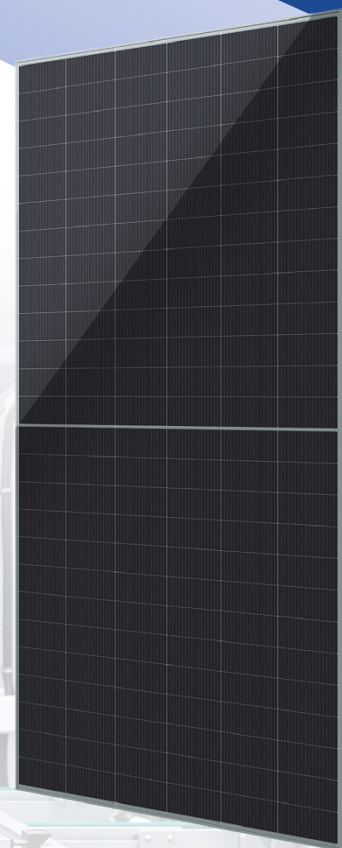


FLAMINGO M10/156D 630-650W



Supreme Quality



High Efficiency

Module efficiency up to 23.3% based on N-Type wafer and TOPCon technology



Excellent Energy Yield

More power output in field operation due to better thermal behaviors, weak-light performance and bifaciality



Anti-degradation

Unsusceptible to LID, LeTID and less annual degradation due to special characteristics of N-Type



Quality Guarantee

High module quality ensures long-term reliability



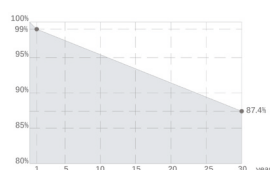
Module Characteristics

15-Year
Product Warranty

30-Year
Linear Power Warranty

1%
First Year Degradation

0.4%
Annual Power Degradation



At least 87.4% of nominal power up to 30 years



IEC 61215(2021) / IEC 61730(2023)

ISO 9001: 2015: ISO Quality Management System

Anti-PID / Ammonia / Salt-mist / Dust and sand

Made in China

650W

Maximum Power

23.3%

Highest Conversion Efficiency

1%

First Year Degradation

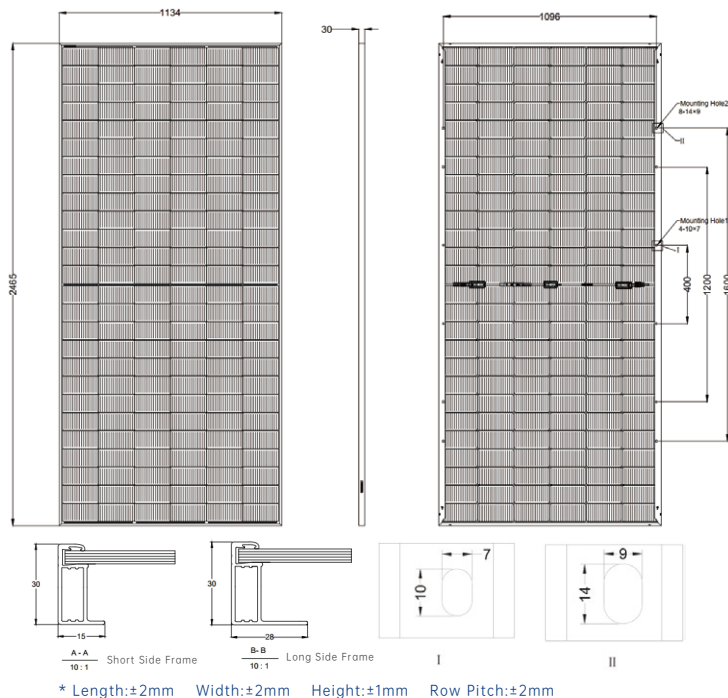
0.4%

2-30 Years Annual Power Attenuation

Mechanical Parameters

Cell Type	N-Type TOPCon
No. of cells	156 (2×78)
Output Cables	TÜV 1×4mm ²
	(+)300mm, (-)200mm in length or customized length
Glass	Front: 2.0mm, AR-coating, semi-tempered
	Rear: 2.0mm, semi-tempered
Frame	Anodized aluminum alloy frame
Weight	33.5 kg (73.85 lbs)
Dimension	2465×1134×30mm
Packaging	36 pcs per pallet
	144 pcs per 20' HC, 576 pcs per 40' HC
Protection Class	Class II
Fire Rating	IEC Class A

Engineering Drawings



Electrical Characteristics (STC Test)

Module Type	GK-1-78HTBD-630M		GK-1-78HTBD-635M		GK-1-78HTBD-640M		GK-1-78HTBD-645M		GK-1-78HTBD-650M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (P _{max} /W)	630	477	635	481	640	484	645	488	650	492
Open-circuit Voltage (V _{oc} /V)	56.95	54.05	57.12	54.19	57.29	54.30	57.47	54.39	57.63	54.48
Short-circuit Current (I _{sc} /A)	13.89	11.18	13.95	11.23	14.01	11.29	14.06	11.33	14.11	11.38
Maximum Power Voltage (V _{mp} /V)	47.60	45.14	47.75	45.26	47.90	45.45	48.06	45.58	48.22	45.72
Maximum Power Current (I _{mp} /A)	13.25	10.57	13.31	10.62	13.37	10.66	13.42	10.71	13.48	10.76
Module Efficiency (%)	22.5		22.7		22.9		23.1		23.3	

Note: 1. STC: Irradiance 1000W/M², Cell Temperature 25°C, AM=1.52. NOCT: Irradiance 800W/M², Ambient Temperature 20°C, AM=1.5, Wind Speed 1M/S

Different Rearside Power Gain (Reference to 640W)

Rearside Power Gain	5%	10%	20%
Maximum Power at STC (P _{max})	672.0	704.0	768.0
Open-circuit Voltage (V _{oc} /V)	57.3	57.3	57.3
Short-circuit Current (I _{sc} /A)	14.7	15.4	16.8
Maximum Power Voltage (V _{mp} /V)	47.9	47.9	47.9
Maximum Power Current (I _{mp} /A)	14.0	14.7	16.0
Module Efficiency (%)	24.0	25.2	27.5

*The above data is for reference only. When signing a contract, the latest version of the product specification shall prevail.

Temperature Ratings (STC)

Temperature coefficient of I _{sc}	+ 0.045%/°C
Temperature coefficient of V _{oc}	- 0.25%/°C
Temperature coefficient of P _{max}	- 0.29%/°C

Working Parameters

Operating Temperature	-40°C~ +85°C
Power Tolerance	0~ +5W
Maximum System Voltage	1500V(IEC)
NMOT	45±2°C
Maximum Series Fuse Rating	30A
Bifacial Factor	80±5%
Junction Box	IP68

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm hailstone at 23m/s

Gokin



Gokin Solar Co., Ltd.

<https://www.gokinsolar.com>
gk@gokinsolar.com

Office 1102, No. 58 Huajin Street, Hengqin Free Trade Zone, Zhuhai City, Guangdong Province, China.

Product data is updated as of May 2024. Gokin Solar Co., Ltd. reserves the right to change specifications.