Shinefar | solar

SF-M15L/144
405-420W

158.75±1.5×79.375±1.5mm
Cells 144

Bifacial Single Glass

PERC Half-Cell Module

Max Power Out: 420W
Max Efficiency: 20.77%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

HOT

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

PID Resistance

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

Enhanced Mechanical Load

2400 Pa
5400 Pa

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

Durability Against Extreme Environmental Conditions

NH_3

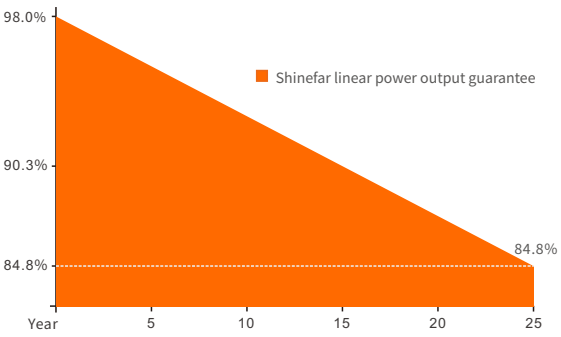
High salt mist and ammonia resistance.

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

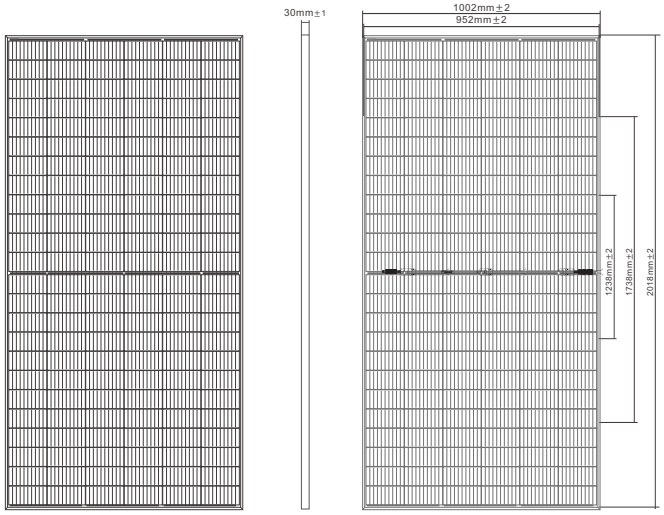


Comprehensive Products and System Certificates

- 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

Shinefar | solar

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2018×1002×30mm
Weight	20.9kg
Packing	37PCS/Pallet, 924PCS/40HQ
Front Glass	High Transparency Solar Glass 3.2mm
Back Glass	Transparent or Transparent Grid
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M15L/144405		SF-M15L/144410		SF-M15L/144415		SF-M15L/144420	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	405	300.51	410	304.22	415	307.93	420	311.64
Maximum Power Voltage (Vmp) [V]	40.68	37.83	40.88	38.02	41.08	38.20	41.28	38.39
Maximum Power Current (Imp) [A]	9.96	7.94	10.03	8.00	10.10	8.06	10.17	8.12
Open Circuit Voltage (Voc) [V]	49.20	45.76	49.40	45.94	49.60	46.13	49.80	46.31
Short Circuit Current (Isc) [A]	10.41	8.30	10.47	8.35	10.53	8.40	10.59	8.45
Module Efficiency [%]	20.03		20.28		20.52		20.77	
Cell Type [mm]	Mono 158.75±1.5×79.375±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	15A							

Electrical Characteristics With Different Power Bin (Reference to 10% Irradiance Ratio)

Total Equivalent Power (Pmax) [Wp]	433	439	444	449
Maximum Power Voltage (Vmp) [V]	40.68	40.88	41.08	41.28
Maximum Power Current (Imp) [A]	10.65	10.73	10.81	10.89
Open Circuit Voltage (Voc) [V]	49.20	49.40	49.60	49.80
Short Circuit Current (Isc) [A]	11.13	11.20	11.27	11.33
Irradiance Ratio (Rear/Front)	10%			

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.06%/°C
Temperature Coefficient of Voc	-0.30%/°C
Temperature Coefficient of Pmax	-0.39%/°C

Curve Diagram