

Mono PERC 210mm 144 Cells

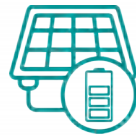
# MS(415-435)MB-48H Black Frame

415/420/425/430/435 WP



## 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 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



## 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
- Class-C fire safety test passed



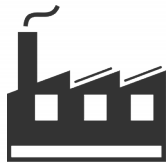
## High power up to **435W**

- Innovative 210\*182 mm rectangular cell, more efficient than conventional square cells
- Up to 21.8% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect lower series resistance and improved current collection

## APPLICATIONS >>



On-grid residential roof-tops



On-grid commercial/ industrial roof-tops

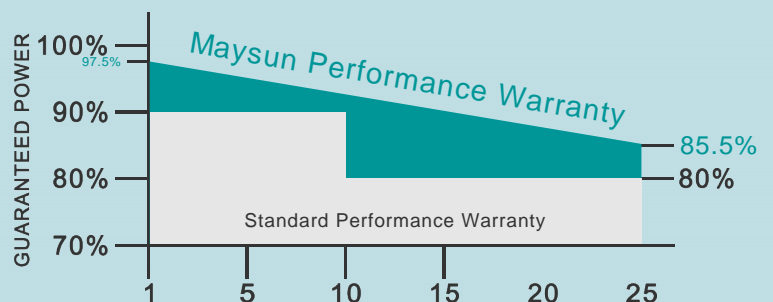


## MAXIMUM EFFICIENCY

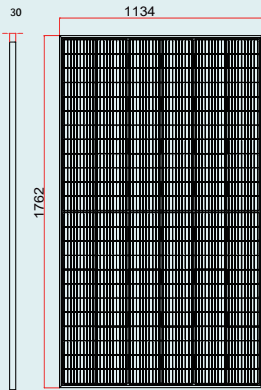
# 21.8%

## POSITIVE POWER TOLERANCE

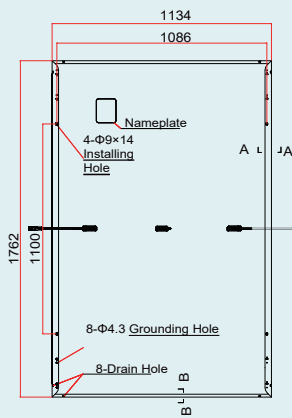
# 0 ~ +5W



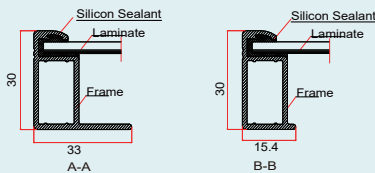
### DIMENSIONS OF PV MODULE(mm)



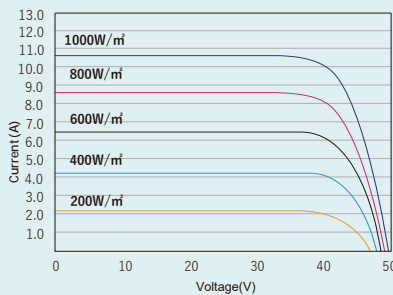
Front View



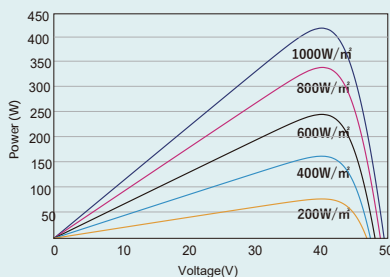
Back View



### I-V CURVES OF PV MODULE(420W)



### P-V CURVES OF PV MODULE(420W)



### ELECTRICAL DATA (STC)

Parameter	415	420	425	430	435
Peak Power Watts- $P_{MAX}$ (W)*	415	420	425	430	435
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5				
Maximum Power Voltage- $V_{MPP}$ (V)	41.0	41.3	41.5	41.8	42.0
Maximum Power Current- $I_{MPP}$ (A)	10.11	10.17	10.24	10.30	10.36
Open Circuit Voltage- $V_{OC}$ (V)	49.4	49.7	49.9	50.3	50.6
Short Circuit Current- $I_{SC}$ (A)	10.64	10.69	10.74	10.81	10.86
Module Efficiency $\eta_m$ (%)	20.8	21.0	21.3	21.5	21.8

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. \*Measuring tolerance: ±3%.

### ELECTRICAL DATA (NOCT)

Parameter	313	317	321	325	329
Maximum Power- $P_{MAX}$ (Wp)	313	317	321	325	329
Maximum Power Voltage- $V_{MPP}$ (V)	38.5	38.8	39.1	39.4	39.6
Maximum Power Current- $I_{MPP}$ (A)	8.13	8.17	8.21	8.26	8.30
Open Circuit Voltage- $V_{OC}$ (V)	46.5	46.7	46.9	47.3	47.6
Short Circuit Current- $I_{SC}$ (A)	8.58	8.62	8.66	8.71	8.75

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

### MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	144 cells
Module Dimensions	1762×1134×30 mm (69.37×44.65×1.18 inches)
Weight	21.8 kg
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA/POE
Backsheet	White
Frame	30 mm(1.18 inches) black, anodized aluminium alloy
J-Box	IP 68 rated (3 bypass diodes)
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ) Portrait: N 350mm/P 350mm(13.7/13.7inches) Length can be customized
Connector	MC4 Compatible

\*Please refer to regional datasheet for specified connector.

### 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

### MAXIMUM RATINGS

Operational Temperature	- 40 ~ +85°C
Maximum System Voltage	1500V DC (IEC)
	1000V DC (IEC)
Max Series Fuse Rating	20A

### WARRANTY

- 15 year Product Workmanship Warranty
- 25 year Power Warranty
- 2.5% first year degradation
- 0.5% Annual Power Attenuation

\*Please refer to product warranty for details.

### PACKAGING CONFIGURATION

- Modules per pallet: 37 pieces
- Modules per 40' container: 962 pieces



CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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