



# SKYMAX<sup>series</sup> VL-480W-182M/120TB

**N-TOPCon**  
Bifacial Monocrystalline Module

**1908×1134×35**

Module dimensions (mm)

**182×91**

Cell size (mm)

**120CELL**

Mono TOPCon module

**460-480Wp**

Power output

**1500V DC**

Max. system voltage

**22.18%**

Max. efficiency



## KEY FEATURES



### Higher Power Output

Module power increases by 5-25% generally, bringing significantly lower LCOE and higher IRR. 0-5w positive tolerance output warranty.



### Optimal Choice for Ultra-large Power Plants

Contribute to Lower BOS cost and LCOE.



### ZERO LID

N-Type cell is characterized by "0" LID, which generates more power



### PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and material control.



### Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance certified by TUV NORD. Lower temperature coefficient and operating temperature.



### More Outstanding Low-light Performance

Higher power output even under low-light environments like on cloudy days



### Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa).



### EL Full Inspection

Dual stage 100% EL Inspection warranting defect-free product.



## Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716

ISO 9001: Quality Management System

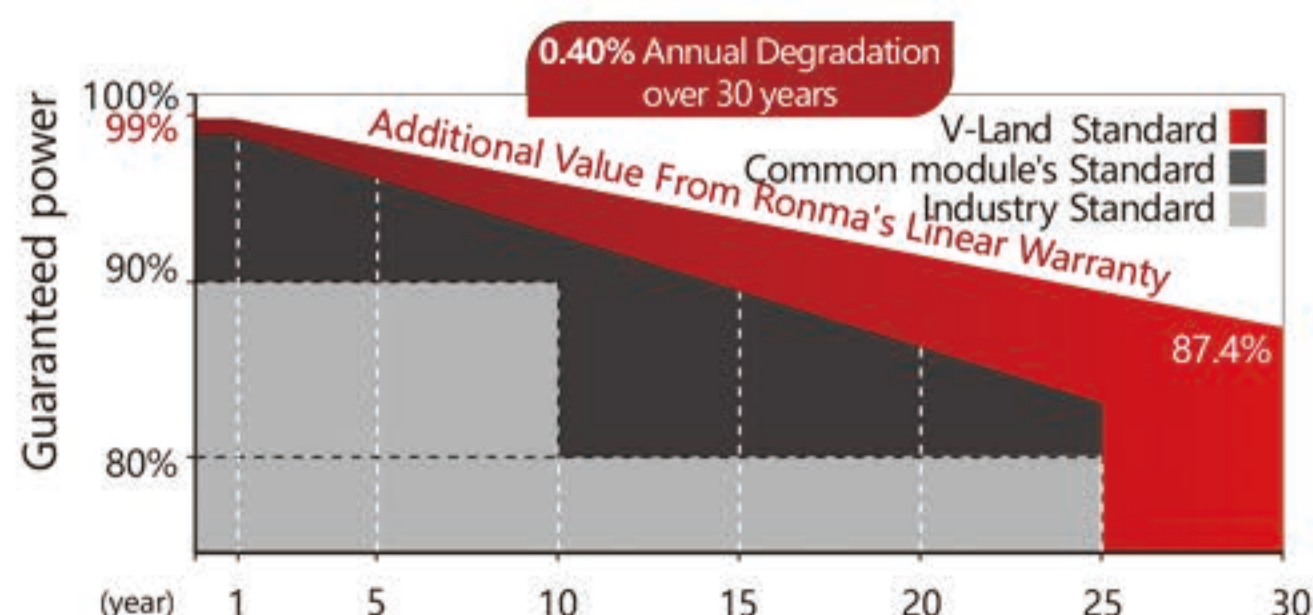
ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

