

# Photovoltaic Bi-facial Modules

## Who We Are

**Big Shine Worldwide**, a renowned PV module manufacturer, has been at the forefront of manufacturing excellence since **1994**. Our unwavering commitment to **excellence** and **sustainability** shines through our **innovative designs**, **meticulous manufacturing processes**, and consistent delivery of **high-quality, efficient**, and durable products.

## Why Choose Us



### Industry Experience

Since our establishment in 1989, we have proudly served over 10,000 companies.



### Turnkey Expertise

Our distinctive turnkey solution enables us to create products that perform reliably beyond the confines of standard testing conditions.



### Guarantee

We provide products founded on integrity and offer services that guarantee optimal performance for your investment.

## BSDM-S Energy Model

### Bi-facial Technology

- Capable of Capturing Sunlight from the Front and Back of the Module
- Up to 10% Higher Production than Standard One-Sided Modules
- Durable Glass Back Sheet

### Performance

- Split Cell Technology 144 Cells
- Multi-Busbar Technology
- Non-Destructive Cutting
- Positive Power Tolerance

### Module Efficiency

- 540–620-Watt Options
- Up to 22.84% Module Efficiency
- 2% First-Year Degradation
- 0.45% Annual Degradation

### Warranty

- 12 Year Workmanship Warranty
- 30 Year Power Output Guarantee

UL 61730 & CSA 80231131  
IEC 61215 & IEC 61730



## Contact Us

 845-444-5255

 [www.bigshineworldwide.com](http://www.bigshineworldwide.com)

 [www.bigshineenergy.com](http://www.bigshineenergy.com)

## ELECTRICAL PROPERTIES (STC)

Module Type	590W	550W	545W	540W
Maximum Power - Pmax (W)	590	550	545	540
Open Circuit Voltage - Voc (V)	52.48	49.92	49.81	49.65
Short Circuit Current - Isc (A)	13.93	13.99	13.92	13.85
Maximum Power Voltage - Vmpp (V)	44.5	42	41.8	41.65
Maximum Power Current - Imp (A)	13.26	13.1	13.04	12.97
Module Efficiency	22.84%	21.29%	21.10%	20.90%

## ELECTRICAL PROPERTIES WITH DIFFERENT BACK SIDE POWER GAIN

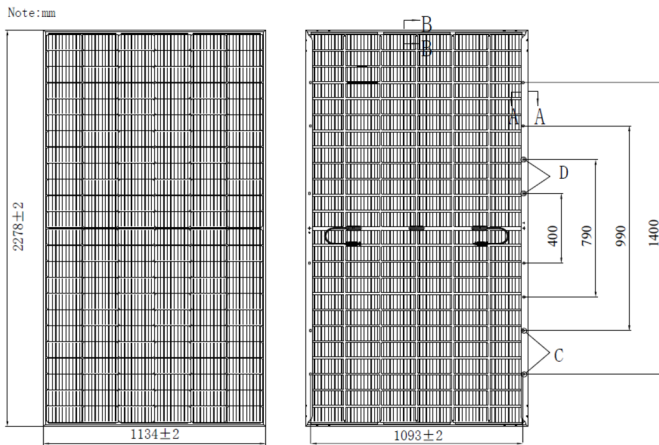
Power Max (W)	Voc (V)	Isc (A)	Vmpp (V)	Imp (A)	Power Max Gain
594	49.76	15.39	41.80	14.41	10%
600	49.81	16.79	41.75	15.72	10%
605	49.81	17.49	41.75	16.38	10%
644	52.25	15.27	44.29	14.53	10%

## MODULE ATTRIBUTES

Dimensions	2278×1134×35mm (L×W×H)	Maximum System Voltage [V]	1500
Weight	32.7kg / 72.09 lbs	Series Fuse Rating [A]	30
Frame	Silver anodized aluminum profile	Bifacial Front/Back	70%±10% (590W 80%±10%)
Front Glass	AR-coating Semi-toughened glass, 2.0mm EVA	Fire Rating	Class C for IEC and TYPE 29 for US
Cell Encapsulation	(Ethylene-Vinyl-Acetate) or POE	PV module classification	Class II
Back Glass	Glazed & Semi-toughened glass, 2.0mm	Temperature Range	-40 °C to + 85 °C
Cells	12×12 pieces monocrystalline solar cells series strings	Maximum Surface Load	5,400 Pa
Junction Box	IP68, 3 diodes	Application class	Class A
Cable & Connector	Portrait: 500 mm (cable length can be customized), 1×4 mm <sup>2</sup> or 12AWG & MC4 Connector	Withstanding Hail	Maximum diameter of 25 mm with an impact speed of 23 m/s

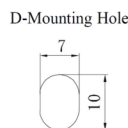
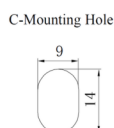
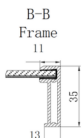
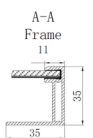
## DIMENSIONS

