

VDS-S144/M6H-BG

**430-450W**

BIFACIAL DUAL GLASS 144 LAYOUT MODULE

Artikel-Nr.: 450-1.2023-C30-350

**20.7%**

Module Efficiency

**450W**

Highest Power Output

**12 YEARS**

Material & Workmanship Warranty

**25 YEARS**

Linear Power Warranty

**-2.00% First year power degradation**

**-0.45% Annual degradation**

## PRODUCT ADVANTAGES



### High power

- Up to 450W front power and 20.7% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Lower resistance of half-cut and good reflection effect of MBB ensure high power



### High reliability

- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Proven to be reliable in high temperature and humidity areas
- Certificated to fire class A
- Minimizes micro-crack and snail trails
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



### High energy generation

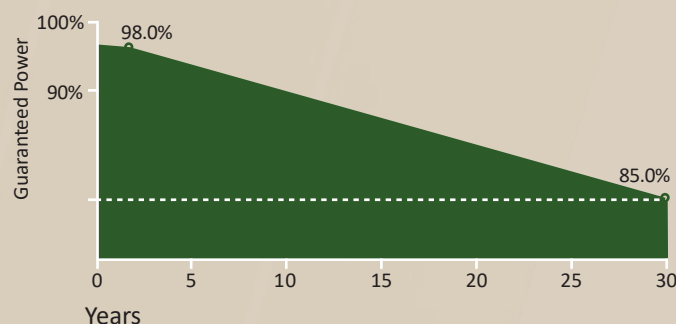
- Up to 25% additional power gain from back side depending on the albedo
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Lower temp coefficient (-0.35%) and NMOT bring more energy leading to lower LCOE
- Better anti-shading performance and lower operating temperature



### Easy to install

- Frame design makes module compatible with all racking and installation methods
- Easy to handle and install as normal framed module during transportation

## PERFORMANCE WARRANTY



## Certifications of Product and Manufacturer



## ELECTRICAL DATA (STC)

Peak Power Watts-P <sub>MAX</sub> (Wp)*	430	435	440	445	450
Maximum Power Voltage-V <sub>MP</sub> (V)	40.5	40.8	41.1	41.4	41.7
Maximum Power Current-I <sub>MP</sub> (A)	10.62	10.67	10.71	10.75	10.80
Open Circuit Voltage-V <sub>OC</sub> (V)	48.7	48.9	49.1	49.3	49.5
Short Circuit Current-I <sub>SC</sub> (A)	11.20	11.29	11.37	11.45	11.53
Module Efficiency $\eta_m$ (%)	19.7	20.0	20.2	20.4	20.6
Power Tolerance-P <sub>MAX</sub> (W)	0~+5				

STC: Irradiance 1000W/m<sup>2</sup>, module temperature 25°C, AM=1.5; \*Measuring tolerance: ±3%

## Electrical characteristics with different rear side power gain (reference to 435 Wp front)

Peak Power-P <sub>MAX</sub> (Wp)*	457	479	500	522	544
Maximum Power Voltage-V <sub>MP</sub> (V)	40.8	40.8	40.8	40.8	40.8
Maximum Power Current-I <sub>MP</sub> (A)	11.20	11.74	12.27	12.80	13.34
Open Circuit Voltage-V <sub>OC</sub> (V)	49.0	49.1	49.2	49.3	49.4
Short Circuit Current-I <sub>SC</sub> (A)	11.80	12.36	12.93	13.49	14.05
Pmax gain	5%	10%	15%	20%	25%

STC: Power Bifaciality: 70±5%

## ELECTRICAL DATA (NMOT)

Maximum Power-P <sub>MAX</sub> (Wp)*	325	329	333	337	341
Maximum Power Voltage-V <sub>MP</sub> (V)	38.2	38.5	38.8	39.0	39.1
Maximum Power Current-I <sub>MP</sub> (A)	8.51	8.55	8.58	8.63	8.71
Open Circuit Voltage-V <sub>OC</sub> (V)	46.0	46.2	46.4	46.6	46.7
Short Circuit Current-I <sub>SC</sub> (A)	9.02	9.05	9.08	9.12	9.15

NMOT: Irradiance 800W/m<sup>2</sup>, module temperature 20°C, AM=1.5, wind speed 1m/s

## MECHANICAL DATA

Solar Cells	Monocrystalline silicon 166 mm (9BB)
Cell Orientation	144 cells (6 x 24)
Module Dimensions	2095x1039x30 mm
Weight	28.5 kg
Front Glass	2.0 mm, High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	POE/EVA
Back Glass	2.0 mm, Heat Strengthened Glass (White Grid Glass)
Frame	30 mm Anodized Aluminium Alloy
Junction Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm <sup>2</sup> Cable length 350 mm or customized length

\*Please refer to regional datasheet for specied connector.

