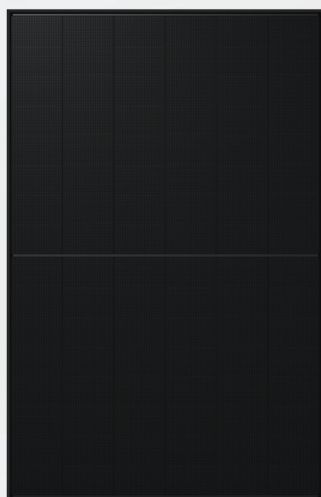


TNC 2.0

N-type Half-cell Monofacial Dual Glass Full-black Module (48)

TWMNH-48HE



Higher power output, higher conversion efficiency



Passed hail resistance test for higher reliability



Compact size and lightweight, making installation easier

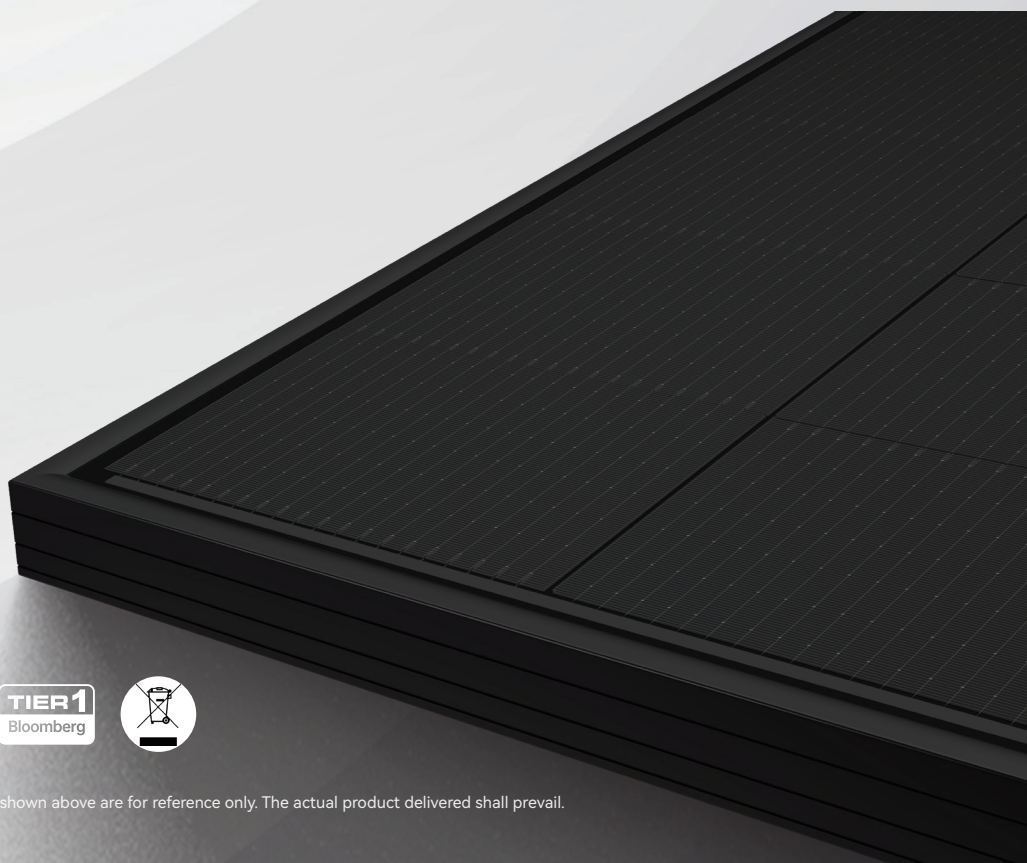


Aesthetic glass with a deep and versatile design, perfectly blending with rooftops

