



# GES 72HLM-BDPV

## 435-455 Watt

### BIFACIAL MODULE WITH DUAL GLASS

#### P-Type

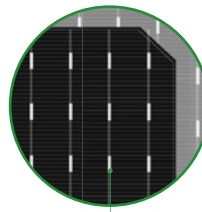
Positive power tolerance of 0~+3%

ISO9001:2015: Quality Management System

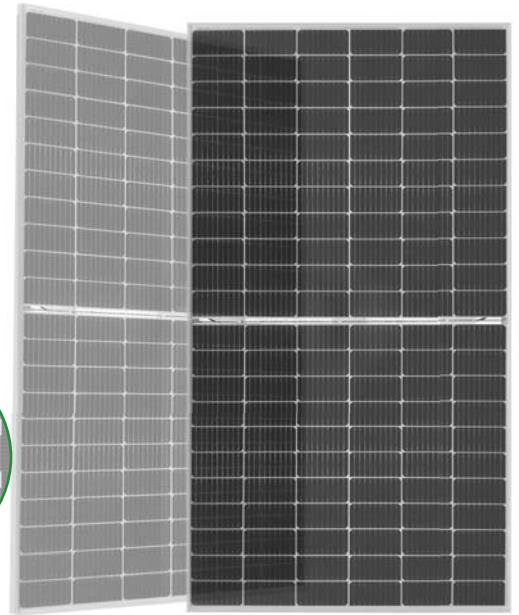
ISO14001:2015: Environment Management System

ISO45001:2018

Occupational health and safety management systems



Bifacial Technology



## Key Features



#### Multi Busbar 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.



#### Higher Power Output

Module power increases 5-25% generally, bringing significantly lower LCOE and higher IRR.



#### Longer Life-time Power Yield

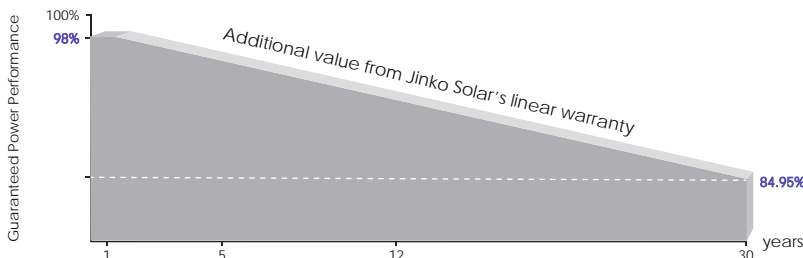
0.45% annual power degradation and 30 year linear power warranty.



#### Low-light Performance

Advanced glass and cell surface textured design ensure excellent performance in low-light environment

