

# SF-M21/80

## 400-415W

### 210 ± 1.5 × 105 ± 1.5mm

### Cells 80

### Monocrystalline

### 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).

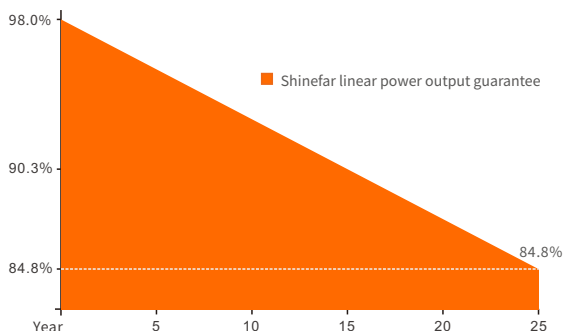


#### High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

### Superior Warranty

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

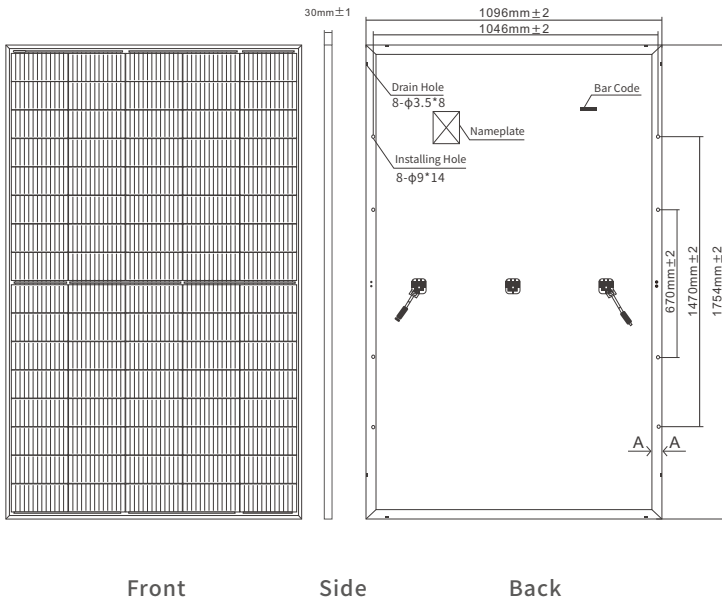


### Comprehensive Products and System Certificates

- 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
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001



## Engineering Drawings



## Structural Parameter

Dimensions of Module	1754 × 1096 × 30mm
Weight	21.0kg
Packing	37PCS/Pallet, 1001PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
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-M21/80400		SF-M21/80405		SF-M21/80410		SF-M21/80415	
	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 $210 \pm 1.5 \times 105 \pm 1.5$ , 80 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	30A							

## Temperature Ratings

Nominal Operating Cell Temperature	$45 \pm 2^\circ\text{C}$
Temperature Coefficient of Isc	$+0.06\%/^\circ\text{C}$
Temperature Coefficient of Voc	$-0.30\%/^\circ\text{C}$
Temperature Coefficient of Pmax	$-0.39\%/^\circ\text{C}$

## Curve Diagram

