

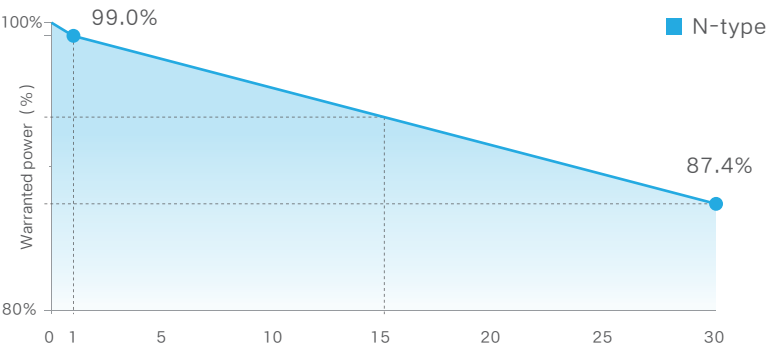
SG-48TG4D-X
460-480W

N-type TOPCon Solar Double Glass Bifacial Module
Maximum Efficiency 24.0%

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

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

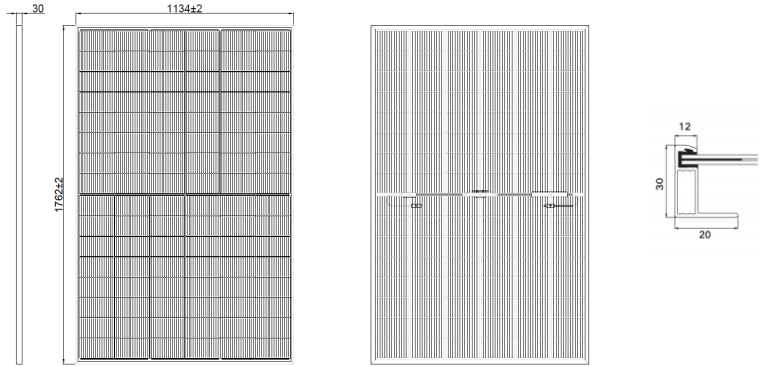
Smaller Size
A lightweighted design for convenient transportation and installation

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

Higher Bifacial Factor
The rear power output and generation capacity are 20% and 3.5% higher than PERC, respectively

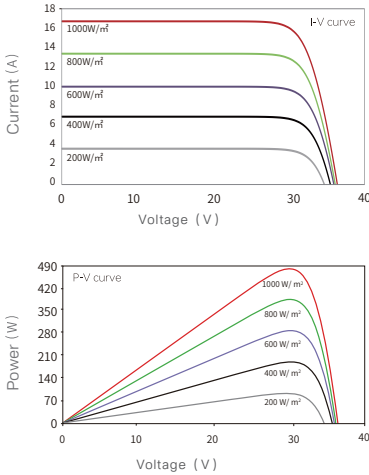
Superior Mechanical Load Capacity
Heavy snow load up to 5400 Pa
wind load up to 2400 Pa

Engineering Drawings



Tolerance: Length: ±2mm Width: ±2mm

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



Electrical Characteristics

Module Type	SG-48TG4D-X-460	SG-48TG4D-X-465	SG-48TG4D-X-470	SG-48TG4D-X-475	SG-48TG4D-X-480
Maximum Power Pmax (W)	460	465	470	475	480
Voltage at Maximum Power (Vmp/V)	30.67	30.94	31.21	31.48	31.75
Current at Maximum Power (Imp/A)	15.00	15.03	15.06	15.09	15.12
Open Circuit Voltage (Voc/V)	36.15	36.32	36.49	36.66	36.83
Short Circuit Current (Isc/A)	15.90	15.93	15.96	15.99	16.02
Module Efficiency (%)	23.0	23.3	23.5	23.8	24.0
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		-5~+10W

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

Maximum Power Pmax (W)	506	512	517	523	528
Voltage at Maximum Power (Vmp/V)	30.67	30.94	31.21	31.48	31.75
Current at Maximum Power (Imp/A)	16.50	16.53	16.57	16.60	16.63
Open Circuit Voltage (Voc/V)	36.15	36.32	36.49	36.66	36.83
Short Circuit Current (Isc/A)	17.49	17.52	17.56	17.59	17.62
aBSI(A)	19.43	19.47	19.51	19.54	19.58
Pmax/Voc/Isc/aBSI Tolerance	±3%				
Bifaciality Coefficient	φVoc: 100±3 %, φIsc: 80±10 %, φPmax: 80±10 %				

BNPI: Irradiance Front 1000W/m², Rear 135W/m² Cell Temperature 25°C, AM=1.5
aBSI: Irradiance Front 1000W/m², Rear 300W/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	24.5kg
Glass	Dual glass, 2.0mm+2.0mm semi-tempered glass
Frame	Composite material
Junction Box	IP68 rated
Output Cables	4mm², 1200mm(+)/1200mm(-) or customized length
Connector Type	PV-MH5/PV-MH8(Zhejiang Minghe)- PV-KBT4-EVO 2A/xy, PV-KST4-EVO 2A/xy (Stäubli)
Mechanical Load	+5400Pa / -2400Pa

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	36 pcs/pallets, 72 pcs/stack, 936 pcs/ 40'HQ container