

Mono PERC 210mm 80 Cells

# MS(390-410)MB-40H Full Black

390/395/400/405/410 WP



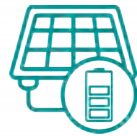
## Better appearance

- Full-black tone makes the modules blend perfectly with the building roof, ideal for residential roofs and BIPVs
- Cleaner and more aesthetic than traditional modules and complements your home's architectural style
- The new layout design is uniform overall, and the vision is extremely beautiful



## 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



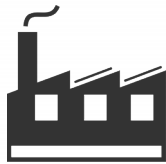
## High reliability

- 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

## APPLICATIONS >>



On-grid residential  
roof-tops



On-grid commercial/  
industrial roof-tops

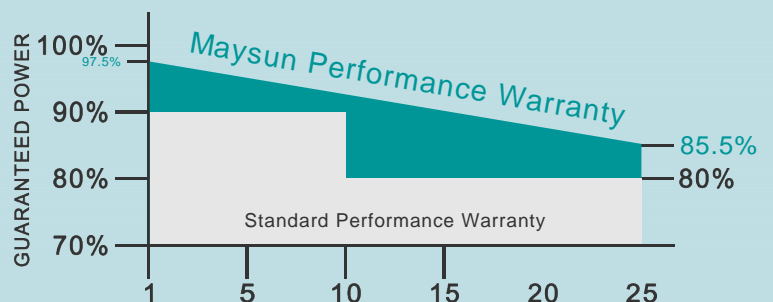


## MAXIMUM EFFICIENCY

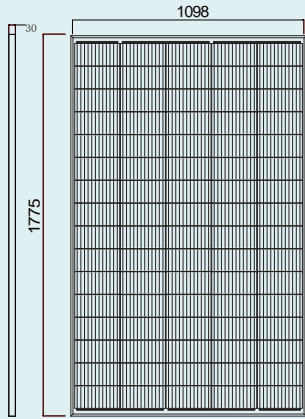
# 21%

## POSITIVE POWER TOLERANCE

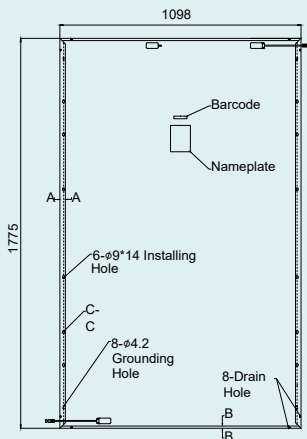
# 0 ~ +5W



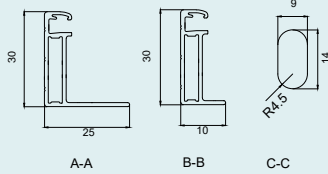
### DIMENSIONS OF PV MODULE(mm)



Front View



Back View

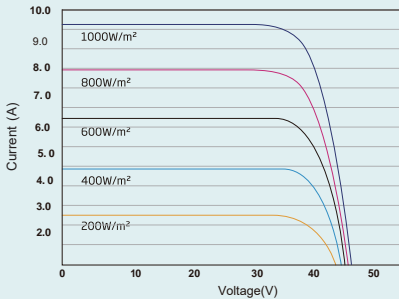


A-A

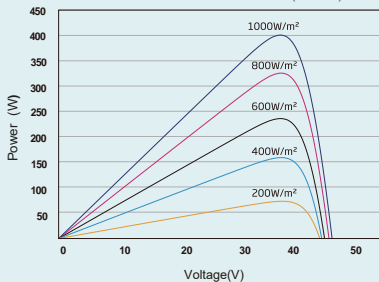
B-B

C-C

### I-V CURVES OF PV MODULE(400W)



### P-V CURVES OF PV MODULE(400W)



### ELECTRICAL DATA (STC)

| Parameter                            | 390    | 395   | 400  | 405   | 410   |
|--------------------------------------|--------|-------|------|-------|-------|
| Peak Power Watts- $P_{MAX}$ (Wp)*    | 390    | 395   | 400  | 405   | 410   |
| Power Tolerance- $P_{MAX}$ (W)       | 0 ~ +5 |       |      |       |       |
| Maximum Power Voltage- $V_{MPP}$ (V) | 42.63  | 42.94 | 43.3 | 43.65 | 44.0  |
| Maximum Power Current- $I_{MPP}$ (A) | 9.15   | 9.20  | 9.24 | 9.28  | 9.32  |
| Open Circuit Voltage- $V_{OC}$ (V)   | 51.59  | 51.96 | 52.4 | 52.82 | 53.24 |
| Short Circuit Current- $I_{SC}$ (A)  | 9.70   | 9.75  | 9.79 | 9.83  | 9.88  |
| Module Efficiency $\eta_m$ (%)       | 20.0   | 20.2  | 20.5 | 20.7  | 21.0  |

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

### ELECTRICAL DATA (NOCT)

| Parameter                            | 295  | 299  | 302  | 306  | 309  |
|--------------------------------------|------|------|------|------|------|
| Maximum Power- $P_{MAX}$ (Wp)        | 295  | 299  | 302  | 306  | 309  |
| Maximum Power Voltage- $V_{MPP}$ (V) | 39.6 | 39.9 | 40.2 | 40.6 | 40.9 |
| Maximum Power Current- $I_{MPP}$ (A) | 7.44 | 7.49 | 7.51 | 7.54 | 7.56 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 47.9 | 48.3 | 48.6 | 49.1 | 49.4 |
| Short Circuit Current- $I_{SC}$ (A)  | 7.82 | 7.86 | 7.89 | 7.99 | 8.01 |

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

### MECHANICAL DATA

|                      |  |
|----------------------|--|
| Solar Cells          | Monocrystalline  |
| Cell Orientation     | 80 cells   |
| Module Dimensions    | 1775mm x 1098mm x 30mm   |
| Weight               | 21kg   |
| Glass                | 3.2 mm High Transmission, AR Coated Heat Strengthened Glass  |
| Encapsulant Material | EVA  |
| Backsheet            | Black  |
| Frame                | 30mm 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> )<br>Portrait: N 700mm/P 700mm(27.55/27.55 inches)<br>Length can be customized |
| Connector            | MC4  |

\*Please refer to regional datasheet for specified connector.

### TEMPERATURE RATINGS

|   |             |
|---|-------------|
| NOCT(Nominal Operating Cell Temperature)        | 43°C (±2°C) |
| Temperature Coe <sup>o</sup> cient of $P_{MAX}$ | - 0.34%/°C  |
| Temperature Coe <sup>o</sup> cient of $V_{OC}$  | - 0.25%/°C  |
| Temperature Coe <sup>o</sup> cient 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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