

# 650W

P<sub>max</sub>

Max. Eff.

# 24.1%

## Core technological advantages

### TOPCon Advanced Battery Technology

Based on the N-type TOPCon tunneling oxide passivation contact process, it enhances resistance to PID/LeTID degradation, resulting in better low-irradiance and low-light power generation performance and higher ultimate conversion efficiency, bringing long-term high-stability power generation gains.

### SMBB multi-gate technology

The design employs multiple main busbars and finer, denser circular solder strips to reduce internal shading and resistance loss, optimize light absorption and current convergence, and improve module power output, resistance to hot spots, resistance to microcracks, and long-term reliability.

### Extreme environmental tolerance

Certified through rigorous testing—including 5,400 Pa front-side snow load, 2,400 Pa rear-side wind load, salt mist, ammonia, and sand/dust exposure—ensuring resilience against harsh environmental conditions.

### Bifacial power generation gain (bifacial type only)

With a bifaciality of up to 80%±5% and excellent wide-spectrum response, it can still efficiently capture back-reflected light in low-light environments such as early morning, evening, and rainy days, significantly improving the total life cycle power generation, enhancing the system's all-weather power generation capability, effectively reducing the levelized cost of electricity (LCOE), and achieving higher investment returns.

## Comprehensive Quality Management System and Product Certification



UL 61215/61730

IEC 61215/61730

EN IEC 61215/61730

CAN/CSA-IEC 61215

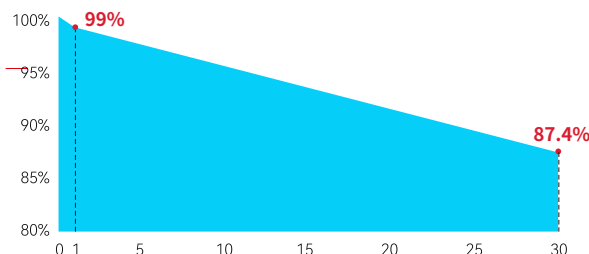
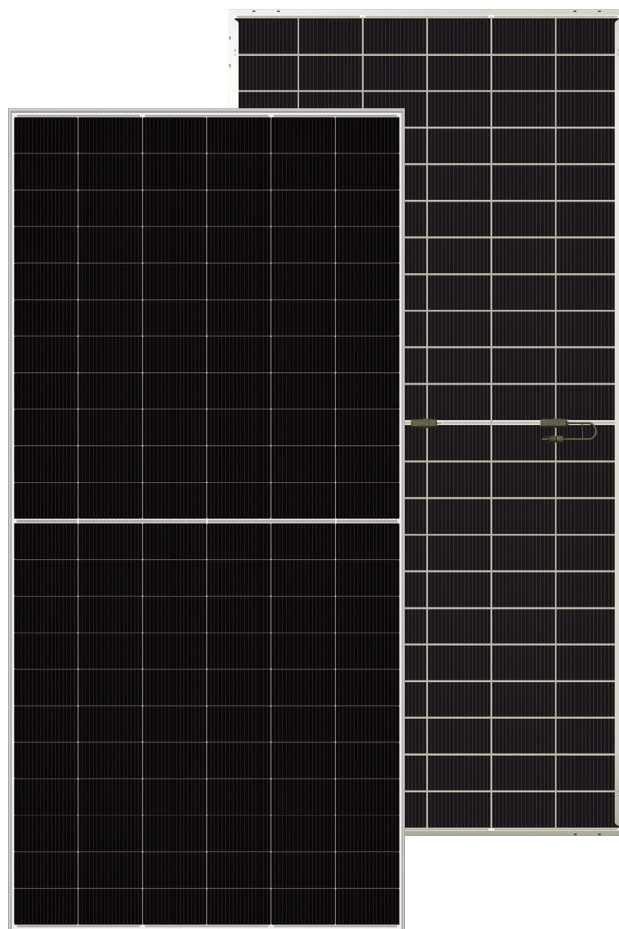
CSA C22.2 No. 61730

Salt spray IEC 61701

Ammonia resistance IEC 62716

Dust and sand IEC 60068

ISO 9001/14001



• **12-year** warranty on craftsmanship, materials, and comprehensive component quality.

