

RUNERGY

Preliminary Version

TIER 1 HY-DH108N12B 425-445W

22.3%

Max. Efficiency

N-Type

Bifacial & Dual Glass

108 Pieces

Half-Cell



High Conversion Efficiency

Module efficiency up to 22.3% based on N-Type wafer and advanced N-Type cell technology



Excellent Energy Yield

More power output in field operation due to better thermal behaviors, weak-light performance and bifaciality



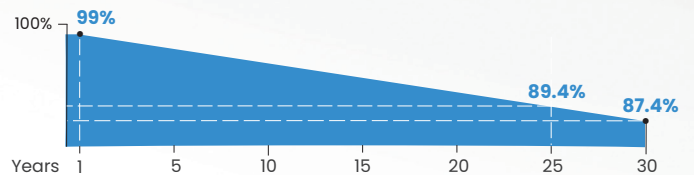
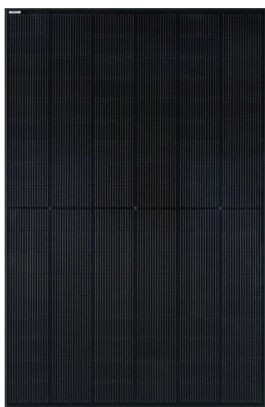
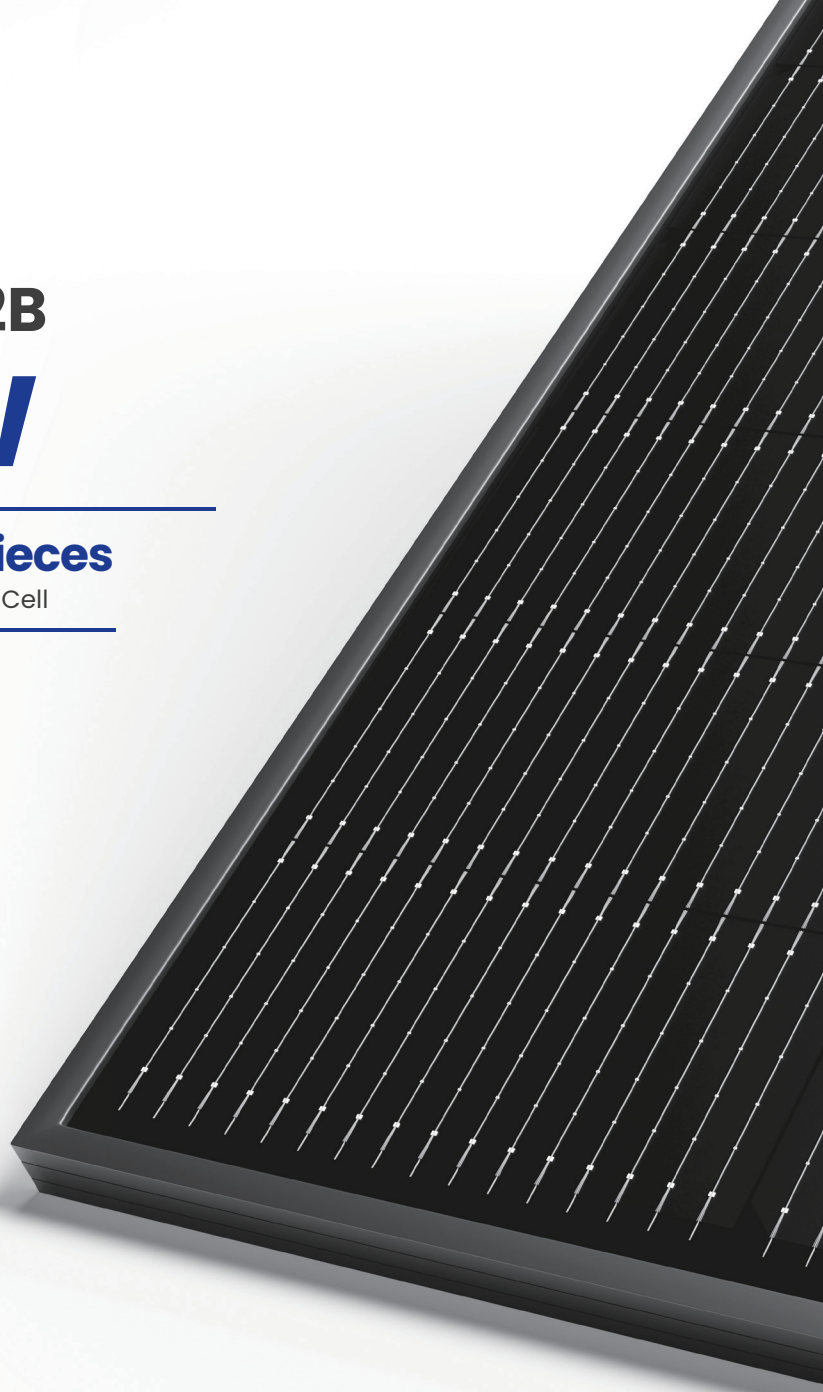
Outstanding Anti-degradation

Unsusceptible to LID, LeTID and less annual degradation due to special characteristics of N-Type



Quality Guarantee

High module quality ensures long-term reliability



Runergy N-Type Dual Glass Product Performance Warranty

- **15 Years** warranty for materials and workmanship
- **30 Years** warranty for extra linear power output
- 1st year < **1%**, annual degradation < **0.4%**

