

SUPER HIGH POWER POLY PERC MODULE
395 W ~ 420 W
MSRH-395 | 400 | 405 | 410 | 415 | 420P

MORE POWER



24 % higher power than conventional modules



Up to 4.5 % lower LCOE
 Up to 2.7 % lower system cost



Low NMOT: $42 \pm 3 \text{ }^\circ\text{C}$
 Low temperature coefficient (Pmax):
 $-0.36 \text{ \% / } ^\circ\text{C}$



Better shading tolerance

MORE RELIABLE



Lower internal current,
 lower hot spot temperature



Minimizes micro-crack impacts



Heavy snow load up to 5400 Pa,
 wind load up to 3600 Pa*



linear power output warranty*



enhanced product warranty on materials and workmanship*

*According to the applicable Mario Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
 ISO 14001:2015 / Standards for environmental management system
 OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: VDE / CE / MCS / KS / INMETRO
 UL 1703 / IEC 61215 performance: CEC listed (US)
 UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE / IEC 60068-2-68: SGS
 UNI 9177 Reaction to Fire: Class 1 / Take-e-way



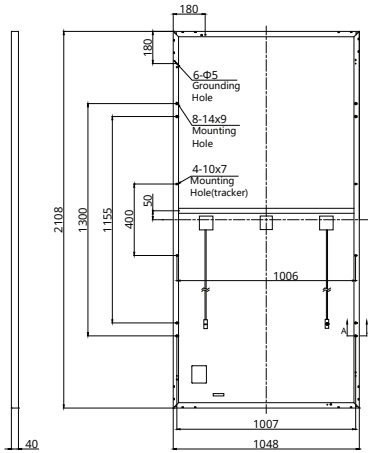
* As there are different certification requirements in different markets, please contact your local Mario Solar sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

MARIO SOLAR CO., LTD. is committed to providing high quality solar products, solar system solutions and services to customers around the world. No. 1 module supplier for quality and performance/price ratio in IHS Module Customer Insight Survey. As a leading PV project developer and manufacturer of solar modules with over 2 GW deployed around the world since 2018.

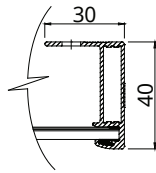
* For detail information, please refer to Installation Manual.

ENGINEERING DRAWING (mm)

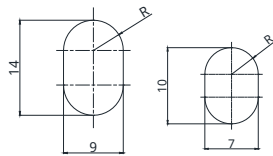
Rear View



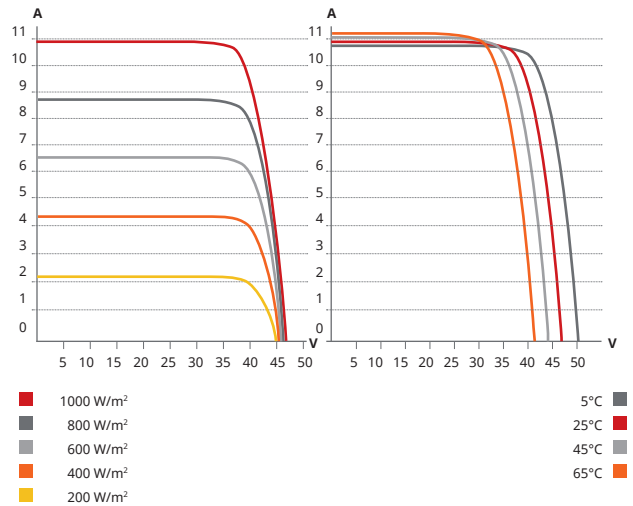
Frame Cross Section A-A



Mounting Hole



MSRH-400P / I-V CURVES



ELECTRICAL DATA | STC*

| MSRH | 395P | 400P | 405P | 410P | 415P | 420P |
|------------------------------|---|---------|---------|---------|---------|---------|
| Nominal Max. Power (Pmax) | 395 W | 400 W | 405 W | 410 W | 415 W | 420 W |
| Opt. Operating Voltage (Vmp) | 38.5 V | 38.7 V | 38.9 V | 39.1 V | 39.3 V | 39.5 V |
| Opt. Operating Current (Imp) | 10.26 A | 10.34 A | 10.42 A | 10.49 A | 10.56 A | 10.64 A |
| Open Circuit Voltage (Voc) | 47.0 V | 47.2 V | 47.4 V | 47.6 V | 47.8 V | 48.0 V |
| Short Circuit Current (Isc) | 10.82 A | 10.90 A | 10.98 A | 11.06 A | 11.14 A | 11.26 A |
| Module Efficiency | 17.9% | 18.1% | 18.3% | 18.6% | 18.8% | 19.0% |
| Operating Temperature | -40°C ~ +85°C | | | | | |
| Max. System Voltage | 1500V (IEC/UL) or 1000V (IEC/UL) | | | | | |
| Module Fire Performance | TYPE 1 (UL 1703) or CLASS C (IEC 61730) | | | | | |
| Max. Series Fuse Rating | 20 A | | | | | |
| Application Classification | Class A | | | | | |
| Power Tolerance | 0 ~ + 10 W | | | | | |

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT*

| MSRH | 395P | 400P | 405P | 410P | 415P | 420P |
|------------------------------|--------|--------|--------|--------|--------|--------|
| Nominal Max. Power (Pmax) | 294 W | 298 W | 302 W | 305 W | 309 W | 313 W |
| Opt. Operating Voltage (Vmp) | 35.8 V | 36.0 V | 36.2 V | 36.4 V | 36.6 V | 36.8 V |
| Opt. Operating Current (Imp) | 8.21 A | 8.27 A | 8.33 A | 8.39 A | 8.45 A | 8.51 A |
| Open Circuit Voltage (Voc) | 44.1 V | 44.3 V | 44.5 V | 44.7 V | 44.9 V | 45.1 V |
| Short Circuit Current (Isc) | 8.73 A | 8.79 A | 8.86 A | 8.92 A | 8.99 A | 9.08 A |

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Mario Solar co.,Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice.

Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

MECHANICAL DATA

| Specification | Data |
|------------------------------------|---|
| Cell Type | Poly-crystalline |
| Cell Arrangement | 144 [2 X (12 X 6)] |
| Dimensions | 2108 X 1048 X 40 mm (83.0 X 41.3 X 1.57 in) |
| Weight | 24.9 kg (54.9 lbs) |
| Front Cover | 3.2 mm tempered glass |
| Frame | Anodized aluminium alloy, crossbar enhanced |
| J-Box | IP68, 3 bypass diodes |
| Cable | 4 mm ² (IEC), 12 AWG (UL) |
| Cable Length (Including Connector) | Portrait: 500 mm (19.7 in) (+) / 350 mm (13.8 in) (-); landscape: 1400 mm (55.1 in); leap-frog connection: 1670 mm (65.7 in)* |
| Connector | T4 series or H4 UTX or MC4-EVO2 |
| Per Pallet | 27 pieces |
| Per Container (40' HQ) | 594 pieces |

* For detailed information, please contact your local Mario Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

| Specification | Data |
|--------------------------------------|--------------|
| Temperature Coefficient (Pmax) | -0.36 % / °C |
| Temperature Coefficient (Voc) | -0.28 % / °C |
| Temperature Coefficient (Isc) | 0.05 % / °C |
| Nominal Module Operating Temperature | 42 ± 3°C |

PARTNER SECTION



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