• **30-year** industry-leading N-type linear power output guarantee.

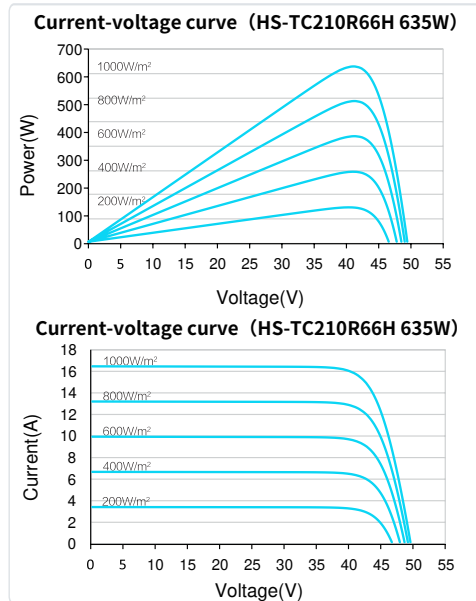
• First-year degradation ≤ 1.0%, average degradation ≤ 0.4% from year 2 to 30.

## Electrical performance parameters Standard test conditions (STC)

| Product Model<br>(Electrical parameters) | HISEM-620 | HISEM-625 | HISEM-630 | HISEM-635 | HISEM-640 | HISEM-645 | HISEM-650 |
|------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Rated Max-Power - $P_{mpp}$ (Wp)         | 620       | 625       | 630       | 635       | 640       | 645       | 650       |
| Voltage at Max-Power - $V_{mpp}$ (V)     | 40.74     | 40.88     | 41.02     | 41.16     | 41.30     | 41.44     | 41.58     |
| Current at Max-Power - $I_{mpp}$ (A)     | 15.22     | 15.29     | 15.36     | 15.43     | 15.50     | 15.57     | 15.64     |
| Open Circuit Voltage - $V_{oc}$ (V)      | 49.08     | 49.28     | 49.48     | 49.68     | 49.88     | 50.08     | 50.28     |
| Short-Circuit Current - $I_{sc}$ (A)     | 16.08     | 16.14     | 16.20     | 16.26     | 16.32     | 16.38     | 16.44     |
| Module Eff. (%)                          | 22.95     | 23.14     | 23.32     | 23.51     | 23.69     | 23.88     | 24.06     |

\* STC standard test conditions: Illumination intensity 1000W/m<sup>2</sup>, battery temperature 25°C, atmospheric quality AM1.5. Power measurement error range: 0 ~ ±3%.

