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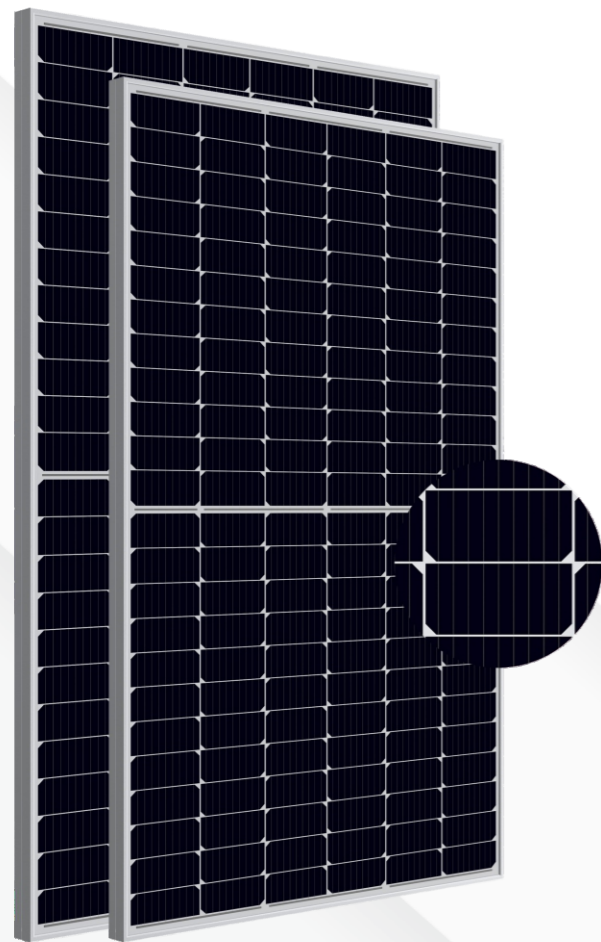
**Email: [contact@energypal.com](mailto:contact@energypal.com)**

# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**VSUN SOLAR  
VSUN435-450-144MH  
VSUN445-144MH**

Also available on the web at  
[EnergyPal.com/vsun-solar-solar-panels/vsun445-144mh](http://EnergyPal.com/vsun-solar-solar-panels/vsun445-144mh)

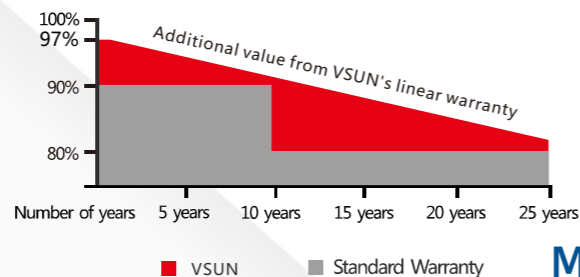


**20.37%**  
Module efficiency

**12 years**  
Material & Workmanship warranty

**450W**  
Highest power output

**25 years**  
Linear power output warranty



# VSUN450-144MH

- 166mm Mono-PERC Cell
- Half-cell technology
- Lower LCOE and BOS
- MBB technology
- Lower risk of micro-crack
- Lower risk of hot spot
- Higher output power
- Positive tolerance offer
- Better shading tolerance

VSUN, a BNEF Tier-1 PV module manufacturer. Invested by Fuji Solar, VSUN is a Japanese solar module solutions provider.

Innovative & Smart – VSUN has been committed to providing greener, cleaner, and more intelligent renewable energy solutions. It is focusing on the new energy market and the development of customized and high-efficiency products.



