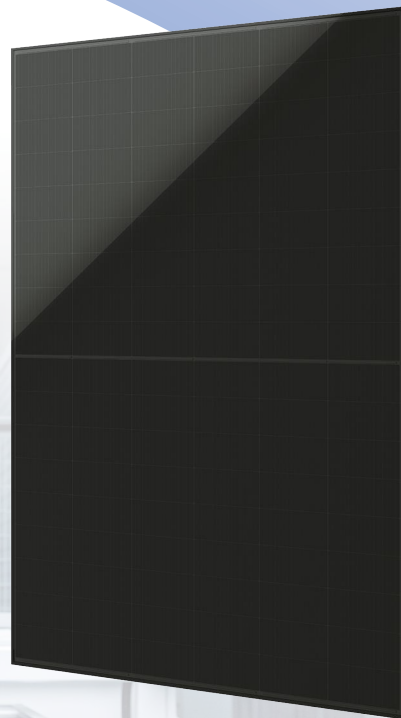


## GEM G12R/108D 500-515W



### Supreme Quality



#### High Efficiency

Module efficiency up to 23.2% based on N-Type wafer and TOPCon technology



#### Excellent Energy Yield

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



#### 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

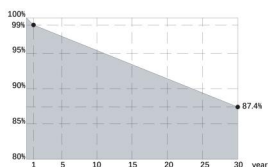
### Module Characteristics

**25-Year**  
Product Warranty

**30-Year**  
Linear Power Warranty

**1%**  
First Year Degradation

**0.4%**  
Annual Power Degradation



At least 87.4% of nominal power up to 30 years



IEC 61215(2021) / IEC 61730(2023)

ISO 9001: 2015: ISO Quality Management System

Made in China

515W

Maximum Power

23.2%

Highest Conversion Efficiency

1%

First Year Degradation

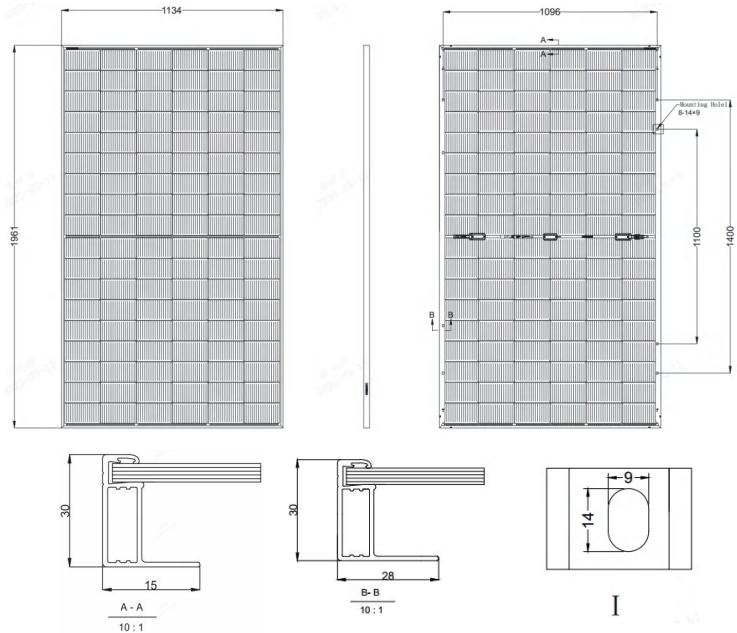
0.4%

2-30 Years Annual Power Attenuation

## Mechanical Parameters

|                  |                                                                                          |
|------------------|------------------------------------------------------------------------------------------|
| Cell Type        | N-Type TOPCon                                                                            |
| No. of cells     | 108 (2×54)                                                                               |
| Output Cables    | TÜV 1×4mm <sup>2</sup><br>(+)300mm,(-)200mm in length<br>or customized length            |
| Glass            | Front: 2.0mm, AR-coating, semi-tempered<br>Rear: 2.0mm, semi-tempered                    |
| Frame            | Anodized aluminum alloy frame                                                            |
| Connector        | Staubli Electrical Connectors AG – MC4 EVO2 Series<br>PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy |
| Weight           | 26.3kg (57.98lbs)                                                                        |
| Dimension        | 1961×1134×30mm                                                                           |
| Packaging        | 37 pcs per pallet<br>185 pcs per 20' HC, 888 pcs per 40' HC                              |
| Protection Class | Class II                                                                                 |
| Fire Rating      | IEC Class A                                                                              |

