

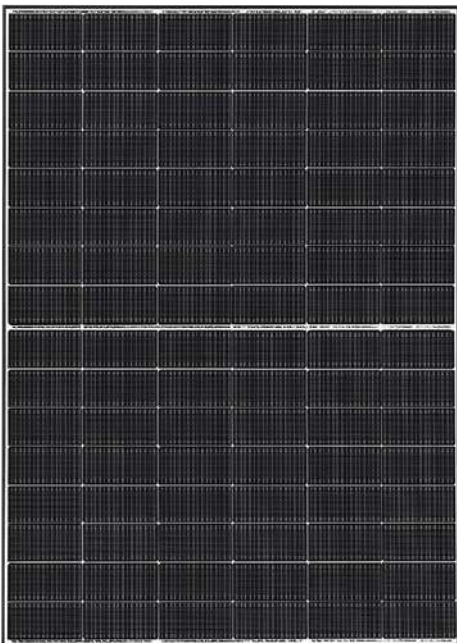
Ultra T 2.0

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

ISO 45001

ISO 9001

SA 8000

IEC TS 62941

IEC 61730-2 (UL790)

Environment Management System

Occupational Health and Safety

Quality Management System

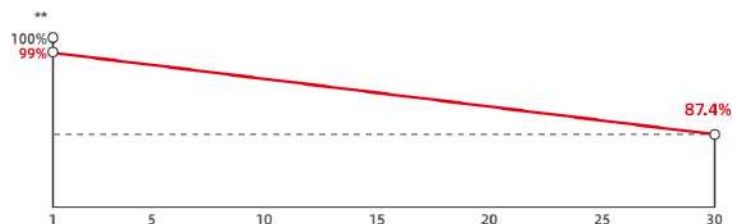
Social Responsibility Standards

Guideline for Module Design

Fire Class C



30 years of linear warranty
25 years of product warranty



First year power degradation 1% Annual degradation 0.40%

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

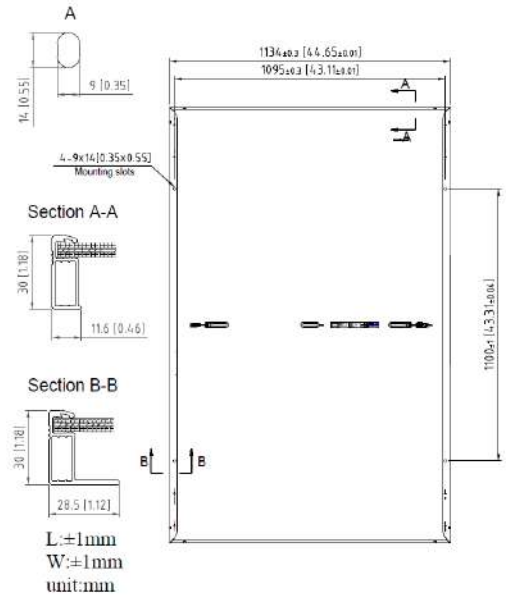
** Please refer to Suntech Limited Warranty for details.

*** WEEE only for EU market.

**** 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	24.8 kg (54.67 lbs.)
Front/Back Glass	2.0 + 2.0 mm (0.079 + 0.079 inches) semi-tempered glass
Output Cables	4.0 mm ² , (-) 1400mm (+) 1400mm in length or customized length
Junction Box	IP68 rated (3 bypass diodes)
Operating Module Temperature	-40 °C to +70 °C (T98th)
Maximum System Voltage	1500 V DC (IEC)
Connectors	Wuxi Suntech STP-XC4-4 (Default) Stäubli PV-KST4-EVO2A/xy, PV-KBT4- EVO2A/xy (Optional)
Maximum Series Fuse Rating	35 A
Power Tolerance	0 ~ + 3%
Frame	Anodized aluminum alloy frame
Packing Configuration	36 pieces per pallet 936 pieces per container / 40'HC 1796 × 1120 × 1255 mm per pallet 935 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 (P _{max} /W)	470	465	460	455	450
Optimum Operating Voltage (V _{mp} /V)	30.96	30.73	30.51	30.28	30.04
Optimum Operating Current (I _{mp} /A)	15.18	15.13	15.08	15.03	14.98
Open Circuit Voltage (V _{oc} /V)	36.59	36.42	36.25	36.08	35.91
Short Circuit Current (I _{sc} /A)	15.92	15.87	15.82	15.77	15.72
Module Efficiency (%)	23.5	23.3	23.0	22.8	22.5

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5; Measuring tolerance of P_{max}, V_{oc}, I_{sc} is within +/- 3%;

Temperature Characteristics

Temperature Coefficient of P _{max}	-0.29%/°C
Temperature Coefficient of V _{oc}	-0.25%/°C
Temperature Coefficient of I _{sc}	0.046%/°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)