## Electrical Characteristics at Standard Test Conditions(STC)

Module Type	VSUN450-144MH	VSUN445-144MH	VSUN440-144MH	VSUN435-144MH
Maximum Power - Pmax (W)	450	445	440	435
Open Circuit Voltage - Voc (V)	50	49.8	49.6	49.4
Short Circuit Current - Isc (A)	11.5	11.42	11.34	11.26
Maximum Power Voltage - Vmpp (V)	41.4	41.2	41	40.8
Maximum Power Current - Imp (A)	10.87	10.81	10.74	10.67
Module Efficiency	20.37%	20.14%	19.92%	19.69%

Standard Test Conditions (STC): irradiance 1,000 W/m<sup>2</sup>; AM 1.5; module temperature 25°C. Pmax Sorting : 0~5W. Measuring Tolerance: ±3%.  
Remark: Electrical data do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

## Electrical Characteristics at Normal Operating Cell Temperature(NOCT)

Module Type	VSUN450-144MH	VSUN445-144MH	VSUN440-144MH	VSUN435-144MH
Maximum Power - Pmax (W)	333.8	330.4	326.6	322.2
Open Circuit Voltage - Voc (V)	46.3	46.2	46	46.1
Short Circuit Current - Isc (A)	9.3	9.24	9.17	9.08
Maximum Power Voltage - Vmpp (V)	38.2	38	37.9	37.7
Maximum Power Current - Imp (A)	8.75	8.69	8.62	8.56

Normal Operating Cell Temperature( NOCT) : irradiance 800W/m<sup>2</sup>; wind speed 1 m/s ; ambient temperature 20°C. Measuring Tolerance: ±3%.

## Temperature Characteristics

NOCT	45°C (±2°C)
Voltage Temperature Coefficient	-0.286%/°C
Current Temperature Coefficient	+0.057%/°C
Power Temperature Coefficient	-0.37%/°C

## Maximum Ratings

Maximum System Voltage [V]	1500
Series Fuse Rating [A]	20

## Material Characteristics

Dimensions	2108×1048×35mm (L×W×H)
Weight	23.8kg
Frame	Anodized aluminum profile
Front Glass	White toughened safety glass, 3.2 mm
Cell Encapsulation	EVA (Ethylene-Vinyl-Acetate)
Back Sheet	Composite film
Cells	12×12 pieces monocrystalline solar cells series strings
Junction Box	IP <sub>67</sub> , 3 diodes
Cable&Connector	Potrait: 500 mm (cable length can be customized) , 1×4 mm <sup>2</sup> , compatible with MC4

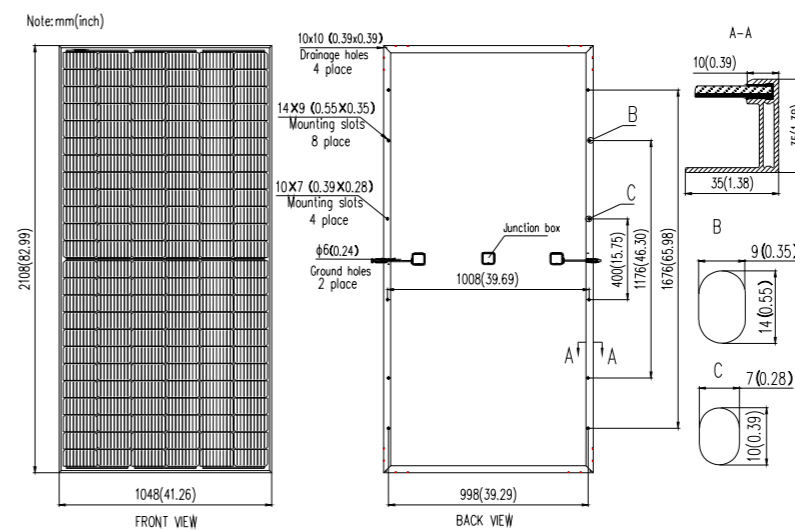
## Packaging

Dimensions(L×W×H)	2140×1105×1182mm
Container20'	150
Container40'	660
Container40'HC	715

## System Design

Temperature Range	-40 °C to + 85 °C
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m/s-1
Maximum Surface Load	5,400 Pa
Application class	class A

## Dimensions



## IV-Curves

