

N-TOPCon

High-efficiency N-type all-black double-glass bifacial PV module

440-465W

POWER RANGE

465W

MAXIMUM POWER

23.27%

MODULE EFFICIENCY

0~+5W

POWER TOLERANCE

PERFORMANCE, REFINED

ENGINEERED FOR DURABLE ENERGY YIELD

- High-Density Energy Yield

Advanced N-type cell architecture supports strong output and dependable operation.

- Stable Thermal Performance

Low temperature sensitivity helps sustain generation in demanding outdoor conditions.

- Refined Current Collection

Multi-busbar interconnection improves carrier collection and module durability.

- Minimal Light-Induced Loss

N-type technology limits LID and LeTID effects across the module lifetime.

- Responsive in Low Irradiance

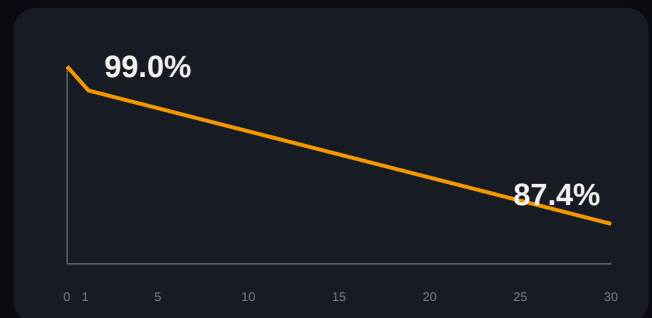
Optimized cells maintain useful generation in mornings and overcast weather.

- Architectural All-Black Finish

Uniform dark cells and frame create a clean surface for design-led rooftops.

30-YEAR PERFORMANCE

LINEAR POWER ASSURANCE



1.0%

YEAR 1

0.4%

ANNUAL

15 YR

PRODUCT

30 YR

LINEAR

CERTIFICATION & ASSURANCE

VERIFIED SYSTEMS. LONG-TERM CONFIDENCE.



STANDARDS

IEC 61215:2016
IEC 61730:2016
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

LONG-TERM COVERAGE

15-year product warranty

30-year linear power warranty

ELECTRICAL PROPERTIES / STC

POSN48BI

Peak Power (Pmax/W)	440	445	450	455	460	465
MPP Voltage (Vmp/V)	29.79	29.98	30.17	30.37	30.56	30.75
MPP Current (Imp/A)	14.77	14.84	14.91	14.98	15.05	15.12
Open Circuit Voltage (Voc/V)	35.52	35.72	35.92	36.12	36.32	36.52
Short Circuit Current (Isc/A)	15.62	15.67	15.72	15.77	15.82	15.86
Module Efficiency (%)	22.02	22.27	22.52	22.77	23.02	23.27

*STC (Standard Test Conditions): Irradiance 1000 W/m², cell temperature 25°C, AM 1.5

ELECTRICAL PROPERTIES / BNPI

REFERENCE CONDITIONS

Peak Power (Pmax/W)	487	493	499	504	510	515
MPP Voltage (Vmp/V)	29.80	30.00	30.19	30.38	30.58	30.76
MPP Current (Imp/A)	16.34	16.44	16.53	16.59	16.68	16.77
Open Circuit Voltage (Voc/V)	35.54	35.74	35.94	36.14	36.34	36.54
Short Circuit Current (Isc/A)	17.27	17.35	17.42	17.45	17.53	17.56

*Bifacial Test Conditions (BNPI): Front-side irradiance 1000 W/m², rear-side irradiance 135 W/m², temperature 25°C, AM 1.5

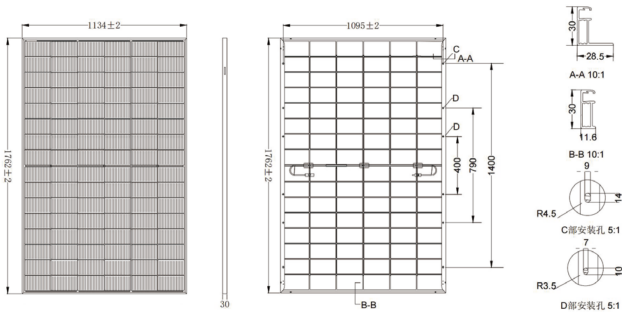
MECHANICAL PROPERTIES

96 HALF-CELLS

Cell Type	n-type half cell
Number of Cells	96pcs (2*48)
Module Dimension	1762mm*1134mm*30mm
Weight	23.7kg
Front / Rear Glass	2.0mm / 2.0mm
Frame	Anodized Aluminum Alloy
Junction Box	IP68
Output cables	+300mm / -300mm or Customized Length

ENGINEERING DRAWINGS

UNIT: MM



For specific dimensions and tolerance ranges, please refer to the corresponding component drawings.

TEMPERATURE COEFFICIENT

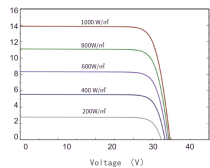
Temperature coefficients of Pmax	-0.29% / °C
Temperature coefficients of Voc	-0.25% / °C
Temperature coefficients of Isc	+0.045% / °C
Nominal Module Operating Temperature	42±2 °C

OPERATING PROPERTIES

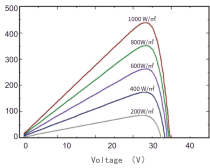
Operating Temperature (°C)	-40°C~+85°C
Maximum System Voltage (V)	1500V DC (IEC)
Maximum Series Fuse Rating (A)	25A
Power Tolerance	0~+5W
Bifaciality	80%±5%
Static load	Snow load 5400Pa, Wind load 2400Pa
Packaging Configuration	36pcs/pallet, 1008pcs/13m flatcar 36pcs/pallet, 1152pcs/17.5m flatcar

CHARACTERISTIC CURVES

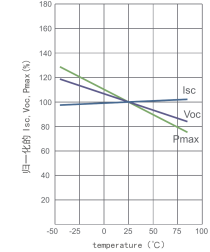
POSN48BI



Current and voltage curves under different irradiances



Power and voltage curves under different irradiances



Temperature Curves of Isc, Voc, Pmax under Different Temperatures