

# THE BORUI

## BACKSHEET MONOCRYSTALLINE MODULE



# 510W

MAXIMUM POWER OUTPUT

# 21.2%

MAXIMUM EFFICIENCY

# 0~+5W

POSITIVE POWER TOLERANCE

PRODUCTS

TSM-DE18M(II)

POWER RANGE

485-510W



### High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance Of System) cost, shorter payback time
- Lower guaranteed first year and annual degradation
- Designed for compatibility with existing mainstream system components
- Higher return on Investment



### High power Mono Perc up to 510W

- Large area cells based on 210mm silicon wafers and 1/3-cut cell technology
- Up to 21.2% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



### High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



### High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions

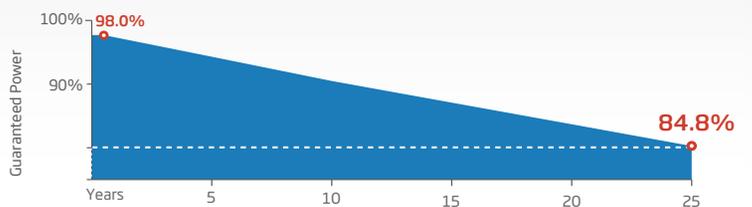
Founded in 2006, Borui Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Borui Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of borui as a strong, bankable brand. now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

### Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System

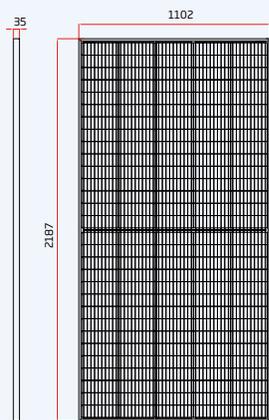


### Solar's Vertex Backsheet Performance Warranty

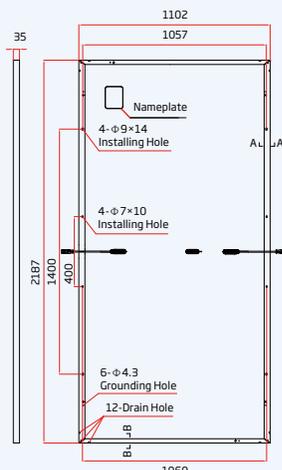


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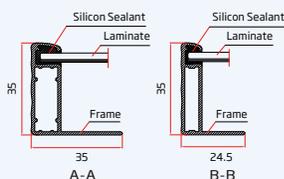
## DIMENSIONS OF PV MODULE(mm)



Front View



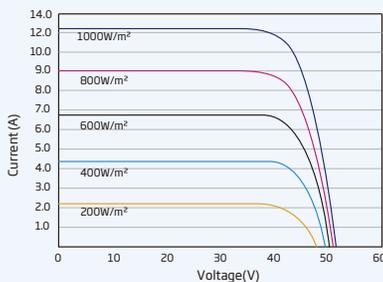
Back View



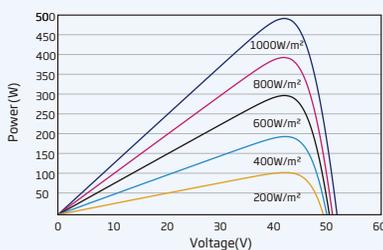
A-A

B-B

## I-V CURVES OF PV MODULE(495W)



## P-V CURVES OF PV MODULE(495W)



## ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)*	485	490	495	500	505	510
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5					
Maximum Power Voltage- $V_{MPP}$ (V)	42.2	42.4	42.6	42.8	43.0	43.2
Maximum Power Current- $I_{MPP}$ (A)	11.49	11.56	11.63	11.69	11.75	11.81
Open Circuit Voltage- $V_{OC}$ (V)	51.1	51.3	51.5	51.7	51.9	52.1
Short Circuit Current- $I_{SC}$ (A)	12.07	12.14	12.21	12.28	12.35	12.42
Module Efficiency $\eta_m$ (%)	20.1	20.3	20.5	20.7	21.0	21.2

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.

\*Measuring tolerance: ±3%.

## ELECTRICAL DATA (NOCT)

Maximum Power- $P_{MAX}$ (Wp)	365	369	373	377	381	385
Maximum Power Voltage- $V_{MPP}$ (V)	39.9	40.0	40.2	40.4	40.6	40.5
Maximum Power Current- $I_{MPP}$ (A)	9.17	9.22	9.28	9.33	9.38	9.50
Open Circuit Voltage- $V_{OC}$ (V)	48.1	48.2	48.4	48.6	48.8	49.0
Short Circuit Current- $I_{SC}$ (A)	9.73	9.78	9.84	9.90	9.95	10.01

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

## MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	150 cells
Module Dimensions	2187×1102×35 mm (86.10×43.39×1.38 inches)
Weight	26.5 kg (58.4 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA
Backsheet	White
Frame	35 mm (1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), Portrait: N 280mm/P 280mm(11.02/11.02inches) Landscape: N 1400 mm /P 1400 mm (55.12/55.12 inches)
Connector	TS4

## TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.34%/°C
Temperature Coefficient of $V_{OC}$	-0.25%/°C
Temperature Coefficient of $I_{SC}$	0.04%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

## MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	20A

## WARRANTY

12 year Product Workmanship Warranty
25 year Power Warranty
2% first year degradation
0.55% Annual Power Attenuation

(Please refer to product warranty for details)

## PACKAGING CONFIGURATION

Modules per box: 31 pieces
Modules per 40' container: 620 pieces