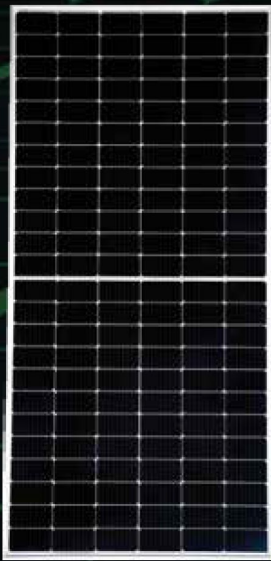




**GREEN ENERGY
SOLUTIONS**



GES-S144/M6H | 166 Half Cell Series

435-460W

144-CELL HALF CUT MONOCRYSTALLINE SOLAR MODULE

Artikel-Nr.: 460-1.2023-R35-C350

21.1%

Module Efficiency

460W

Highest Power Output

12 YEARS

Material & Workmanship Warranty







25 YEARS

Linear Output Warranty

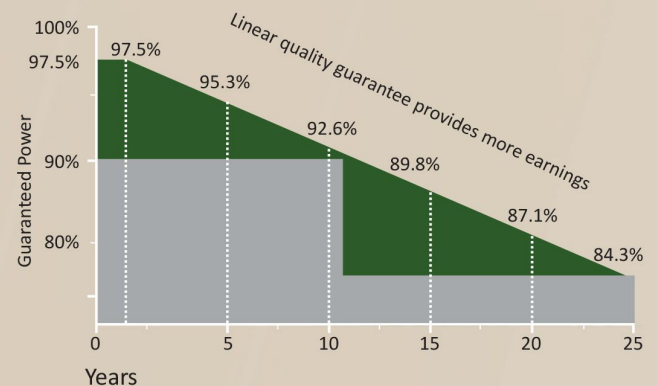
-2.5% First year power degradation



-0.55% Annual degradation

PRODUCT ADVANTAGES

-  **High Power Output**
Compared to 158.75 mm module, the power output can increase 25W-30W
-  **High Reliability**
Passed 3*IEC standard test
-  **Low Hot-spot Risk**
1/2 current reducing the hot spot temperature
-  **Excellent loading capability**
2400Pa wind loads, 5400Pa snow loads, 8000Pa extra support
-  **Low NMOT**
As low as 43°C, improving the power generation efficiency
-  **Half Cell, MBB Technology**
Series-then-parallel cell connection design more reliable soldering technology

PRODUCT GUARANTEE



-  Standard linear power guarantee
-  VDS linear power guarantee

Certifications of Product and Manufacturer



Green Energy Solutions B.V.

The Hague, The Netherlands

GES-S144/M6H

ELECTRICAL CHARACTERISTICS

STC	435	440	445	450	455	460
Maximum Power at STC (Pmax)	435W	440W	445W	450W	455W	460W
Optimum Operating Voltage (Vmp)	40.8V	41.0V	41.2V	41.4V	41.6V	41.8V
Optimum Operating Current (Imp)	10.67A	10.74A	10.81A	10.87A	10.94A	11.01A
Open Circuit Voltage (Voc)	48.6V	48.8V	49.0V	49.2V	49.4V	49.6V
Short Circuit Current (Isc)	11.4A	11.47A	11.54A	11.61A	11.68A	11.75A
Module Efficiency	20.0%	20.2%	20.5%	20.7%	20.9%	21.1%
Operating Module Temperature	-40°C to +85°C					
Maximum System Voltage	1500V DC (IEC)					
Maximum Series Fuse rating	20 A					
Power Tolerance	0~+5W					

STC: Irradiance 1000 W/m², module temperature 25°C, AM=1.5; Measuring tolerance: ± 3%.

NMOT	435	440	445	450	455	460
Maximum Power at NMOT (Pmax)	334.9W	339.0W	343.1W	348.1W	352.2W	356.8W
Optimum Operating Voltage (Vmp)	38.5V	38.7V	38.9V	39.2V	39.4V	39.6V
Optimum Operating Current (Imp)	8.70A	8.76A	8.82A	8.88A	8.94A	9.01A
Open Circuit Voltage (Voc)	46.8V	47.0V	47.2V	47.4V	47.6V	47.8V
Short Circuit Current (Isc)	9.19A	9.24A	9.30A	9.36A	9.42A	9.48A

NMOT: Irradiance 800 W/m², ambient temperature 20°C, AM=1.5, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Nominal Module Operating Temperature (NMOT)	42±2°C
Temperature Coefficient of Pmax	-0.34%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	0.040%/°C

MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline silicon 166 mm (9BB)
No. of Cells	144 (6 × 24)
Dimensions	2095 × 1039 × 35 mm
Weight	23.8 kgs
Front Glass	3.2 mm tempered glass with AR coating
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm ² , cable length 350 mm or customized length

PACKING CONFIGURATION

Container	20' GP	40' HC
Pieces per pallet	31	31+2
Pallets per container	5	22
Pieces per container	155	726

