



TWMND
N-type Half-cell
Monofacial Black Frame Module (60)
60HS470-490W

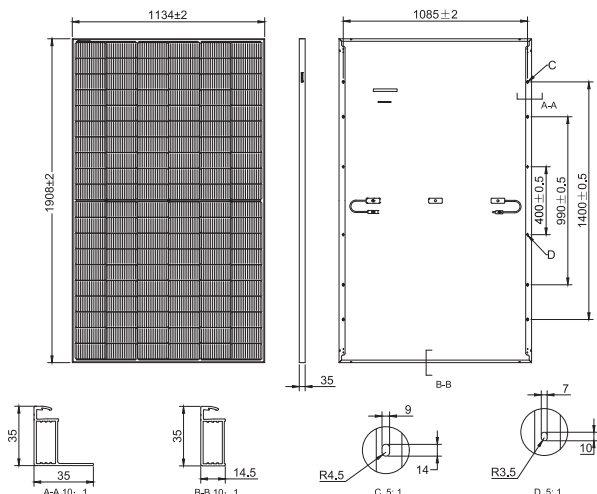


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DRAWINGS (Unit: mm)



ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMND-60HSXXX					
Maximum Power: Pmax [W]	470	475	480	485	490
Open Circuit Voltage: Voc [V]	43.34	43.51	43.68	43.85	44.02
Short Circuit Current: Isc [A]	13.55	13.60	13.65	13.70	13.75
Voltage at Maximum Power: Vmp [V]	36.79	36.96	37.13	37.30	37.47
Current at Maximum Power: Imp [A]	12.78	12.85	12.93	13.00	13.07
Module Efficiency: η [%]	21.7	22.0	22.2	22.4	22.6

* STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: ±3%

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	355.7	359.5	363.3	367.0	370.8
Open Circuit Voltage: Voc [V]	41.22	41.38	41.54	41.71	41.87
Short Circuit Current: Isc [A]	10.67	10.71	10.74	10.78	10.82
Voltage at Maximum Power: Vmp [V]	35.41	35.58	35.74	35.90	36.07
Current at Maximum Power: Imp [A]	10.03	10.09	10.15	10.20	10.26

* NMOT: Irradiance 800W/m², Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s

TEMPERATURE PARAMETERS

Temperature Coefficient (Pmax)	-0.29%/°C
Temperature Coefficient (Voc)	-0.25%/°C
Temperature Coefficient (Isc)	+0.046%/°C
NMOT	45±2°C

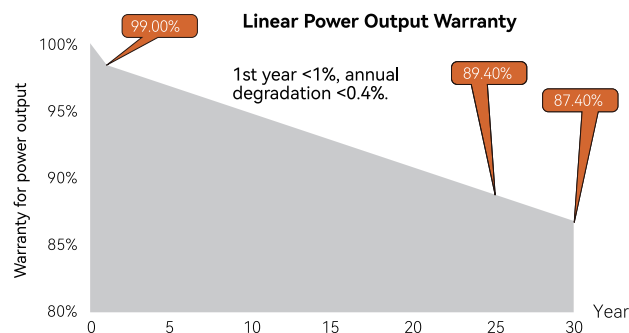
MAXIMUM RATINGS

Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25A
Power Output Tolerance	0~+3%

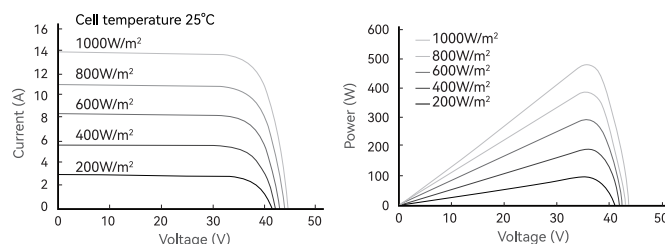
MECHANICAL PARAMETERS

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	120[6×20]
Dimension	1908±2×1134±2×35mm
Weight	23.2kg
Front Glass	3.2mm high transmittance, AR tempered glass
Backsheet	White
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm ²
Cable Length	±1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	31pcs per pallet, 744pcs per 40'HC

WARRANTY



I-V CURVE



CERTIFICATIONS

Quality Management System and Product Certification

- ISO 9001: 2015/Quality management system
- ISO 14001: 2015/Environmental management system
- ISO 45001: 2018/Occupation health safety management system
- ISO 50001: 2018/Energy management system
- IEC 62941: 2019/Quality system for PV module manufacturing
- IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt), IEC 62716 (Ammonia), IEC 60068-2-68(Sand)