Packaging Dimensions(L×W×H) 2310×1125×1253mm



FRONT VIEW

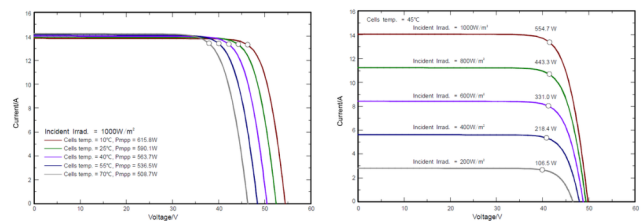
BACK VIEW



## TEMPERATURE CHARACTERISTICS

NOCT	45°C(±2°C)
Voltage Temperature Coefficient	-0.27%/°C / (590W -.26%/°C)
Current Temperature Coefficient	+0.048%/°C / (590W +0.046%/°C)
Power Temperature Coefficient	-0.32%/°C / (590W -0.30%/°C)

## IV CURVES



Standard Test Conditions (STC): Solar panels are tested under standard conditions (STC) with specific irradiance and temperature, and their power output is sorted within a range of 0 to 5 watts, with a measuring tolerance of ±3%.

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## ELECTRICAL PROPERTIES (STC)

Module Type	620W	625W	630W	635W
Maximum Power - Pmax (W)	620	625	630	635
Open Circuit Voltage - Voc (V)	48.7	48.9	49.1	49.3
Short Circuit Current - Isc (A)	15.95	16	16.05	16.1
Maximum Power Voltage - Vmpp (V)	41.23	41.45	41.67	41.89
Maximum Power Current - Imp (A)	15.04	15.08	15.12	15.16
Module Efficiency	22.95%	23.14%	23.32%	23.51%

## ELECTRICAL PROPERTIES WITH DIFFERENT BACK SIDE POWER GAIN

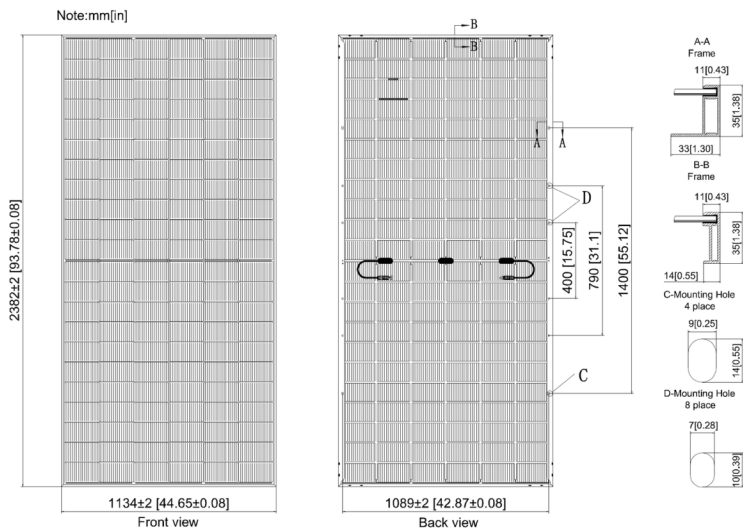
Power Max (W)	Voc (V)	Isc (A)	Vmpp (V)	Imp (A)	Power Max Gain
662	49.10	16.85	41.67	15.88	5%
693	49.10	17.66	41.67	16.63	10%

## MODULE ATTRIBUTES

Dimensions	2382×1134×35mm (L×W×H)	Maximum System Voltage [V]	1500
Weight	33.6kg / 74.08 lbs	Series Fuse Rating [A]	30
Frame	Silver anodized aluminum profile	Bifacial Front/Back	80%±10%
Front Glass	AR-coating Semi-toughened glass, 2.0mm EVA	Fire Rating	Class C for IEC and TYPE 29 for US
Cell Encapsulation	(Ethylene-Vinyl-Acetate) or POE	PV module classification	Class II
Back Glass	Glazed & Semi-toughened glass, 2.0mm	Temperature Range	-40 °C to + 85 °C
Cells	12×12 pieces monocrystalline solar cells series strings	Maximum Surface Load	5,400 Pa
Junction Box	IP68, 3 diodes	Application class	Class A
Cable & Connector	Portrait: 500 mm (cable length can be customized), 1×4 mm <sup>2</sup> or 12AWG & MC4 Connector	Withstanding Hail	Maximum diameter of 25 mm with an impact speed of 23 m/s

## DIMENSIONS

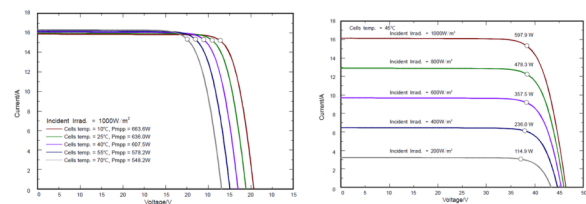
Packaging Dimensions(L×W×H) 1150×1125×2510mm



## TEMPERATURE CHARACTERISTICS

NOCT	45°C(±2°C)
Voltage Temperature Coefficient	-2.5%/°C
Current Temperature Coefficient	+0.046%/°C
Power Temperature Coefficient	-0.30%/°C

## IV CURVES



Standard Test Conditions (STC): Solar panels are tested under standard conditions (STC) with specific irradiance and temperature, and their power output is sorted within a range of 0 to 5 watts, with a measuring tolerance of ±3%.

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