# **HYUNDAI SOLAR MODULE**







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.



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. (Australia and Europe 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-Year Product Warranty
- On material and workmanship **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 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













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| <b>Electrical Characteristics</b> |      | Mono-Crystalline Module (HiE-SDG)      |       |       |
|-----------------------------------|------|--|-------|-------|
|                                   |      | 425                                    | 420   | 415   |
| Nominal Output (Pmpp)             | W    | 425                                    | 420   | 415   |
| Open Circuit Voltage(Voc)         | V    | 41.7                                   | 41.6  | 41.5  |
| Short Circuit Current (Isc)       | А    | 13.03                                  | 12.92 | 12.80 |
| Voltage at Pmax (Vmpp)            | V    | 34.6                                   | 34.5  | 34.4  |
| Current at Pmax (Impp)            | А    | 12.30                                  | 12.19 | 12.08 |
| Module Efficiency                 | %    | 21.4                                   | 21.1  | 20.9  |
| Cell Type                         | -    | PERC Mono-Crystalline Silicon Shingled |       |       |
| Maximum System Voltage            | V    |  | 1,500 |       |
| Temperature Coefficiency of Pmax  | %/°C | -0.34                                  |       |       |
| Temperature Coefficiency of Voc   | %/°C | -0.27                                  |       |       |
| Temperature Coefficiency of Isc   | %/°C | 0.04                                   |       |       |

<sup>\*</sup>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**

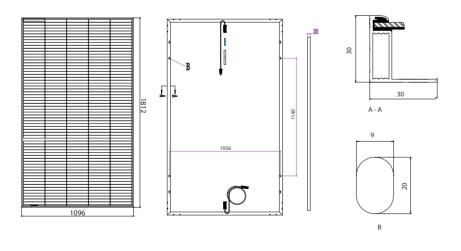
| Dimensions    | 1,812 × 1,096× 30 mm (L × W × H)  |  |  |  |  |
|---------------|---|--|--|--|--|
| Weight        | 20.8kg  |  |  |  |  |
| Solar Cells   | 305Cells, PERC Mono-crystaline Shingled (210 $	imes$ 210mm)                                 |  |  |  |  |
| Output Cables | 4mm²,+500mm/-1100mm(Vertical),<br>+220mm/-180mm(Horizontal)                                 |  |  |  |  |
| Junction Box  | IP68, TUV&UL, two diodes  |  |  |  |  |
| Construction  | Front Glass: AR Coated tempered glass, 3.2mm<br>Encapsulation: EVA (Ethylene-Vingl-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<br>Cell Temperature | 42.3°C ( ±2°C )        |
|---------------------------------------|------------------------|
| Operating Temperature                 | -40 ~ 85 °C            |
| Maximum<br>System Voltage             | DC 1,500 / 1,000 (IEC) |
| Series Fuse Rating [A]                | 25                     |
| Maximum<br>Surface Load Capacity      | Front 5,400 Pa         |

# Module Diagram (Unit: mm)



# **I-V Curves**