## Engineering Drawings



\* Length:±2mm Width:±2mm Height:±1mm Row Pitch:±2mm

## Electrical Characteristics (STC Test)

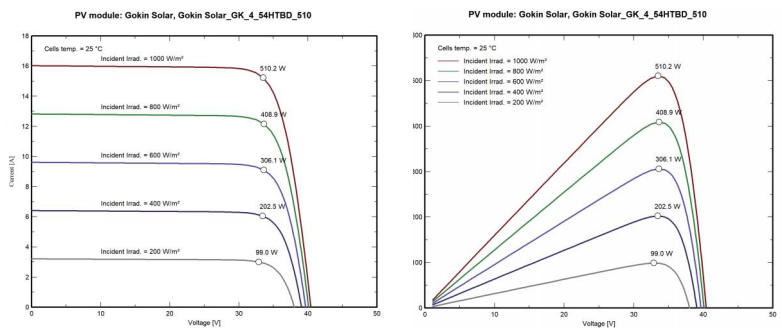
φVoc=100%±5%, φIsc=80%±5%, φPmax=80%±5%

| Module Type                   | GK-4-54HTBD-500M |       |       | GK-4-54HTBD-505M |       |       | GK-4-54HTBD-510M |       |       | GK-4-54HTBD-515M |       |       |
|-------------------------------|------------------|-------|-------|------------------|-------|-------|------------------|-------|-------|------------------|-------|-------|
| Testing Condition             | STC              | BNPI  | BSI   | STC              | BNPI  | BSI   | STC              | BNPI  | BSI   | STC              | BNPI  | BSI   |
| Maximum Power (Pmax/W)        | 500              | 550   | /     | 505              | 555   | /     | 510              | 560   | /     | 515              | 565   | /     |
| Open-circuit Voltage (Voc/V)  | 40.02            | 40.02 | /     | 40.22            | 40.22 | /     | 40.42            | 40.42 | /     | 40.62            | 40.62 | /     |
| Short-circuit Current (Isc/A) | 15.88            | 17.47 | 19.37 | 15.95            | 17.53 | 19.42 | 16.02            | 17.59 | 19.47 | 16.08            | 17.64 | 19.51 |
| Maximum Power Voltage (Vmp/V) | 33.05            | 33.05 | /     | 33.25            | 33.25 | /     | 33.45            | 33.45 | /     | 33.64            | 33.64 | /     |
| Maximum Power Current (Imp/A) | 15.13            | 16.64 | /     | 15.19            | 16.69 | /     | 15.25            | 16.74 | /     | 15.31            | 16.80 | /     |
| Module Efficiency (%)         | 22.5             |       |       | 22.7             |       |       | 22.9             |       |       | 23.2             |       |       |

1、STC: Irradiance 1000W/M<sup>2</sup>, Cell Temperature 25°C, AM=1.5; 2、BNPI: Irradiance of front 1000W/M<sup>2</sup>, rear 135W/M<sup>2</sup>; 3、BSI: Irradiance of front 1000W/M<sup>2</sup>, rear 300W/M<sup>2</sup>

## Working Parameters

|                                                                    |                                                                                 |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------|
| T <sub>98</sub> max                                                | 70°C                                                                            |
| Operating Temperature                                              | -40°C~+85°C                                                                     |
| Maximum Series Fuse Rating                                         | 35A                                                                             |
| Protection Class                                                   | Class II                                                                        |
| Power Binning Tolerance                                            | -5~+10W                                                                         |
| P <sub>max</sub> and V <sub>oc</sub> and I <sub>sc</sub> Tolerance | ±3%                                                                             |
| Maximum System Voltage                                             | 1500V(IEC)                                                                      |
| Mechanical Loading                                                 | 5400Pa Front Side Max Static Test Load<br>2400Pa Rear Side Max Static Test Load |
| Hail Test                                                          | 25mm hailstone at 23m/s                                                         |
| Junction Box                                                       | IP68                                                                            |



## Temperature Ratings (STC)

|                                 |             |
|---------------------------------|-------------|
| Temperature coefficient of Isc  | + 0.045%/°C |
| Temperature coefficient of Voc  | - 0.25%/°C  |
| Temperature coefficient of Pmax | - 0.29%/°C  |

Gokin

GK-4-54HTBD-AB-DG-CEC

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Note: Please read the safety and installation manual before using the product. We reserve the right of final interpretation. The specifications in this datasheet are subject to change without notice.

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