

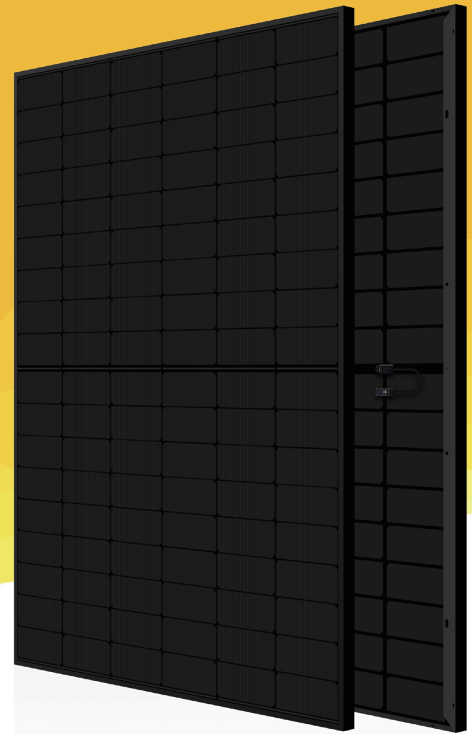


QNN182-HG-54 **Full Black**

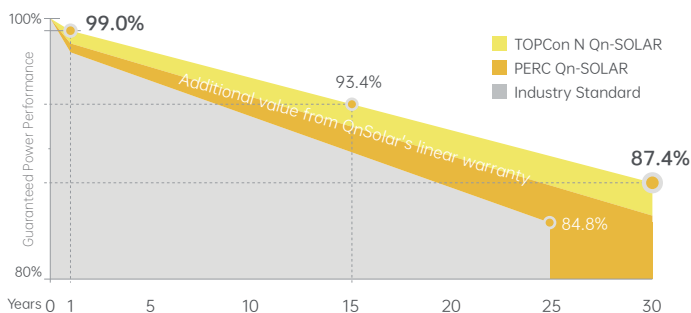
# 410-450W

Full Black TOPCon N-Type Bifacial Half-Cell Module

## Max Efficiency 23.04%



### LINEAR PERFORMANCE WARRANTY



Linear power guarantee over 87.4% power output after 30 years

**15~30** years

Product materials and process warranty

**< 1%**

First year power degradation

**30** years

Linear power warranty

**< 0.4%**

Year 2~30 power degradation

### COMPREHENSIVE CERTIFICATES



• IEC 61215, IEC 61730 • UNI9177 • ISO 9001:2015 • ISO 14001:2015 • ISO 45001:2018

\* Different markets have different certification requirements. Also, the products are under rapid innovation. Please confirm the certification status with regional sales representatives.



Ultrahigh bifaciality, 20% more rear side maximum out power than PERC.



Excellent lower temperature coefficient, 1%-2% more power generation than P-type modules in high temperature areas.



Lower LCOE, 3.5% more power generation than PERC modules, greatly reduce the cost of power generation.



0~+5W positive power tolerance peak power output ensures the reliability of the module.

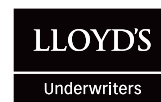
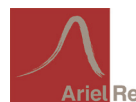


The module shows excellent weak light performance in the morning, evening and cloudy days.



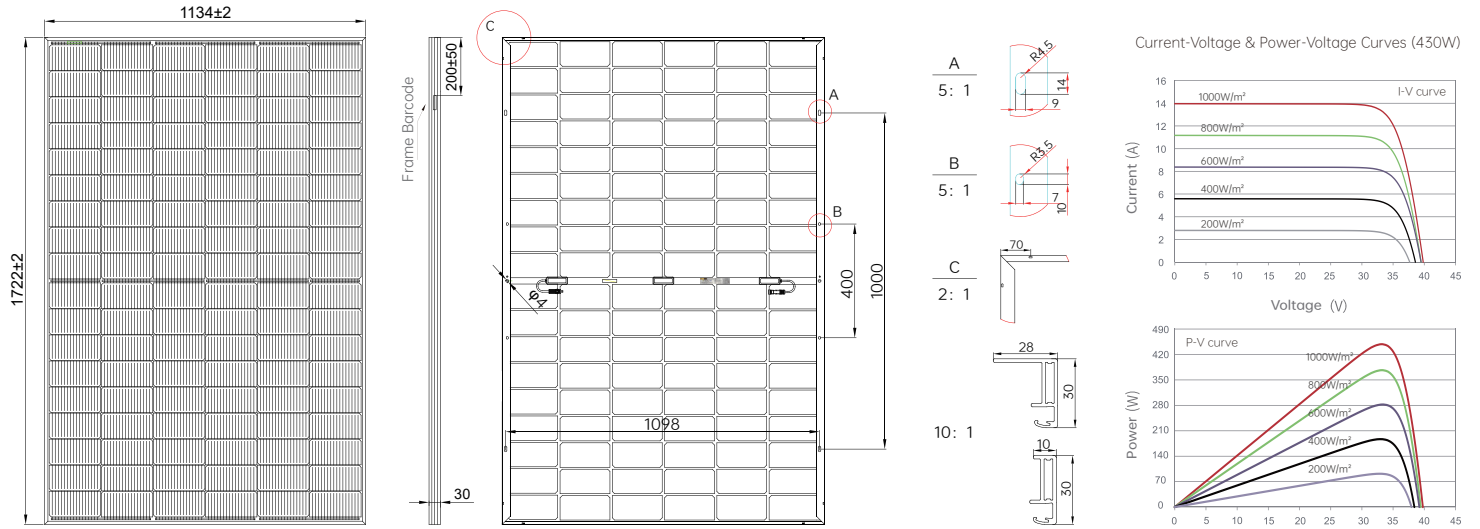
Improved cell technology and selected materials make the module has good PID resistance.

