

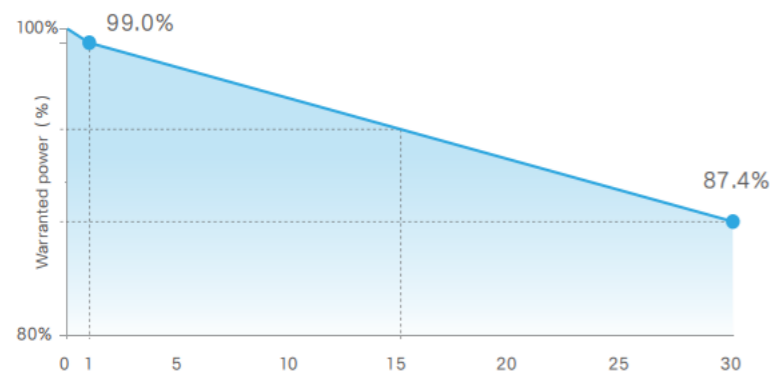
SG-48TW4D 445-465W

N-type TOPCon Solar Single-glass Module
Maximum Efficiency 23.3%

Quality Certification



Product Warranty



25 Year
Warranty for Materials and Processing

30 Year
Warranty for Extra Linear Power Output

First Year Power Degradation <1%

Year 2-30 Power Degradation <0.4%

Power warranty applies at STC condition or only applies to the front side of the module

Product Performance

Superior Low Irradiation Performance
Higher power output in the morning and evening, cloudy days, haze and other low-light scenarios

Smaller Size
A lightweight design for convenient transportation and installation

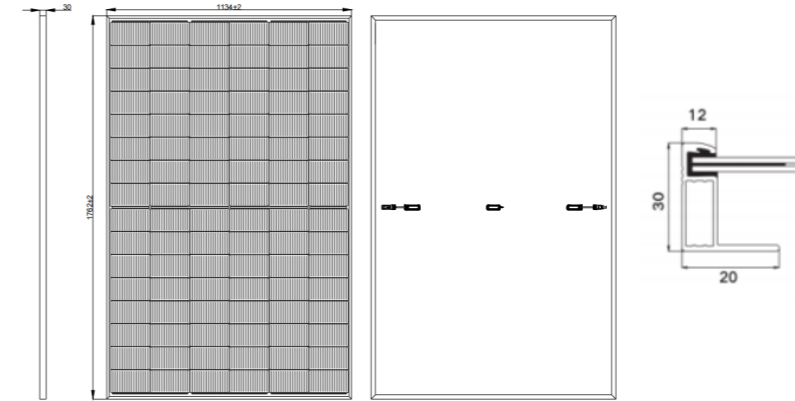
Lower LCOE
Effectively reduce system BOS costs and shorten the return on investment cycle

Superior Temperature Coefficient
Generating 1%-2% more power than P-type modules in high temperature regions

Non-destructive Laser Cutting Technology
Achieving better cell strength, lower micro-cracks risk for better product reliability

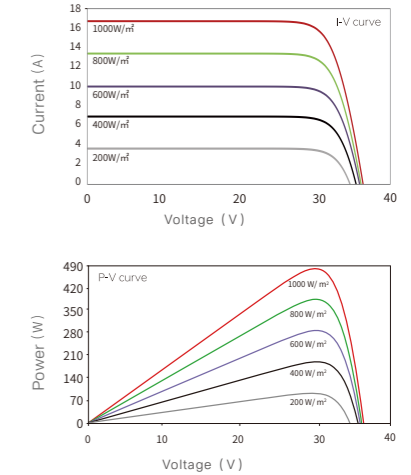
Superior Mechanical Load Capacity
Heavy snow load up to 5400 Pa
wind load up to 2400 Pa

Engineering Drawings



Tolerance: Length: ±2mm Width: ±2mm

I-V and P-V Curves Temperature: (25 ± 2) °C



Electrical Characteristics

	SG-48TW4D-445	SG-48TW4D-450	SG-48TW4D-455	SG-48TW4D-460	SG-48TW4D-465
Module Type	445	450	455	460	465
Maximum Power Pmax (W)	445	450	455	460	465
Voltage at Maximum Power (Vmp/V)	29.72	29.92	30.12	30.32	30.52
Current at Maximum Power (Imp/A)	14.99	15.06	15.12	15.18	15.24
Open Circuit Voltage (Voc/V)	35.58	35.78	35.98	36.18	36.38
Short Circuit Current (Isc/A)	15.94	16.00	16.06	16.12	16.18
Module Efficiency (%)	22.3	22.5	22.8	23.0	23.3
Pmax/Voc/Isc Tolerance	±3%		Maximum System Voltage	DC1500V	
Maximum Series Fuse Rating	30A		Operating Temperature	-40°C~+70°C	
Fire Rating	Class C		Power Sorting Tolerance	0~+5W	

STC: Irradiance 1000W/m², Cell Temperature 25°C, AM=1.5

Mechanical Characteristics

Cell Type	N-type mono-crystalline
Cell Orientation	96 (2 x 48)
Dimension	1762 x 1134 x 30mm
Weight	20.0kg
Glass	Single glass, 3.2mm coated tempered glass
Frame	Composite material
Junction Box	IP68 rated
Output Cables	4mm², (+): 1200mm, (-): 1200mm or customized length
Connector Type	Z4S-abc(d)(Zerun)/PV-ZH202B(Zhonghuan)/PV-HT03(x=0,1 or 2)(Haitian)/PV-KST4-EVO2A(xy, PV-KBT4-EVO2A)(xy)(Staubli)
Mechanical Load	+5400Pa (Front side) / -2400Pa (Rear side)

Temperature Characteristics

Temperature Coefficients of Pmax	-0.30%/°C
Temperature Coefficients of Voc	-0.25%/°C
Temperature Coefficients of Isc	0.046%/°C
Temperature Rating [T98]max	70°C

Packaging Configuration

Pallet Dimension	1792 x 1140 x 1249 mm
Packing Detail	36pcs/pallets, 72 pcs/stack, 936 pcs/ 40'HQ container