

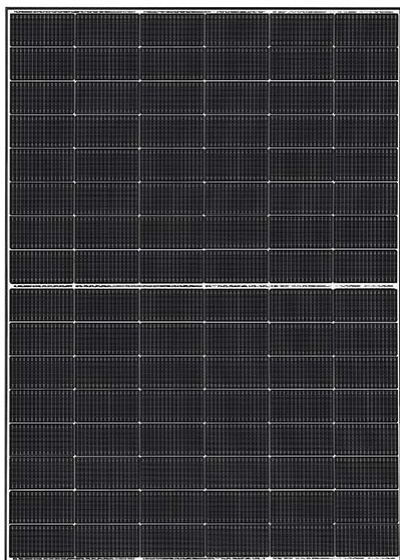
# Ultra T 2.0

HALF-CELL N-TYPE TOPCon

BLACK FRAME MONOFACIAL DOUBLE-GLASS MODULE

TYPE: STPXXXS-H48-Nkh+

**450-470W** **23.5%**  
POWER OUTPUT MAX EFFICIENCY



## High module conversion efficiency

Module efficiency up to **23.5%** achieved through advanced cell technology and manufacturing process



## Multi busbar technology

Superior optical utilization and current collection capability, effectively improving product power and reliability



## Excellent low light performance

More power output in low light conditions such as cloudy days, mornings and evenings



## Superior load-bearing capability

Module certified to withstand **5400 Pa** front side max static test load and **2400 Pa** rear side max static test load \*

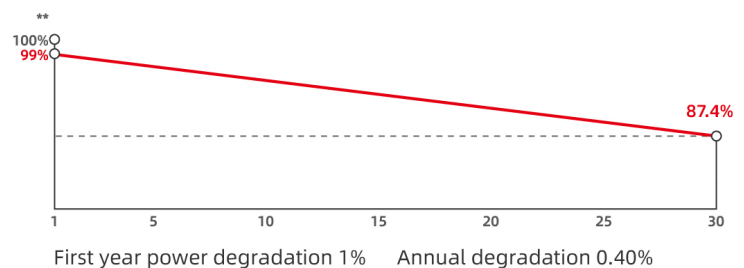


ISO 14001 Environment Management System  
ISO 45001 Occupational Health and Safety  
ISO 9001 Quality Management System  
SA 8000 Social Responsibility Standards  
IEC TS 62941 Guideline for Module Design

IEC 61701 Salt-mist Certification  
IEC 62716 Ammonia Certification  
IEC 60068-2-68 Dust and Sand



**30** years of linear warranty  
**25** years of product warranty



\* Please refer to Suntech Standard Module Installation Manual for details.

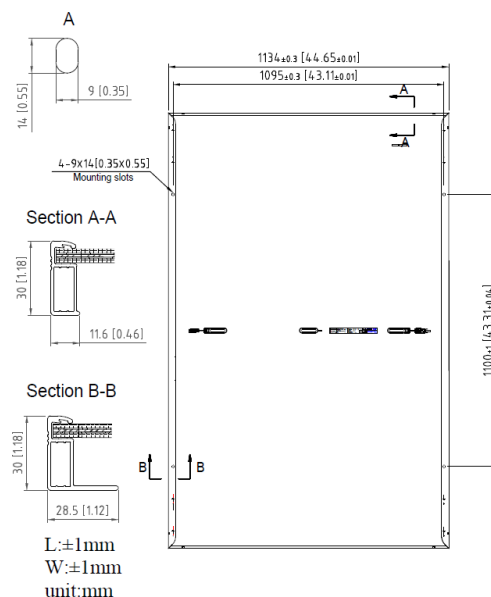
\*\*\* WEEE only for EU market.

\*\* Please refer to Suntech Limited Warranty for details.

\*\*\*\* Suntech reserves the right to the final.

### Mechanical Characteristics

|                                        |                                                                                                                |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Solar Cell                             | N-type monocrystalline silicon                                                                                 |
| No. of Cells                           | 96 (6 × 16)                                                                                                    |
| Dimensions                             | 1762 × 1134 × 30 mm (69.4 × 44.6 × 1.2 inches)                                                                 |
| Weight                                 | 24.0 kg (52.91 lbs.)                                                                                           |
| Front Glass                            | 2.0 mm (0.079 inches), anti-reflective coating                                                                 |
| Back Glass                             | 2.0 mm (0.079 inches), heat strengthened glass                                                                 |
| Output Cables<br>(Including Connector) | 4.0 mm <sup>2</sup> ,<br>(+) 1300mm / (-) 1300mm in length<br>or customized length                             |
| Junction Box                           | IP68 rated (3 bypass diodes)                                                                                   |
| Operating Module Temperature           | -40 °C to +70 °C                                                                                               |
| Maximum System Voltage                 | 1500 V DC (IEC)                                                                                                |
| Connectors                             | STP-PV4xyz (Standard)/MC4-EVO2A (Optional)                                                                     |
| Maximum Series Fuse Rating             | 35 A                                                                                                           |
| Power Tolerance                        | 0 ~ + 3%                                                                                                       |
| Frame                                  | Anodized aluminum alloy frame                                                                                  |
| Packing Configuration                  | 36 pieces per pallet<br>936 pieces per container / 40'HC<br>1790 × 1120 × 1260 mm per pallet 910 kg per pallet |



### Electrical Characteristics (STC)

| Module Type                       | STP470S-H48-Nkh+ | STP465S-H48-Nkh+ | STP460S-H48-Nkh+ | STP455S-H48-Nkh+ | STP450S-H48-Nkh+ |
|-----------------------------------|------------------|------------------|------------------|------------------|------------------|
| Maximum Power (Pmax/W)            | 470              | 465              | 460              | 455              | 450              |
| Optimum Operating Voltage (Vmp/V) | 30.66            | 30.46            | 30.26            | 30.06            | 29.86            |
| Optimum Operating Current (Imp/A) | 15.33            | 15.27            | 15.21            | 15.14            | 15.08            |
| Open Circuit Voltage (Voc/V)      | 36.24            | 36.04            | 35.84            | 35.64            | 35.44            |
| Short Circuit Current (Isc/A)     | 16.21            | 16.15            | 16.09            | 16.02            | 15.97            |
| Module Efficiency (%)             | 23.5             | 23.3             | 23.0             | 22.8             | 22.5             |

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Measuring tolerance is within +/- 3%;

### Temperature Characteristics

|                                 |           |
|---------------------------------|-----------|
| Temperature Coefficient of Pmax | -0.28%/°C |
| Temperature Coefficient of Voc  | -0.24%/°C |
| Temperature Coefficient of Isc  | 0.043%/°C |

Information on how to install and operate this product is available in the installation instruction. All values indicated in this data sheet are subject to change without prior announcement. The specifications may vary slightly. All specifications are in accordance with standard EN 50380. Color differences of the modules relative to the figures as well as discolorations of/in the modules which do not impair their proper functioning are possible and do not constitute a deviation from the specification.

### Graphs Current-Voltage & Power-Voltage (460W)