### PERFORMANCE INSURANCE



Guardians of human health and the natural environment.

Qn-SOLAR PV LIMITED



**ELECTRIC CHARACTERISTICS (STC)**

| Module Type                             | QNN182-HG410-54 | QNN182-HG415-54 | QNN182-HG420-54 | QNN182-HG425-54 | QNN182-HG430-54 | QNN182-HG435-54 | QNN182-HG440-54 | QNN182-HG445-54 | QNN182-HG450-54 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| STC Peak Power - <b>Pmax(Wp)</b>        | 410             | 415             | 420             | 425             | 430             | 435             | 440             | 445             | 450             |
| Optimum Working Voltage - <b>Vmp(V)</b> | 31.13           | 31.32           | 31.51           | 31.70           | 31.88           | 32.06           | 32.24           | 32.42           | 32.59           |
| Optimum Working Current - <b>Imp(A)</b> | 13.17           | 13.25           | 13.33           | 13.41           | 13.49           | 13.57           | 13.65           | 13.73           | 13.81           |
| Open Circuit Voltage - <b>Voc(V)</b>    | 37.73           | 37.92           | 38.11           | 38.30           | 38.49           | 38.68           | 38.87           | 39.06           | 39.25           |
| Short Circuit Current - <b>Isc(A)</b>   | 13.91           | 13.99           | 14.07           | 14.15           | 14.23           | 14.31           | 14.39           | 14.47           | 14.55           |
| Module Efficiency (%)                   | 21.00           | 21.25           | 21.51           | 21.76           | 22.02           | 22.28           | 22.53           | 22.79           | 23.04           |

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25 °C , Spectra at AM1.5.

**ELECTRICAL CHARACTERISTICS WITH 10% REAR SIDE POWER GAIN**

| Total Equivalent power - <b>Pmax (Wp)</b> | 451   | 456   | 462   | 468   | 473   | 479   | 484   | 490   | 495   |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Maximum Power Voltage - <b>Vmp(V)</b>     | 31.13 | 31.32 | 31.51 | 31.70 | 31.88 | 32.06 | 32.24 | 32.42 | 32.59 |
| Maximum Power Current - <b>Imp(A)</b>     | 14.49 | 14.58 | 14.66 | 14.75 | 14.84 | 14.93 | 15.02 | 15.10 | 15.19 |
| Open Circuit Voltage - <b>Voc(V)</b>      | 37.73 | 37.92 | 38.11 | 38.30 | 38.49 | 38.68 | 38.87 | 39.06 | 39.25 |
| Short Circuit Current - <b>Isc(A)</b>     | 15.30 | 15.39 | 15.48 | 15.57 | 15.65 | 15.74 | 15.83 | 15.92 | 16.01 |

Rear side power gain: 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 PARAMETERS**

|                      |  |
|----------------------|--|
| Cell Type            | TOPCon N-Type Monocrystalline                  |
| Number of Half Cells | 108 (2x54)                                     |
| Module Size          | 1722mm × 1134mm × 30mm (35mm)                  |
| Weight               | 24kg (30mm Frame) / 24.2kg (35mm Frame)        |
| Glass                | Dual,2.0mm Coated tempered glass               |
| Frame                | Anodized aluminum alloy                        |
| Junction Box         | IP68 standard (3 bypass diode)                 |
| Output Cable         | TUV (2pfg1169:2007) 4mm² / 1200mm              |
| Connector            | MC4 or (Compatible with MC4)                   |
| Hailstone Test       | 25mm Hailstone at the speed of 23m/s           |
| Mechanical Load      | Max. Snow load 5400 Pa, Max. Wind load 2400 Pa |

NOCT : Irradiance 800W/m², Ambient Temperature 20°C , Spectra at AM1.5, Wind at 1m/s.

**TEMPERATURE CHARACTERISTICS**

|   |               |
|---|---------------|
| Nominal Operating Cell Temperature (NOCT) | 45±2°C        |
| Temperature Coefficient of <b>Pmax</b>    | -0.29%/°C     |
| Temperature Coefficient of <b>Voc</b>     | -0.25%/°C     |
| Temperature Coefficient of <b>Isc</b>     | 0.045%/°C     |
| Power Tolerance (W)                       | 0~+5          |
| Maximum Series Fuse Rating                | 25A           |
| Maximum System Voltage                    | DC1500V       |
| Operating Module Temperature              | -40°C ~ +85°C |

**PACKING CONFIGURATION (40'HC)**

|  |              |
|--|--------------|
| 936 pcs / container , 26 pallets , 36 pcs / pallet | (30mm Frame) |
| 806 pcs / container , 26 pallets , 31 pcs / pallet | (35mm Frame) |



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