53
Voltage at P _{max} (V _{mpp})	V	34.6	34.5	34.4	34.4	34.3
Current at P _{max} (I _{mp})	A	12.30	12.19	12.08	11.97	11.82
Module Efficiency	%	21.4	21.1	20.9	20.6	20.4
Cell Type	-	PERC Mono-Crystalline Silicon Shingled				
Maximum System Voltage	V	1,500				
Temperature Coefficient of P _{max}	%/°C	-0.34				
Temperature Coefficiency of V _{oc}	%/°C	-0.27				
Temperature Coefficiency of I _{sc}	%/°C	0.04				

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

*Tolerance of P_{max}:0~+5W.

* Performance deviation of V_{oc} [V], I_{sc} [A], V_m[V] and I_m[A]:±3%.

Mechanical Characteristics

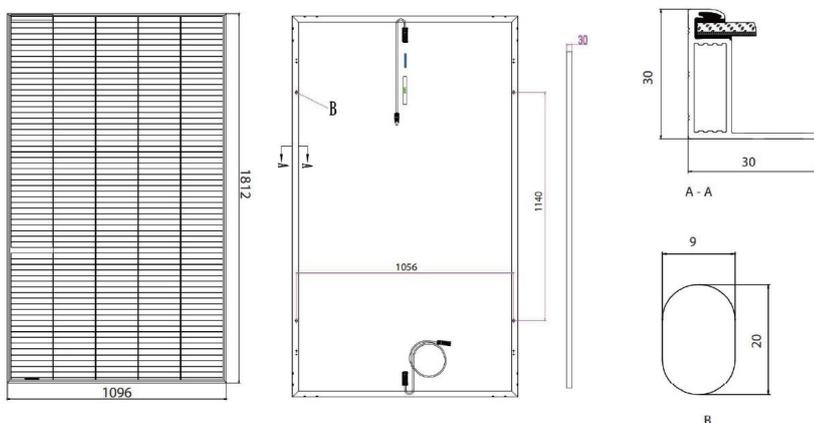
Dimensions	1,812 × 1,096 × 30 mm (L × W × H)
Weight	20.8 kg
Solar Cells	305 Cells, PERC Mono-crystalline Shingled (210 × 210mm)
Output Cables	4mm ² ,+500mm/-1100mm(Vertical), +220mm/-180mm(Horizontal)
Connector	Stäubli : MC4-Evo2
Junction Box	IP68, TUV&UL, two diodes
Construction	Front Glass : Tempered glass, 3.2mm Encapsulation : EVA (Ethylene-Vinyl-Acetate)
Frame	Anodized aluminum alloy (Black)

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°C ~ 85°C
Maximum System Voltage	DC 1,500V / 1000 (IEC)
Series Fuse Rating [A]	25
Maximum Surface Load Capacity	Front 5,400 Pa Rear 2,400 Pa

Module Diagram (unit : mm)



I-V Curves