OHSAS 18001: Occupational Health and Safety Management System

## LINEAR PERFORMANCE WARRANTY

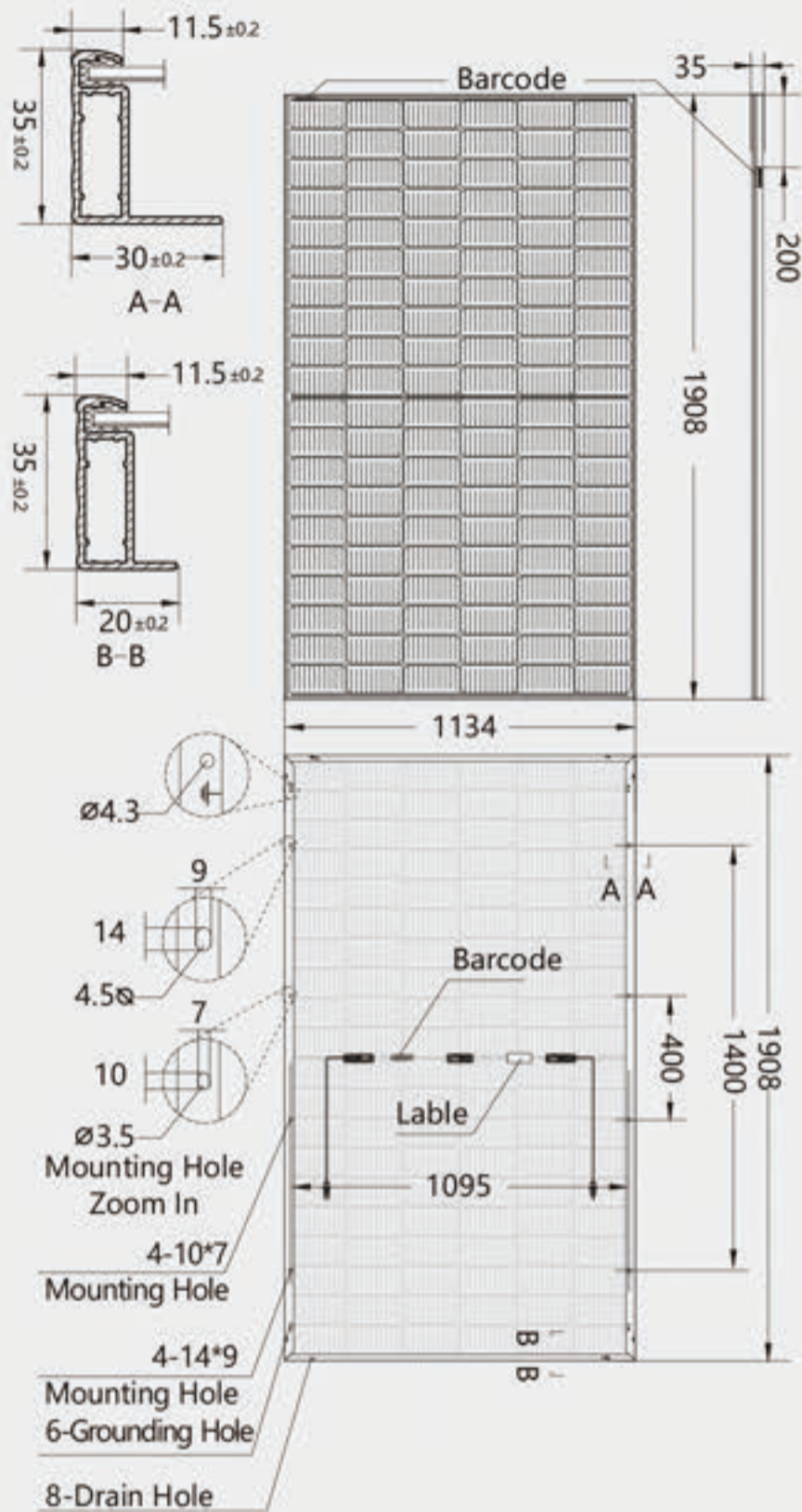
12-year product warranty / 30-year linear power warranty





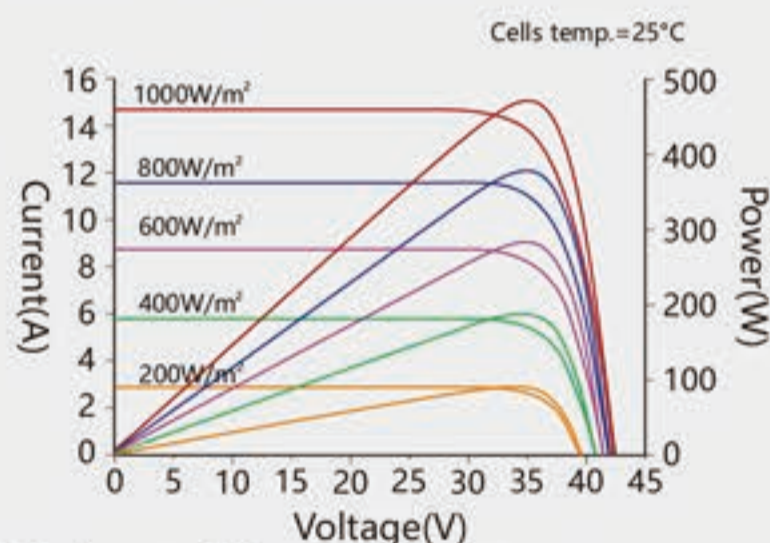
Dimensions of PV Module

Unit: mm

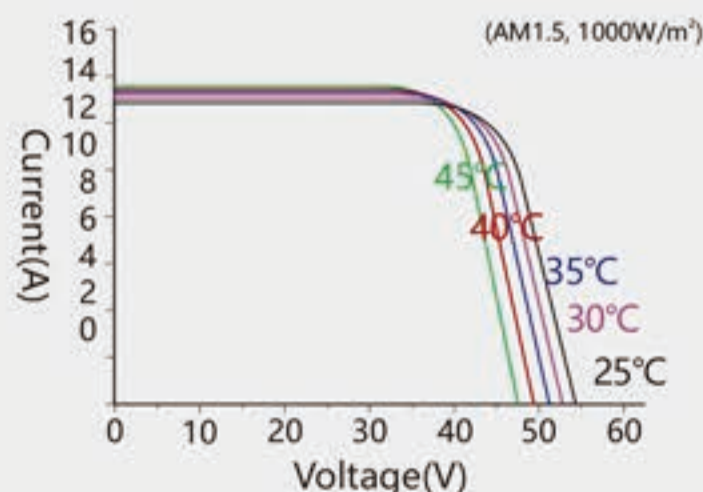


VL-470W-182M/120TB

I-V characteristics at different irradiances



I-V characteristics at different temperatures



ELECTRICAL CHARACTERISTICS (STC\*)

