

# SF-M21/G80

## 400-415W

### 210×105mm cells 40

#### Bifacial Double Glass

#### PERC Half-Cell Module

Max Power out: 415W

Max Efficiency: 21.59%

Power Tolerance: 0~+5W



#### SMBB Technology

Better light trapping and current collection to improve module power output and reliability



#### PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.



#### Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance.



#### Reduced Hot Spot Loss

Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.



#### Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

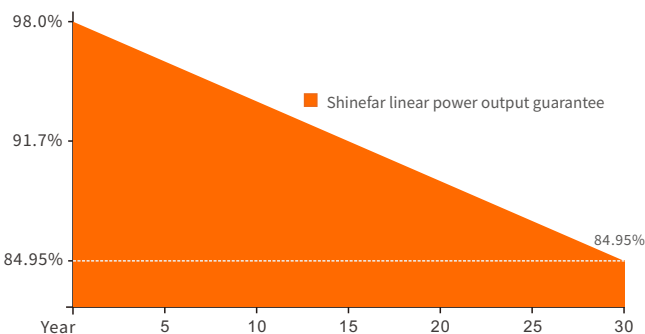


#### High energy generation, low LCOE

Low Pmax temp coefficient increases energy production

### Superior Warranty

- 15-year material & technology warranty
- 30-year linear power output warranty

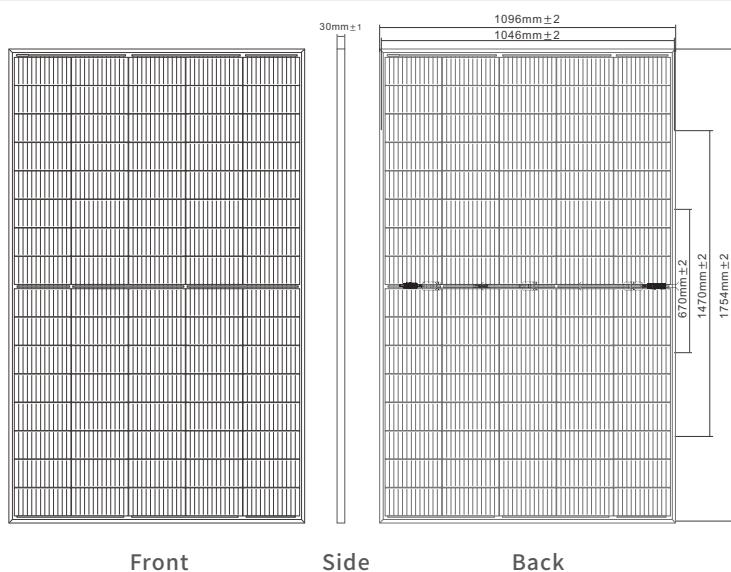


### Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECCE CertificateBody (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001



## Engineering Drawings



## Structural Parameter

Dimensions of Module	1754 × 1096 × 30mm
Weight	24.5kg
Packing	37/pallet, 1001/40hq
Front Glass	High Transparency Solar Glass 2.0mm
Back Glass	Heat Strengthened Glass 2.0mm
Frame	Anodized aluminum alloy & Custom color accepted
J-Box	IP68 Rated
Cable	4.0mm <sup>2</sup> , 300mm
Bypass Diodes	3pcs
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

## Electrical Specification

(STC: Irradiance 1000W/m<sup>2</sup>, cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/G80400		SF-M21/G80405		SF-M21/G80410		SF-M21/G80415	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	400	302.24	405	306.02	410	309.80	415	313.57
Maximum Power Voltage (Vmp) [V]	23.09	21.58	23.29	21.78	23.49	21.98	23.69	22.18
Maximum Power Current (Imp) [A]	17.32	14.01	17.39	14.05	17.45	14.09	17.52	14.14
Open Circuit Voltage (Voc) [V]	27.67	25.89	27.87	26.10	28.07	26.30	28.27	26.50
Short Circuit Current (Isc) [A]	18.49	14.93	18.55	14.97	18.62	15.02	18.67	15.05
Module Efficiency [%]	20.81		21.07		21.33		21.59	
Cell Type [mm]	Mono 210 × 105, 80 cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	30A							

## Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

Total Equivalent power (Pmax) [Wp]	440	446	451	457
Maximum Power Voltage (Vmp) [V]	23.09	23.29	23.49	23.69
Maximum Power Current (Imp) [A]	19.06	19.13	19.20	19.27
Open Circuit Voltage (Voc) [V]	27.67	27.87	28.07	28.27
Short Circuit Current (Isc) [A]	20.34	20.40	20.48	20.54
Irradiance ratio (rear/front)	10%			

## Temperature Ratings

Nominal Operating Cell Temperature	45 ± 2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.35%/°C

## Curve Diagram