## LINEAR PERFORMANCE WARRANTY

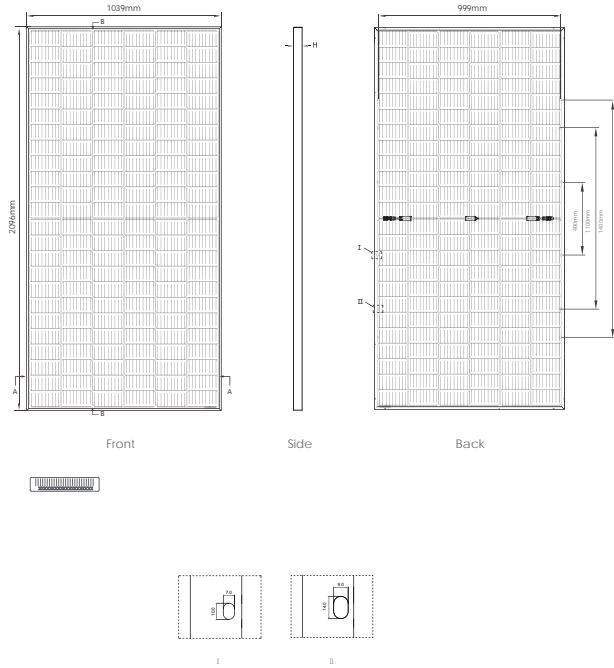


12 Year Product Warranty

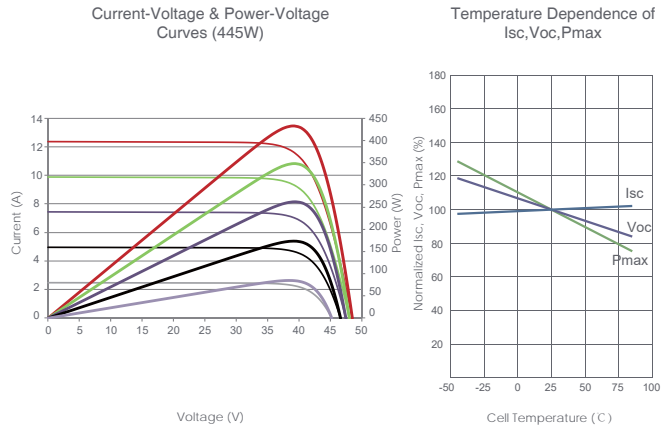
30 Year Linear Power Warranty

0.45% Annual Degradation Over 30 years

## Engineering Drawings



## Electrical Performance & Temperature Dependence



## Mechanical Characteristics

Cell Type	P type Mono-crystalline
No. of cells	144 (6×24)
Dimensions	2096×1039×30mm (82.52×40.91×1.18 inch)
Weight	28.1kg (61.95 lbs)
Front Glass	2.0mm, Anti-Reflection Coating
Back Glass	2.0mm, heat strengthened glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm <sup>2</sup> (+): 250mm , (-): 150mm or Customized Length

## Packaging Configuration

( Two pallets = One stack )

35pcs/pallets, 70pcs/stack, 770pcs/ 40'HQ Container

## SPECIFICATIONS

Module Type	GES435M-72HLM-BDVP		GES440M-72HLM-BDVP		GES445M-72HLM-BDVP		GES450M-72HLM-BDVP		GES455M-72HLM-BDVP	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	435Wp	324Wp	440Wp	327Wp	445Wp	331Wp	450Wp	335Wp	455Wp	339Wp
Maximum Power Voltage (Vmp)	40.81V	37.63V	41.01V	37.80V	41.21V	38.01V	41.40V	38.22 V	41.59V	38.38V
Maximum Power Current (Imp)	10.66A	8.60A	10.73A	8.66A	10.80A	8.71A	10.87A	8.76A	10.94A	8.82A
Open-circuit Voltage (Voc)	48.96V	46.11V	49.16V	46.30V	49.36V	46.49V	49.56V	46.68V	49.76V	46.87V
Short-circuit Current (Isc)	11.35A	9.17A	11.42A	9.22A	11.49A	9.28A	11.56A	9.34A	11.63A	9.39A
Module Efficiency STC (%)	19.97%		20.20%		20.43%		20.66%		20.89%	
Operating Temperature(°C)	-40°C~+85°C									
Maximum System Voltage	1500VDC (IEC)									
Maximum Series Fuse Rating	25A									
Power Tolerance	0~+3%									
Temperature Coefficients of Pmax	-0.35%/°C									
Temperature Coefficients of Voc	-0.29%/°C									
Temperature Coefficients of Isc	0.048%/°C									
Nominal Operating Cell Temperature (NOCT)	45±2°C									
Refer. Bifacial Factor	70±5%									

## BIFACIAL OUTPUT-REARSIDE POWER GAIN

		Rearside Power Gain (%)				
		5%	15%	20%	25%	30%
5%	Maximum Power (Pmax)	457Wp	462Wp	467Wp	473Wp	478Wp
	Module Efficiency STC (%)	20.99%	21.21%	21.44%	21.72%	21.95%
15%	Maximum Power (Pmax)	500Wp	506Wp	512Wp	518Wp	523Wp
	Module Efficiency STC (%)	22.96%	23.24%	23.51%	23.79%	24.02%
25%	Maximum Power (Pmax)	544Wp	550Wp	556Wp	563Wp	569Wp
	Module Efficiency STC (%)	24.98%	25.26%	25.53%	25.85%	26.13%

\*STC: Irradiance 1000W/m<sup>2</sup>

Cell Temperature 25°C

AM=1.5

NOCT: Irradiance 800W/m<sup>2</sup>

Ambient Temperature 20°C

AM=1.5

Wind Speed 1m/s

LOT D1-1,Dai Dong-Hoan Son Industrial zone,Hoan Son Commune,Tien Du District,Bac Ninh Province,Viet Nam.

Specifications included in this datasheet are subject to change without notice.

GES435-455M-72HLM-BDVP