

# 440-460W Mono

120 Half-Cell Layout

182mm Cell



Gallium-doped Technology



Half Cut Cell Technology



MBB Technology



Anti-PID Low LID Performance



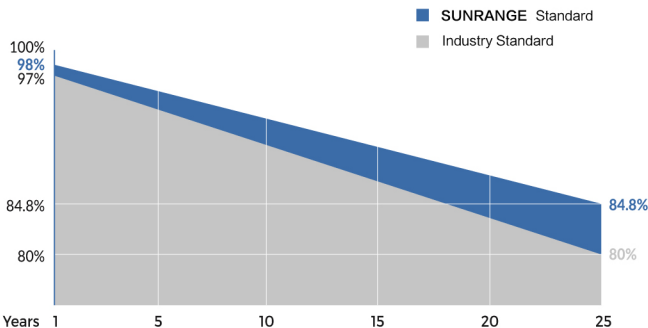
Less Hot Spot Shading Effects



Lower BOS & LCOE



## Linear Performance Warranty



\* SUNRANGE: Standard warranty 12 years, can be extended up to 15 years

## Insured By



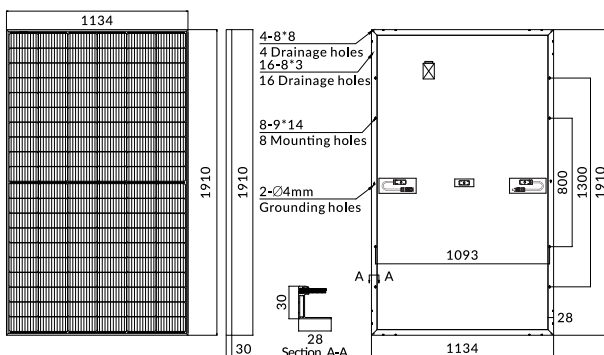
## Comprehensive Certificates

- ♦ ISO9001:2015 QMS
- ♦ ISO14001:2015 EMS
- ♦ ISO45001:2018 OHSMS
- ♦ IEC61215/IEC61730 Standard Quality
- ♦ IEC61701/IEC62716 Salt/Mist/Ammonia Tests



## MECHANICAL CHARACTERISTICS

|                      |                               |
|----------------------|-------------------------------|
| Solar Cells          | Mono                          |
| No. of Cells         | 120 (6x20)                    |
| Dimensions           | 1910 x 1134 x 30mm            |
| Weight               | 22.5kg                        |
| Front Glass          | 3.2mm coated tempered glass   |
| Frame                | Anodized aluminium alloy      |
| Junction Box         | Ip68 rated (3 by pass diodes) |
|                      | 4.0mm <sup>2</sup>            |
| Output Cables        | 300mm (+) / 300mm (-)         |
|                      | Length can be customized      |
| Connectors           | Mc4 compatible                |
| Mechanical load test | 5400Pa                        |



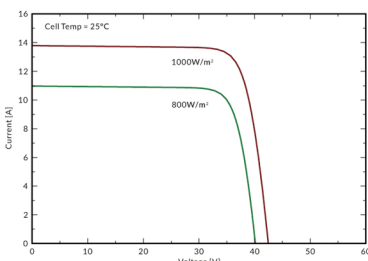
## ELECTRICAL PARAMETERS

| POWER CLASS                                             | SR60P-440M |                                                                             | SR60P-445M |        | SR60P-450M |        | SR60P-455M |        | SR60P-460M |        |
|---------------------------------------------------------|------------|-----------------------------------------------------------------------------|------------|--------|------------|--------|------------|--------|------------|--------|
|                                                         | STC        | NMOT                                                                        | STC        | NMOT   | STC        | NMOT   | STC        | NMOT   | STC        | NMOT   |
| Maximum power (Pmax)                                    | 440W       | 331W                                                                        | 445W       | 335W   | 450W       | 339W   | 455W       | 343W   | 460W       | 347W   |
| Open Circuit Voltage (Voc)                              | 41.94V     | 39.56V                                                                      | 42.12V     | 39.83V | 42.31V     | 40.09V | 42.49V     | 40.35V | 42.68V     | 40.62V |
| Short Circuit Current (Isc)                             | 13.58A     | 10.87A                                                                      | 13.65A     | 10.91A | 13.72A     | 10.95A | 13.79A     | 10.99A | 13.86A     | 11.03A |
| Voltage at Maximum power (Vmpp)                         | 34.67V     | 32.29V                                                                      | 34.87V     | 32.56V | 35.07V     | 32.82V | 35.27V     | 33.08V | 35.47V     | 33.33V |
| Current Maximum Power (Impp)                            | 12.69A     | 10.25A                                                                      | 12.76A     | 10.29A | 12.83A     | 10.33A | 12.90A     | 10.37A | 12.97A     | 10.41A |
| MODULE EFFICIENCY (%)                                   | 20.31%     |                                                                             | 20.55%     |        | 20.78%     |        | 21.01%     |        | 21.24%     |        |
| STC: Irradiance 1000W/m², cell temperature 25°C, AM1.5G |            | NMOT: Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G |            |        |            |        |            |        |            |        |

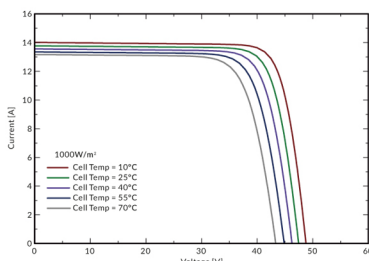
## PACKING CONFIGURATION

|                       |       |       |
|-----------------------|-------|-------|
| Container             | 20'GP | 40'HQ |
| Pieces per pallet     | 36    | 36    |
| Pallets per container | 6     | 24    |
| Pieces per container  | 216   | 864   |

## I-V CURVE



## SR60P-455M



## OPERATING CHARACTERISTICS

|                              |                |
|------------------------------|----------------|
| Operating Module Temperature | -40°C to +85°C |
| Maximum System Voltage       | 1500 DC (IEC)  |
| Maximum Series Fuse Rating   | 25A            |
| Power Tolerance              | 0/+5W          |

## TEMPERATURE CHARACTERISTICS

|                                      |           |
|--------------------------------------|-----------|
| Nominal Operating Temperature (NMOT) | 45±2°C    |
| Temperature Coefficient of Pmax      | -0.36%/°C |
| Temperature Coefficient of Voc       | -0.28%/°C |
| Temperature Coefficient of Isc       | +0.05%/°C |

**Note:** The specifications, data and technical characteristics provided in this data sheet are subject to changes due to continuous R&D, product innovation and improvement. SUNRANGE reserves the right to modify the information any time without prior notice.

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