

# Bifacial Quantumline Plus Perc Mono M6 144 Cells Solar Panel

GSM - 435W 440W 445W 450W 455W-AG

GermanSolar is a specialist in customization, utilizing colored glass, frames, and back-sheet material and shapes to expertly match your ideas with the prospective application. With innovative technology and design, GermanSolar offers high-quality modules with enhanced aesthetic appearance for building structures and facades. By providing outstanding customization options, GermanSolar supports your required project needs with colored and shaped panels of your choice and advises you to choose the right size, thickness, shape, and color to complement the design of your application and your building.

## FEATURES

 <p>Best price-performance ratio</p>	 <p>Fully automated production line with German quality engineering and design standards</p>	 <p>Withstands wind loads up to 2400Pa / heavy snow loads up to 5400Pa</p>
 <p>Positive power of up to +5.00 Wp</p>	 <p>Better performance in diffused sunlight and high temperature</p>	 <p>12-year limited product warranty</p>
 <p>EL tested and micro cracks inspected</p>	 <p>High ammonia &amp; salt mist resistant certified, and PID-free</p>	 <p>30-year linear performance warranty</p>

## PRODUCT CERTIFICATES



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# Bifacial Quantumline Plus

Electrical Data					
Nominal Max. Power (P <sub>max</sub> )*	435W	440W	445W	450W	455W
Open Circuit Voltage (V <sub>oc</sub> )	49.01	49.29	49.54	49.8	50.05
Short Circuit Current (I <sub>sc</sub> )	11.24	11.29	11.33	11.38	11.44
Max. Power Voltage (V <sub>mpp</sub> )	40.76	41.06	41.33	41.6	41.82
Max. Power Current (I <sub>mpp</sub> )	10.67	10.72	10.77	10.82	10.88
Module Efficiency (%)	19.69	19.92	20.14	20.37	20.60
Power Tolerance	0 ~ +5W				
Temperature Coefficient (P <sub>max</sub> )	-0.35% / °C				
Temperature Coefficient (I <sub>sc</sub> )	+0.04% / °C				
Temperature Coefficient (V <sub>oc</sub> )	-0.25% / °C				

\* STC: Irradiance 1000W/m, Cell Temperature 25°C, Air Mass AM1.5.

Electrical Data, NMOT *					
Nominal Max. Power (P <sub>max</sub> )	329W	333W	337W	341W	345W
Open Circuit Voltage (V <sub>oc</sub> )	46.29	46.55	46.79	47.04	47.27
Short Circuit Current (I <sub>sc</sub> )	9.07	9.09	9.14	9.17	9.20
Max. Power Voltage (V <sub>mpp</sub> )	38.44	38.77	39.02	39.27	39.39
Max. Power Current (I <sub>mpp</sub> )	8.57	8.59	8.63	8.67	8.75
NMOT (Nominal Module Operating Temperature)	41°C ± 3°C				

\* NMOT: Irradiance at 800W/m, Ambient Temperature 20°C, Wind Speed 1m/s.

Electrical Data, Power gain	GSM-445W-AG				
P <sub>max</sub> gain*	5%	10%	15%	20%	25%
Nominal Max. Power (P <sub>max</sub> )	467W	490W	512W	534W	556W
Open Circuit Voltage (V <sub>oc</sub> )	49.54	49.54	49.54	49.54	49.54
Short Circuit Current (I <sub>sc</sub> )	12.05	12.63	13.17	13.74	14.32
Max. Power Voltage (V <sub>mpp</sub> )	41.33	41.33	41.43	41.44	41.43
Max. Power Current (I <sub>mpp</sub> )	11.31	11.84	12.35	12.89	13.42

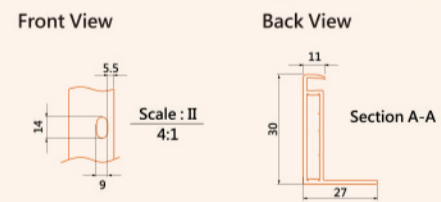
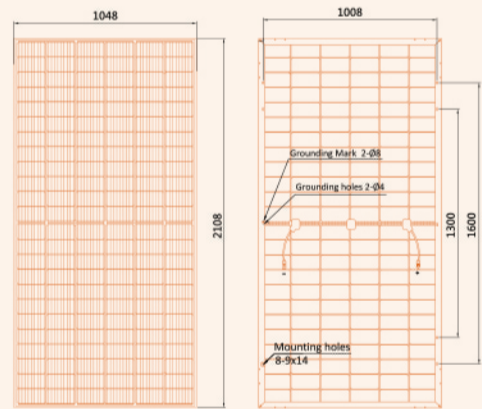
\* Electrical characteristics with different rear side power gain (reference to 445 Wp front)

Mechanical Data	
Dimensions	2108x 1048x 30mm (83.00x 41.26x 1.18inches)
Weight	28.0kg (61.73lb)
Solar Cell	Perc monocrystalline M6
Front glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Back glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
Frame	Anodized aluminium alloy, original or black
Junction Box	IP68, 3 diodes
Cable	4 mm <sup>2</sup> (IEC), 12AWG (UL), 350mm
Connector	MC4 or MC4 compatible
Application Classification	Class A
Module Fire Performance	Type 3 (UL 1703) or Class C (IEC 61730)

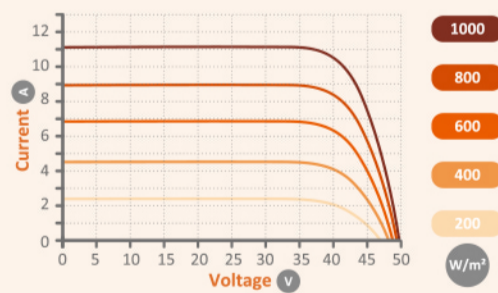
Operating Conditions	
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)
Operating Temperature	-40°C ~ +85°C
Max. Series Fuse Rating	25A
Front Side Maximum Static Loading / Rear Side Maximum Static Loading	5400 Pa / 2400 Pa

Packaging	
Standard packaging	35pcs / pallet
Module quantity per 20' container	350pcs
Module quantity per 40' container	770pcs / 40' HQ container

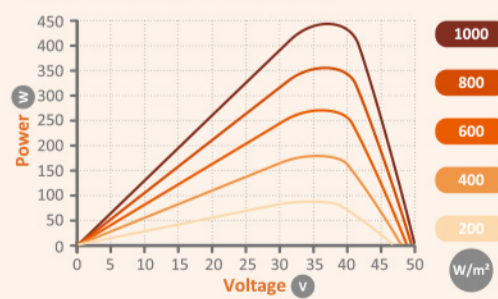
## Design (mm)



## GSM-445W-AG I-V CURVES

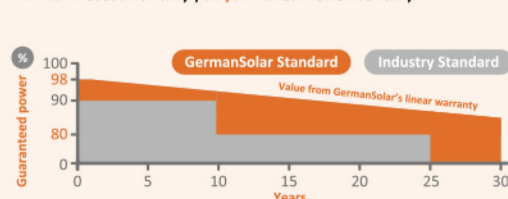


## GSM-445W-AG P-V CURVES



## LINEAR PERFORMANCE WARRANTY

12 Year Product Warranty | 30 years Linear Power warranty



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