## TEMPERATURE RATINGS

NMOT (Nominal Module Operating Temperature)	41°C (±3°C)
Temperature Coefficient of P <sub>MAX</sub>	-0.34%/°C
Temperature Coefficient of V <sub>OC</sub>	-0.25%/°C
Temperature Coefficient of I <sub>SC</sub>	0.040%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

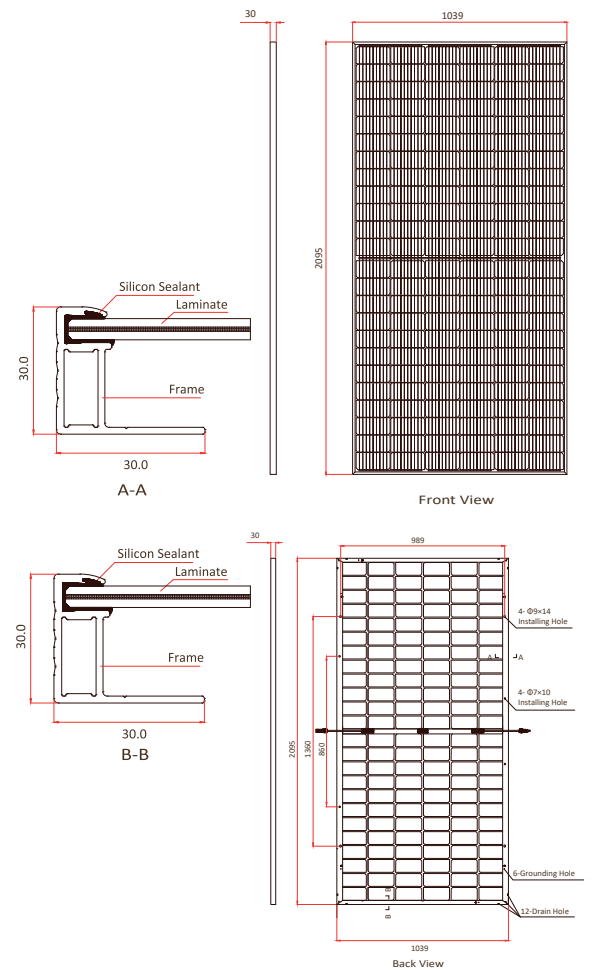
## MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	20A

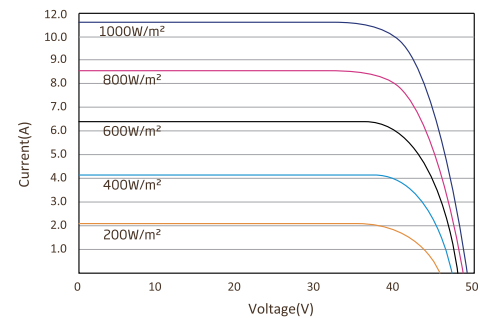
## PACKAGING CONFIGURATION

Modules per box	35 pieces
Modules per 40' container	770 pieces

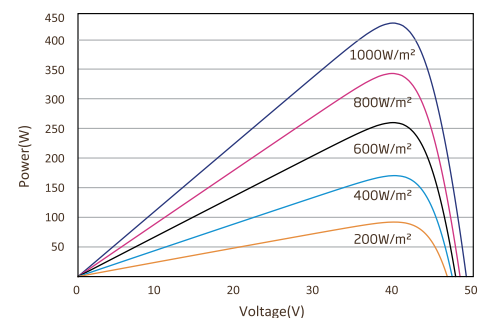
## DIMENSIONS OF PV MODULE (mm)



## I-V CURVES OF PV MODULE (440W)



## P-V CURVES OF PV MODULE (440W)



## COMPANY PROFILE

VDS-Power is a German-based company with strong expertise in providing Photovoltaic solution globally. Our management team has been focused in European market for more than 10 years. We have satisfied customers in Germany, Spain, Italy, Bulgarian and many other European countries. Through direct access to production, we control the quality of photovoltaic modules by monitoring and documents the manufacturing processes from material procurement to final testing. With a warehouse in Rotterdam we ensures fast delivery within EU. This enables us to quickly meet the needs of different purchase quantities. We attach great importance to a reliable partnership and cooperation with our customers. We value reliability, commitment, security and transparency.