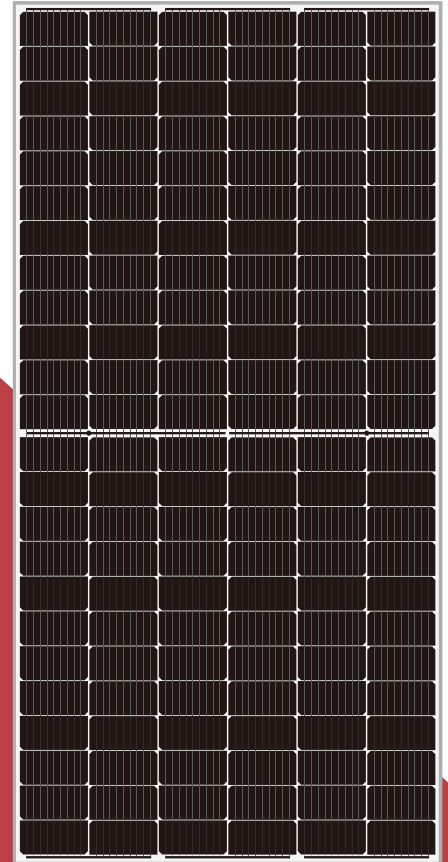


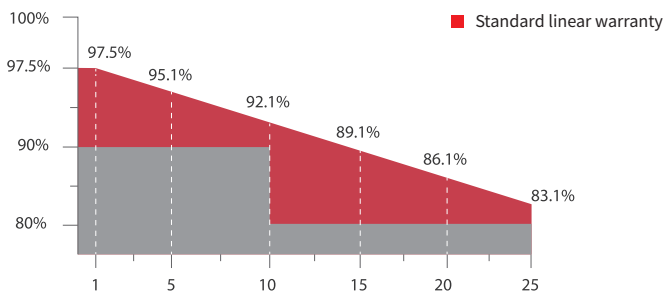
SPAR-166-450W

440-460W Mono

Suitable for ground power plants and large projects.
166mm silicon wafers with multi-busbar and half-cut cell technologies. Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas. High module quality ensures long-term reliability.



Linear performance Warranty



Linear performance warranty



Product warranty

Comprehensive Certificates

- IEC61215/IEC61730
- ISO9001:Quality Management System
- ISO14001:Environmental Management System
- ISO45001:Occupational Health and Safety Management System



SPAR-166-450W

Electrical Specification (STC*)

| | | | | | | |
|------------------------|----------------------|-------|-------|-------|-------|-------|
| Maximum Power | P _{max} (W) | 440 | 445 | 450 | 455 | 460 |
| Maximum Power Voltage | V _{mp} (V) | 41.40 | 41.75 | 42.10 | 42.45 | 42.80 |
| Maximum Power Current | I _{mp} (A) | 10.63 | 10.66 | 10.69 | 10.72 | 10.75 |
| Open Circuit Voltage | V _{oc} (V) | 49.25 | 49.55 | 49.84 | 50.13 | 50.42 |
| Short Circuit Current | I _{sc} (A) | 11.14 | 11.17 | 11.20 | 11.23 | 11.26 |
| Module Efficiency | (%) | 20.3 | 20.5 | 20.7 | 20.9 | 21.2 |
| Power Output Tolerance | (W) | | | | | 0~+5 |

* Irradiance 1000W/m², Module Temperature 25°C, Air Mass 1.5

Electrical Specification (NOCT*)

| | | | | | | |
|-----------------------|----------------------|--------|--------|--------|--------|--------|
| Maximum Power | P _{max} (W) | 326.08 | 329.78 | 333.48 | 337.26 | 340.94 |
| Maximum Power Voltage | V _{mp} (V) | 37.90 | 38.10 | 38.30 | 38.50 | 38.70 |
| Maximum Power Current | I _{mp} (A) | 8.61 | 8.66 | 8.71 | 8.76 | 8.81 |
| Open Circuit Voltage | V _{oc} (V) | 46.30 | 46.50 | 46.70 | 46.90 | 47.10 |
| Short Circuit Current | I _{sc} (A) | 9.13 | 9.20 | 9.26 | 9.32 | 9.38 |

* Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Temperature Ratings

| | |
|---|-----------|
| Nominal Operating Cell Temperature [NOCT] | 44±2°C |
| Temperature Coefficient of I _{sc} | +0.06%/°C |
| Temperature Coefficient of V _{oc} | -0.30%/°C |
| Temperature Coefficient of P _{MAX} | -0.39%/°C |

Maximum Ratings

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

Packaging Configuration

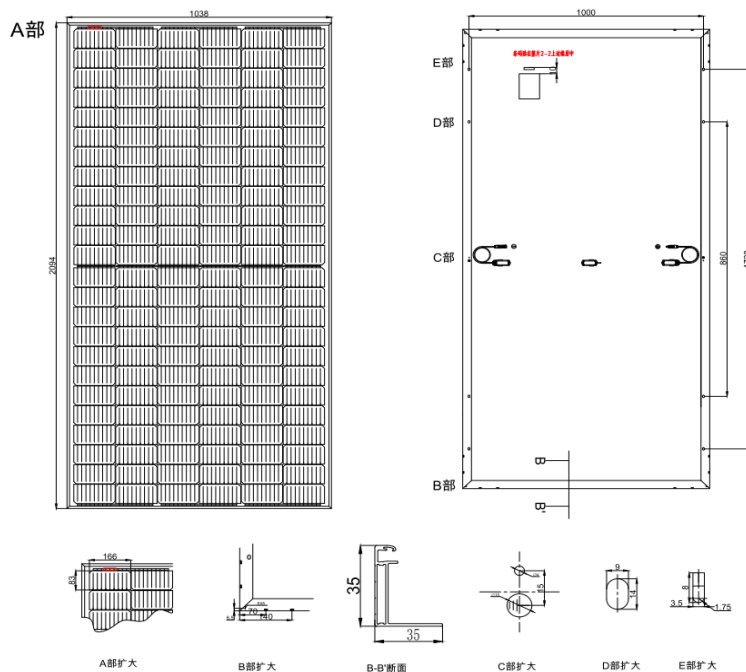
| | |
|--------------------------|------------|
| Module per box | 31 pieces |
| Module per 40' container | 682 pieces |

Mechanical Data

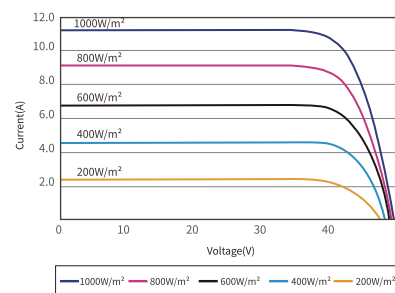
| | |
|---------------------------------|--|
| Number of Cells | 144 Cells (6×24) |
| Dimensions of Module L*W*H (mm) | 2094×1038×35mm (82.44×40.86×1.38 inches) |
| Weight (kg) | 24.3kg |
| Glass | High transparency solar glass 3.2mm (0.13 inches) |
| Backsheet | White |
| Frame | Silver, anodized aluminium alloy |
| J-Box | IP68 Rated |
| Cable | 4.0mm ² (0.006 inches ²), 300mm (11.8 inches) |
| Number of diodes | 3 |
| Wind/ Snow Load | 2400Pa/ 5400Pa* |
| Connector | MC Compatible |

* For more details please check the installation manual

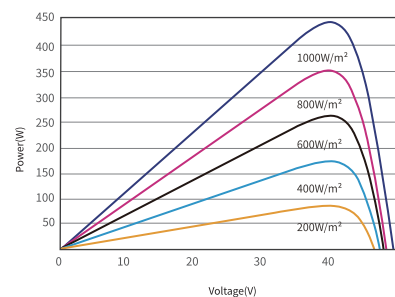
ENGINEERING DRAWINGS



IV CURVES



I-V CURVES OF PV MODULE(445W)



P-V CURVES OF PV MODULE(445W)