

# RUNERGY

MADE IN THAILAND/CHINA

## TIER 1 HY-DH132N10 680-700W

**22.5%**

Max. Efficiency

**N-Type**

Bifacial & Dual Glass

**132 Pieces**

Half-Cell



### High Conversion Efficiency

Module efficiency up to 22.5% 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



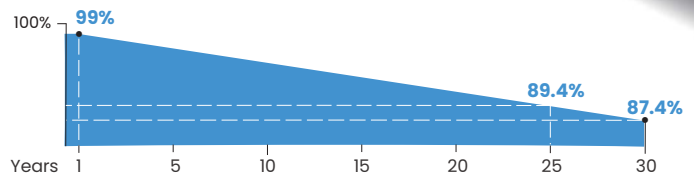
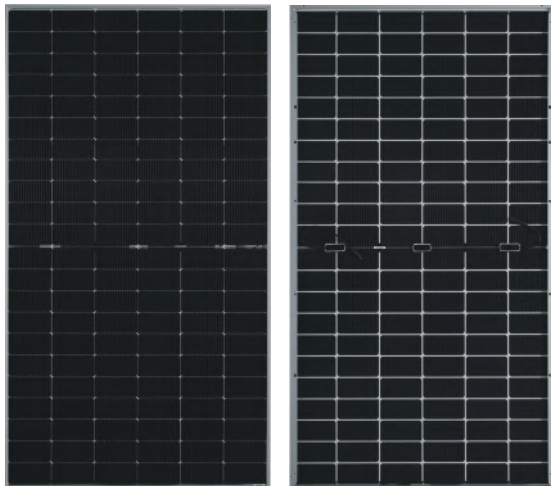
### Outstanding Anti-degradation

Unsusceptible to LID 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

- **12 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



Evidence for IEC61701/62716/60068 is available on request.

www.runergy.com  
sales-inform@runergy.com

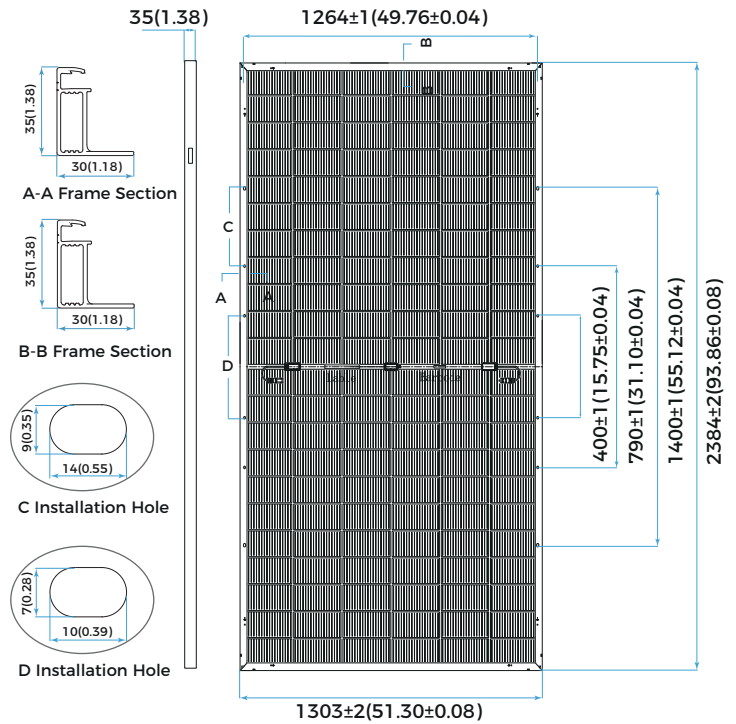
Unit: mm(inch)

## Mechanical Parameters

Solar Cell	Mono N-Type 210mm
No. of Cells	132 (6 × 22)
Dimensions	2384 × 1303 × 35mm(93.86 × 51.30 × 1.38in.)
Weight	38.7kg(85.32lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cable	4mm <sup>2</sup> (IEC), 12 AWG(UL) +400/-200mm (+15.75/-7.87in.) or customized
Connector	PV-KST4-EVO 2/xy_UR, PV-KBT4-EVO 2/xy_UR
Front Cover	2.0mm (0.079in.)semi-tempered AR glass
Back Cover	2.0mm (0.079in.)semi-tempered glass
Container	31 pcs/Pallet, 558 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 <sup>2</sup> )
Backside Max. Loading	2400Pa(50lb/ft <sup>2</sup> )
Bifaciality	80%±10% (Pmax) 98%±2%(Voc) 80%±10%(Isc)
Fire Resistance	IEC Class A



## Electrical Characteristics - STC

Irradiance 1000 W/m<sup>2</sup>, cell temperature 25 °C, AM1.5, Test uncertainty for Pmax: ±3%, Isc: ±4%, Voc: ±3%

Parameter	700	695	690	685	680
Maximum Power at STC (Pmax/W)	700	695	690	685	680
Power Tolerance (W)			0 ~ +5		
Optimum Operating Voltage (Vmp/V)	39.42	39.20	39.00	38.80	38.60
Optimum Operating Current (Imp/A)	17.76	17.73	17.70	17.66	17.62
Open Circuit Voltage (Voc/V)	47.32	47.10	46.90	46.70	46.50
Short Circuit Current (Isc/A)	18.78	18.75	18.72	18.70	18.67
Module Efficiency	22.5%	22.4%	22.2%	22.1%	21.9%

## Electrical Characteristics - NMOT

Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

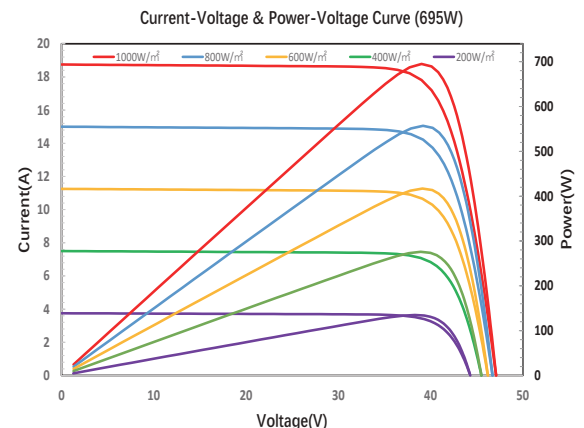
Parameter	536.2	532.3	528.7	524.8	520.9
Maximum Power at NMOT (Pmax/W)	536.2	532.3	528.7	524.8	520.9
Optimum Operating Voltage (Vmp/V)	37.74	37.53	37.34	37.15	36.96
Optimum Operating Current (Imp/A)	14.21	14.18	14.16	14.13	14.09
Open Circuit Voltage (Voc/V)	45.31	45.10	44.91	44.72	44.52
Short Circuit Current (Isc/A)	15.14	15.11	15.09	15.07	15.05

## Rearside Power Gain (Reference to 720W Front)

Parameter	5%	15%	25%
Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	735	805	875
Optimum Operating Voltage (Vmp/V)	39.42	39.52	39.52
Optimum Operating Current (Imp/A)	18.65	20.37	22.14
Open Circuit Voltage (Voc/V)	47.32	47.42	47.42
Short Circuit Current (Isc/A)	19.72	21.55	23.42
Module Efficiency	23.7%	25.9%	28.3%

## 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



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