

UNI-450-120M-BB

450W

Highest power output

21.46%

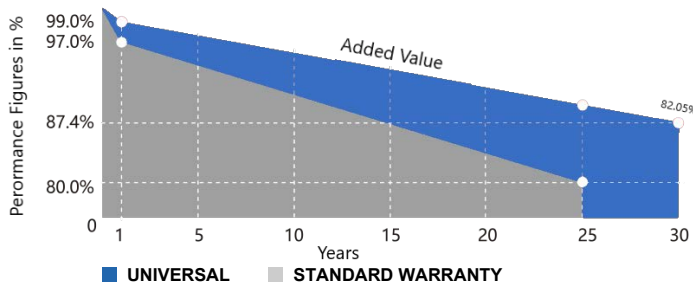
Module Efficiency

25 years

Material & Workmanship warranty

30 years

Linear power output warranty



PERC cell technology



Higher output power



Lower risk of micro-crack



Positive tolerance offer



Lower risk of hot spot



Better shading tolerance



Certified for salt/ammonia corrosion resistance



Load specifications: Wind to 5400Pa and snow to 5400Pa



Lower LCOE

Universal Solar is committed to providing readily available, high-quality, renewable energy products and services at competitive prices. This includes modules made in Panama, which are manufactured to the highest standards with all Tier 1 BOM, utilizing fully automated high-tech manufacturing lines.

PRODUCT CERTIFICATIONS:

- IEC 61215:2016, IEC 61730:2016, UL 61730
- UL61730/CSA/CEC
- ISO9001:2008 Quality Standards



Electrical Characteristics at Standard Test Conditions (STC)

| Module Type | UNI-460-120M-BB | UNI-455-120M-BB | UNI-450-120M-BB | UNI-445-120M-BB |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|
| Maximum Power - Pmax (W) | 460 | 455 | 450 | 445 |
| Open Circuit Voltage - Voc (V) | 42.5 | 42.3 | 42.1 | 41.9 |
| Short Circuit Current - Isc (A) | 13.71 | 13.63 | 13.56 | 13.48 |
| Maximum Power Voltage - Vmpp (V) | 35.4 | 35.2 | 35 | 34.8 |
| Maximum Power Current - Imp (A) | 13 | 12.93 | 12.86 | 12.79 |
| Module Efficiency | 21.46% | 21.23% | 20.99% | 20.76% |

Standard Test Conditions(STC): irradiance 1,000W/m²; AM1,5; module temperature 25°C. Pmax Sorting: 0~5W. Measuring Tolerance: ±3%.
Remark: Electrical data do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

Electrical Characteristics at Normal Operating Cell Temperature (NOCT)

| Module Type | UNI-460-120M-BB | UNI-455-120M-BB | UNI-450-120M-BB | UNI-445-120M-BB |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|
| Maximum Power - Pmax (W) | 339.5 | 335.8 | 332.1 | 328.4 |
| Open Circuit Voltage - Voc (V) | 39.7 | 39.5 | 39.4 | 39.2 |
| Short Circuit Current - Isc (A) | 11.07 | 11.01 | 10.95 | 10.89 |
| Maximum Power Voltage - Vmpp (V) | 33 | 32.8 | 32.7 | 32.5 |
| Maximum Power Current - Imp (A) | 10.29 | 10.23 | 10.17 | 10.11 |

Normal Operating Cell Temperature (NOCT): irradiance 800W/m²; wind speed 1m/s; ambient temperature 20°C. Measuring Tolerance: ±3%.

Temperature Characteristics

| | |
|---------------------------------|-------------|
| NOCT | 45°C (±2°C) |
| Voltage Temperature Coefficient | -0.27%/°C |
| Current Temperature Coefficient | +0.048%/°C |
| Power Temperature Coefficient | -0.32%/°C |

Maximum Ratings

| | |
|----------------------------|------|
| Maximum System Voltage [V] | 1500 |
| Series Fuse Rating [A] | 30 |

Material Characteristics

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|------------------------------|--|
| Dimensions | 1914 × 1133 × 35mm (L×W×H) |
| Weight | 24.0kg |
| Frame | Black anodized aluminum profile |
| Front Glass | White toughened safety glass, 3.2mm |
| Cell Encapsulation | EVA (Ethylene-Vinyl-Acetate) |
| Back Sheet | Composite film |
| Cells | 12×10 pieces monocrystalline solar cells series strings |
| Junction Box | IP68, 3 diodes |
| Cable & Connector | Potrait: 500mm (cable length can be customized), 1×4 mm ² , compatible with MC4 |

Packaging

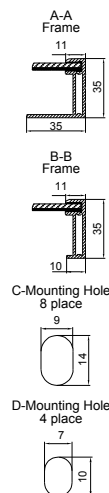
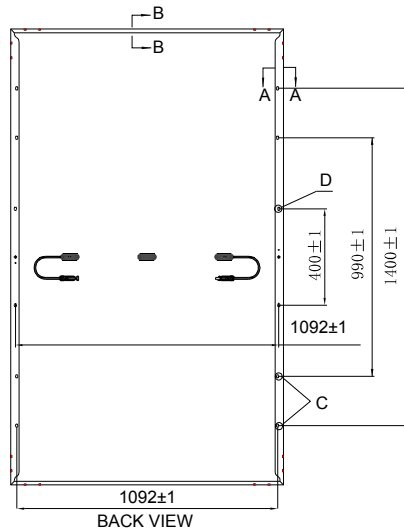
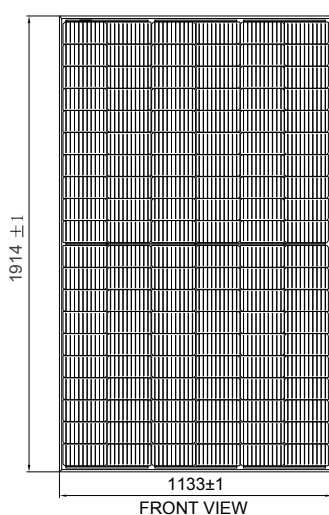
| | |
|---------------------------|------------------|
| Dimensions (L×W×H) | 1943×1130×1253mm |
| Container 20' | 155 |
| Container 40' | 372 |
| Container 40'HC | 744 |

System Design

| | |
|----------------------|--|
| Temperature Range | -40°C to +85°C |
| Withstanding Hail | Maximum diameter of 25mm with impact speed of 23 m/s-1 |
| Maximum Surface Load | 5,400 Pa |
| Application Class | class A |

Dimensions

Note:mm



IV-Curves