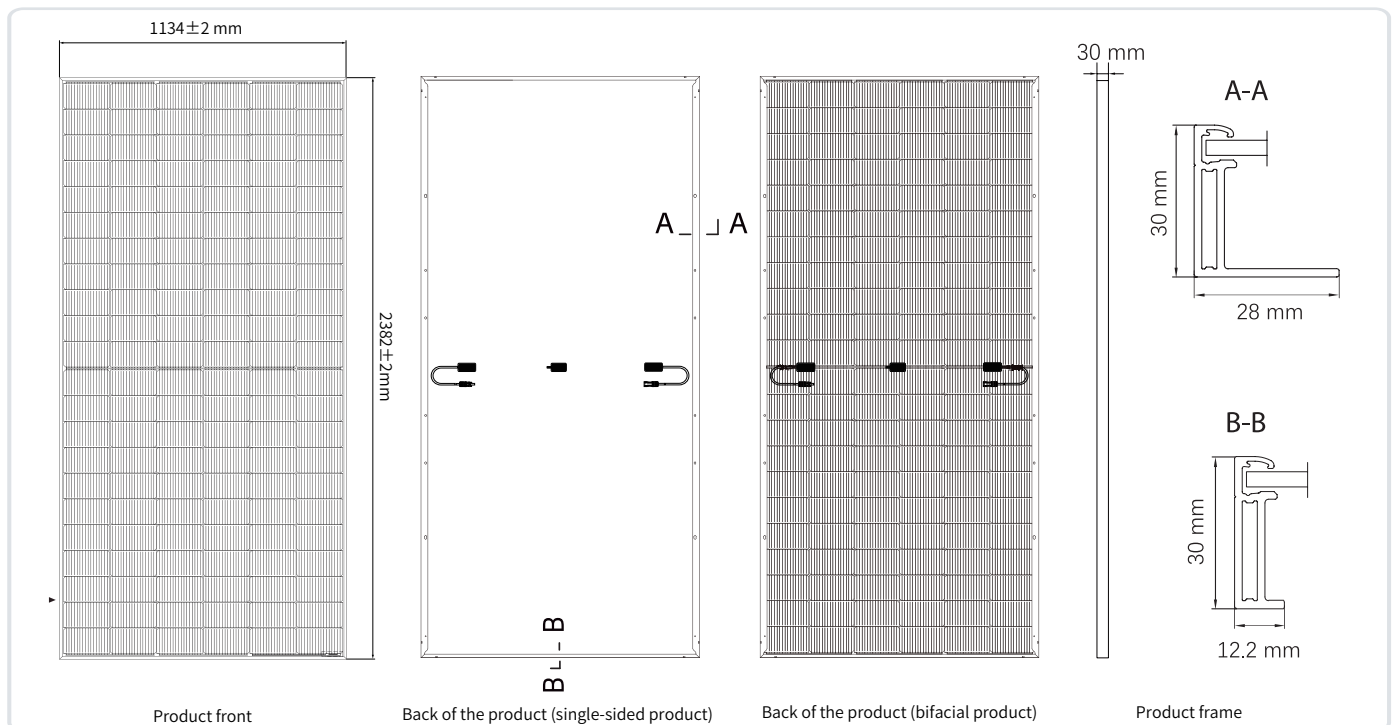
## Characteristic curves



## Mechanical structure

|                     |                                              |
|---------------------|----------------------------------------------|
| Cell type           | Mono N-type TOPCon cell                      |
| Number of half-cell | 132 (6*22)                                   |
| Panel size          | 2382×1134×30 mm                              |
| Panel weight        | 27.9kg                                       |
| Front cover glass   | 3.2mm anti-reflective coated tempered glass  |
| Back panel          | White/Transparent/All Black                  |
| Frame               | Anodized aluminum alloy /Other materials     |
| Junction Box        | IP68, 3 bypass diodes                        |
| Connector           | MC4 QC4.10-35(1500V)                         |
| Output wires        | 4mm (IEC),12AWG(UL)<br>300mm (+) / 300mm (-) |

## Engineering shape and pattern



## Extreme operating safety indicators and global one-stop storage and transportation specifications

| Operating environment limit parameters and coefficients |                          | International standardized packaging and consolidation specifications <small>(Marked as domestic specifications)</small> |                                                |
|---------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| System operating temperature range                      | -40° C ~ +85° C          | Unit standardized packaging quantity                                                                                     | 36(*38)pieces/pallet                           |
| System maximum safe voltage                             | 1500 V DC (IEC Standard) | Pallet total package dimensions                                                                                          | 2396 × 1120 (*1200) × 1251 mm                  |
| Maximum series fuse rated current                       | 30 A                     | Pallet total gross weight                                                                                                | 1060 (*1110) kg                                |
| Temperature coefficient of rated power                  | -0.29% / ° C             | 17.5-meter trailer domestic loading capacity                                                                             | 1064 pieces/cart<br>(Total 28 large pallets)   |
| Open-circuit voltage temperature coefficient            | -0.25% / ° C             | 40HQ container shipping volume                                                                                           | 720 pieces/cabinet<br>(Total 20 large pallets) |
| Short-circuit current temperature coefficient           | +0.045% / ° C            | Container interior space utilization                                                                                     | A maximum load ratio of 98.5%                  |

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