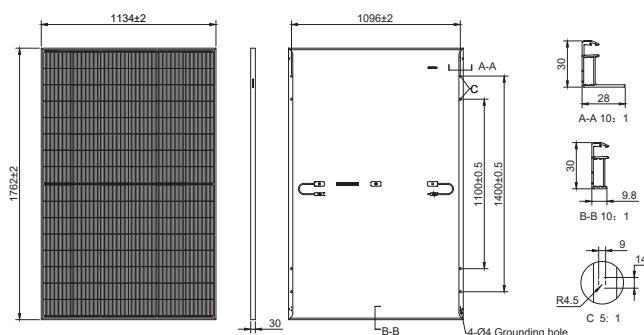
455-475W



Residential Rooftop



Drawing (Unit: mm)



Mechanical Parameters

Cell Type	TNC
Cell Orientation	96[6×16]
Dimension	1762±2×1134±2×30mm
Weight	24.1kg
Front Glass	2.0mm AR coating semi tempered glass
Rear Glass	2.0mm semi tempered glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Cable	4.0 mm ²
Cable Length	+1200mm,-1200mm,length can be customized
Maximum Static Test Load	6,000 Pa (Positive) / 4,000 Pa (Negative)
Packaging (Per pallet)	36 pcs
Packaging	936 pcs per 40'HC

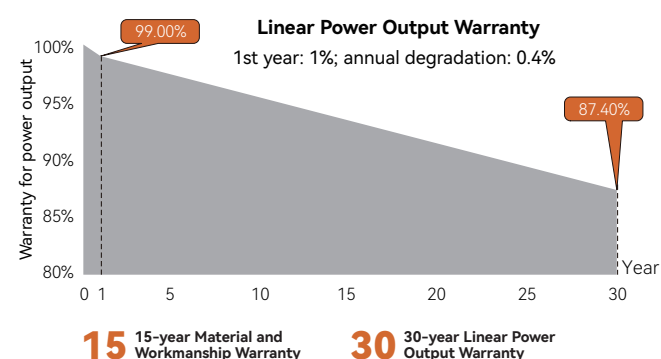
Electrical Characteristics (STC)

Module type: TWMNH-48HEXXX

Maximum Power: P _{max} [W]	455	460	465	470	475
Open Circuit Voltage: V _{oc} [V]	36.10	36.25	36.40	36.55	36.70
Short Circuit Current: I _{sc} [A]	15.85	15.89	15.92	15.95	15.97
Voltage at Maximum Power: V _{mp} [V]	30.06	30.31	30.56	30.80	31.05
Current at Maximum Power: I _{mp} [A]	15.14	15.18	15.22	15.26	15.30
Module Efficiency: η [%]	22.8	23.0	23.3	23.5	23.8

* STC: Irradiance 1000W/m², Cell temperature 25°C, AM=1.5, Power measurement tolerance: ±3%.
The above electrical parameters are for module grading only, not for individual modules.

Warranty



Temperature Rating

Temperature Coefficient of P _{max}	-0.28%/°C
Temperature Coefficient of V _{oc}	-0.24%/°C
Temperature Coefficient of I _{sc}	+0.046%/°C

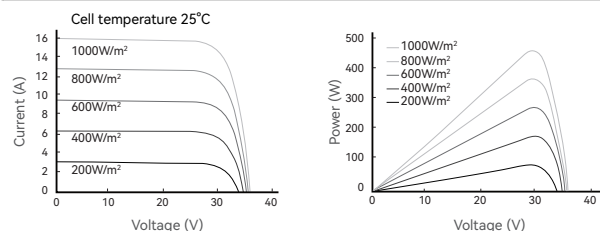
* Due to differences in test methods and equipment, actual measured values may deviate slightly from the above nominal values.

Operating Parameters

Operating Temperature*	[T _g] ≤ 70°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+3%

*The module operating temperature can reach up to 85°C for short term.

Curve



Certifications

Quality Management System and Product Certification

ISO 9001: 2015 / Quality Management System
ISO 14001: 2015 / Environmental Management System
ISO 45001: 2018 / Occupational Health and Safety Management System
ISO 50001: 2018 / Energy Management System
IEC 62941: 2019 / Quality System for PV Module Manufacturing
IEC 61215 (2021) / IEC 61730 (2023), IEC TS 62804,
IEC 61701, IEC 62716, IEC 60068-2-68



Scan the code for more information