| Model Number                  | VL-460W-182M/120TB | VL-465W-182M/120TB | VL-470W-182M/120TB | VL-475W-182M/120TB | VL-480W-182M/120TB |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Rated Power in Watts-Pmax(Wp) | 460                | 465                | 470                | 475                | 480                |
| Open Circuit Voltage-Voc(V)   | 42.05              | 42.22              | 42.38              | 42.54              | 42.71              |
| Short Circuit Current-Isc(A)  | 13.99              | 14.07              | 14.15              | 14.23              | 14.31              |
| Max. Power Voltage-Vmpp(V)    | 34.72              | 34.89              | 35.05              | 35.21              | 35.38              |
| Max. Power Current-Imp(A)     | 13.25              | 13.33              | 13.41              | 13.49              | 13.57              |
| Module Efficiency(%)          | 21.26              | 21.49              | 21.72              | 21.95              | 22.18              |
| Maximum system voltage        | 1500V DC           |                    |                    |                    |                    |
| Fuse Rating(A)                | 30                 |                    |                    |                    |                    |
| Temperature coefficient Pmax  | -0.29%/°C          |                    |                    |                    |                    |
| Temperature coefficient Isc   | 0.045%/°C          |                    |                    |                    |                    |
| Temperature coefficient Voc   | -0.25%/°C          |                    |                    |                    |                    |
| Refer. Bifacial Factor        | 80±5%              |                    |                    |                    |                    |

\*STC: Irradiance 1000W/m<sup>2</sup>, module temperature 25°C, AM=1.5

WORKING CHARACTERISTICS (NOCT\*)

| Model Number                  | VL-460W-182M/120TB | VL-465W-182M/120TB | VL-470W-182M/120TB | VL-475W-182M/120TB | VL-480W-182M/120TB |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Rated Power in Watts-Pmax(Wp) | 346                | 350                | 353                | 357                | 361                |
| Open Circuit Voltage-Voc(V)   | 39.94              | 40.10              | 40.25              | 40.41              | 40.57              |
| Short Circuit Current-Isc(A)  | 11.29              | 11.36              | 11.42              | 11.49              | 11.55              |
| Max. Power Voltage-Vmpp(V)    | 32.60              | 32.77              | 32.94              | 33.10              | 33.27              |
| Max. Power Current-Imp(A)     | 10.61              | 10.67              | 10.73              | 10.79              | 10.85              |
| Power tolerance               | 0~+3%              |                    |                    |                    |                    |
| NOCT                          | 45°C±2°C           |                    |                    |                    |                    |
| Operating Temperature         | -40°C~85°C         |                    |                    |                    |                    |

\*NOCT: Irradiance 800W/m<sup>2</sup>, ambient temperature 20°C, wind speed 1m/s

Electrical characteristics with different rear side power gain

| Power Gain (%) | Pmax(Wp) | Efficiency(%) | VL-460W-182M/120TB | VL-465W-182M/120TB | VL-470W-182M/120TB | VL-475W-182M/120TB | VL-480W-182M/120TB |
|----------------|----------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 5%             | Pmax(Wp) | Efficiency(%) | 483                | 488                | 494                | 499                | 504                |
|                |          |               | 22.32              | 22.56              | 22.81              | 23.05              | 23.29              |
| 15%            | Pmax(Wp) | Efficiency(%) | 529                | 535                | 541                | 546                | 552                |
|                |          |               | 24.45              | 24.71              | 24.98              | 25.24              | 25.51              |
| 25%            | Pmax(Wp) | Efficiency(%) | 575                | 581                | 588                | 594                | 600                |
|                |          |               | 26.58              | 26.86              | 27.15              | 27.44              | 27.73              |

The additional gain from the rear side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

MECHANICAL CHARACTERISTICS

|                        |               |                    |                                     |
|------------------------|---------------|--------------------|-------------------------------------|
| Number of cells        | 120pcs        | Type of frame      | Anodized Aluminum Alloy             |
| Size of cell(mm)       | 182×91        | Size of module(mm) | 1908×1134×35                        |
| Type of cell           | N-TOPCon Mono | Weight(kg)         | 28                                  |
| Thickness of glass(mm) | 2.0           | Cables/connectors  | 4.0mm <sup>2</sup> , MC4 compatible |
| Junction box           | IP68          | Length of Cable    | +300mm/-300mm(connector included)   |

PACKAGING CONFIGURATION

|                                       |                |
|---------------------------------------|----------------|
|                                       | 40ft (HQ)      |
| Number of Modules Per Container       | 744            |
| Number of Modules Per Pallet          | 31             |
| Number of Pallets Per Container       | 24             |
| Packaging Box Dimensions (l×w×h) (mm) | 1940×1120×1260 |
| Box Gross Weight (kg)                 | 832            |