IEC61215 / IEC61730 / UL61730 / IEC61701 / IEC62716 / IEC60068 / ISO9001 / ISO14001 / ISO45001



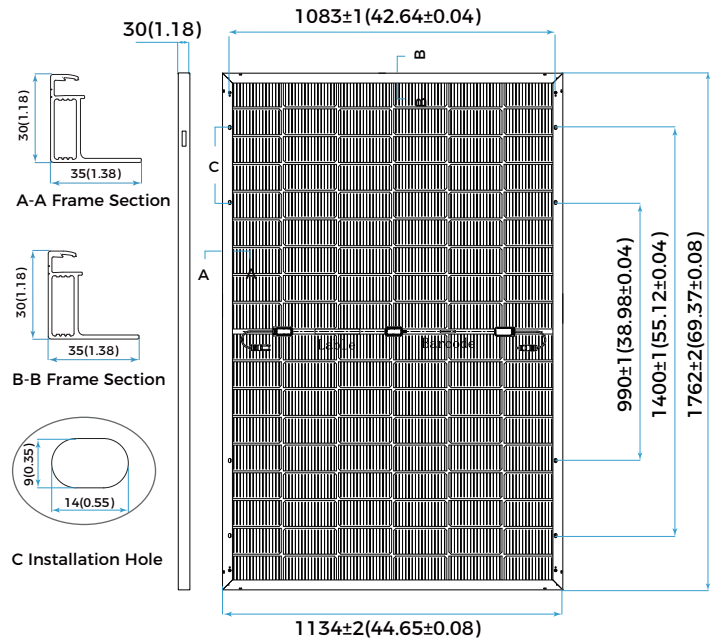
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Mechanical Parameters

| | |
|--------------|---|
| Solar Cell | Mono N-Type 182.2*186.8mm |
| No. of Cells | 108 (6 × 18) |
| Dimensions | 1762 × 1134 × 30mm(69.37 x 44.65 x 1.18in) |
| Weight | 22kg(48.50lbs) |
| Junction Box | IP68 rated (3 bypass diodes) |
| Output Cable | 4mm ² (IEC), 12 AWG(UL) ±1200mm(47.24in.) or customized |
| Connector | RY01 or similar |
| Front Cover | 2.0mm (0.079in.)semi-tempered AR glass |
| Back Cover | 2.0mm (0.079in.)semi-tempered glass |
| Container | 36 pcs/Pallet, 936 pcs/40' HQ |

Operating Parameters

| | |
|------------------------|--------------------------------|
| Max. System Voltage | DC 1500V (IEC/UL) |
| Operating Temperature | -40°C ~ +85°C(-40°F ~ +185°F) |
| Max. Fuse Rating | 30A |
| Frontside Max. Loading | 5400Pa(112lb/ft ²) |
| Backside Max. Loading | 2400Pa(50lb/ft ²) |
| Bifaciality | 80%±10% |
| Fire Resistance | IEC Class A |



Electrical Characteristics - STC

Irradiance 1000 W/m², cell temperature 25 °C, AM1.5, Test uncertainty for Pmax: ±3%

| | 445 | 440 | 435 | 430 | 425 |
|-----------------------------------|--------|-------|-------|-------|-------|
| Maximum Power at STC (Pmax/W) | 445 | 440 | 435 | 430 | 425 |
| Power Tolerance (W) | 0 ~ +5 | | | | |
| Optimum Operating Voltage (Vmp/V) | 33.04 | 32.81 | 32.59 | 32.38 | 32.18 |
| Optimum Operating Current (Imp/A) | 13.47 | 13.41 | 13.35 | 13.28 | 13.21 |
| Open Circuit Voltage (Voc/V) | 39.61 | 39.38 | 39.16 | 38.95 | 38.75 |
| Short Circuit Current (Isc/A) | 13.92 | 13.86 | 13.80 | 13.73 | 13.66 |
| Module Efficiency | 22.3% | 22.0% | 21.8% | 21.5% | 21.3% |

Electrical Characteristics - NMOT

Irradiance 800 W/m², ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

| | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|
| Maximum Power at NMOT (Pmax/W) | 340.9 | 337.0 | 333.2 | 329.3 | 325.6 |
| Optimum Operating Voltage (Vmp/V) | 31.64 | 31.42 | 31.20 | 31.00 | 30.81 |
| Optimum Operating Current (Imp/A) | 10.77 | 10.73 | 10.68 | 10.62 | 10.57 |
| Open Circuit Voltage (Voc/V) | 37.93 | 37.71 | 37.50 | 37.29 | 37.10 |
| Short Circuit Current (Isc/A) | 11.22 | 11.17 | 11.12 | 11.07 | 11.01 |

Rearside Power Gain (Reference to 445W Front)

| | | | |
|-----------------------------------|-------|-------|-------|
| Rearside Power Gain | 5% | 15% | 25% |
| Maximum Power (Pmax/W) | 467 | 512 | 556 |
| Optimum Operating Voltage (Vmp/V) | 33.04 | 33.14 | 33.14 |
| Optimum Operating Current (Imp/A) | 14.14 | 15.44 | 16.78 |
| Open Circuit Voltage (Voc/V) | 39.61 | 39.71 | 39.71 |
| Short Circuit Current (Isc/A) | 14.61 | 15.97 | 17.35 |
| Module Efficiency | 23.4% | 25.6% | 27.8% |

Temperature Characteristics

| | |
|--------------------------------------|-----------|
| Nominal Module Operating Temperature | 42 ± 2 °C |
| Nominal Cell Operating Temperature | 45 ± 2 °C |
| Temperature Coefficient of Pmax | -0.29%/°C |
| Temperature Coefficient of Voc | -0.25%/°C |
| Temperature Coefficient of Isc | 0.045%/°C |

