An U.S. Branded Module

| MAXIMUM EFFICIENCY % | POSITIVE POWER TOLERANCE WP | CELLS | MODULE TECHNOLOGY |
|---|---|---|---|
| 21.20 | 0~+5.00 | G12 120 | HALF CUT & MICRO GAP DESIGN<br>WITH IMPROVED SHADE TOLERANCE |

### SMBB Techology

Better light trapping and current collection to improve module power output and reliability.

### Low electricity generation costs

Optimized module layout to boost module power and improve LCOE.

### PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

### Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

2400 Pa
5400 Pa

### Durability Against Extreme Environmental Conditions

High saltmist and ammonia resistance.

### Better Shadow Performance

Implmentation of bypass diodes in split JB series-parallel

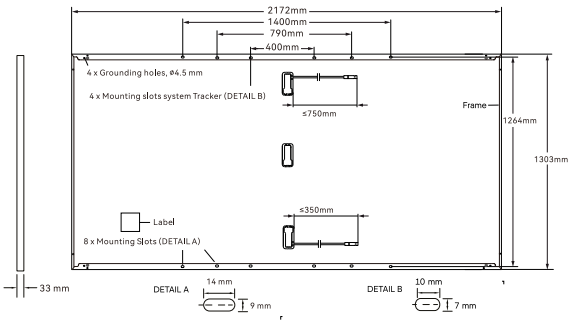
The ideal solution for

Ground mounted solar power plants

# SR5-60HBD 580-600M

## ■ Merchanical Specification

| | |
|---|---|
| Dimension | 2172x1303x33mm (85.51×51.30×1.30 in) |
| Weight | 34.9kg |
| Front Cover | 2.0 mm (0.08 in) tempered glass , Anti-Reflection Coated |
| Back Cover | 2.0 mm (0.08 in), Heat Strengthened Glass |
| Frame | Anodized Aluminium Alloy |
| Cell | P-Type G12 Monocrystalle |
| Junction Box | Protection class IP67, with bypass diodes |
| Cable | 4mm² Solar Cable, (+)≤29.5 in (750 mm) (-)≤13.8 in (350 mm) |
| Connector | MC 4 or MC 4 Compatible; -IP68 |



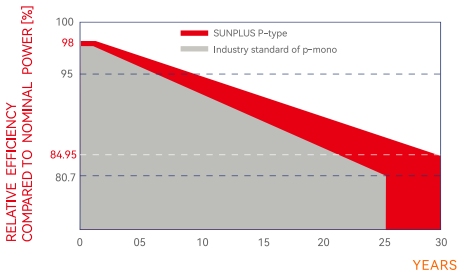

Drawing not to scale

## ■ Electrical Characteristics

| POWER CLASS | | | | 580 | | 585 | | 590 | | 595 | | 600 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5W / -0W) | | | | | BSTC | | BSTC | | BSTC | | BSTC | | BSTC |
| Minimum | Power at MPP | $P_{MPP}$ | [W] | 580 | 626 | 585 | 631 | 590 | 637 | 595 | 642 | 600 | 647 |
| | Short Circuit Current | $I_{SC}$ | [A] | 18.27 | 19.54 | 18.32 | 19.59 | 18.37 | 19.65 | 18.42 | 19.71 | 18.47 | 19.77 |
| | Open Circuit Voltage | $V_{OC}$ | [V] | 40.5 | 41.1 | 40.7 | 41.3 | 40.9 | 41.5 | 41.1 | 41.7 | 41.3 | 41.9 |
| | Current at MPP | $I_{MPP}$ | [A] | 17.02 | 18.41 | 17.06 | 18.46 | 17.11 | 18.51 | 17.15 | 18.55 | 17.2 | 18.61 |
| | Voltage at MPP | $V_{MPP}$ | [V] | 34.1 | 34.0 | 34.3 | 34.2 | 34.5 | 34.4 | 34.7 | 34.6 | 34.9 | 34.8 |
| | Efficiency | η | [%] | 20.5 | | 20.7 | | 20.8 | | 21.0 | | 21.2 | |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS NMOT[2] | | | | | | | | | | | | | |
| Minimum | Power at MPP | $P_{MPP}$ | [W] | 443 | | 447 | | 451 | | 454 | | 458 | |
| | Short Circuit Current | $I_{SC}$ | [A] | 14.72 | | 14.76 | | 14.80 | | 14.84 | | 14.89 | |
| | Open Circuit Voltage | $V_{OC}$ | [V] | 38.7 | | 38.9 | | 39.1 | | 39.3 | | 39.5 | |
| | Current at MPP | $I_{MPP}$ | [A] | 13.97 | | 14.01 | | 14.06 | | 14.10 | | 14.14 | |
| | Voltage at MPP | $V_{MPP}$ | [V] | 31.7 | | 31.9 | | 32.0 | | 32.2 | | 32.4 | |

[1]Measurement tolerances $P_{MPP}$ ± 3 %; $I_{SC}$; VOC ± 5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

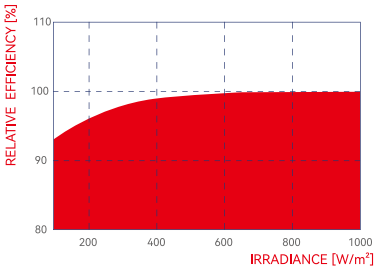
### MODULE PERFORMANCE WARRANTY




At least 98 % of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 93 % of nominal power up to 10 years. At least 84.95 % of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the FutureSolar sales organisation of your respective country.

### PERFORMANCE AT LOW IRRADIANCE




Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

### TEMPERATURE COEFFICIENTS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Temperature Coefficient of $I_{SC}$ | α | [% / K] | +0.045 | Temperature Coefficient of $V_{OC}$ | β | [% / K] | -0.26 |
| Temperature Coefficient of $P_{MPP}$ | γ | [% / K] | -0.34 | Nominal Module Operating Temperature | NMOT | [°C] | 43±3 |

## ■ Properties for system Design

| | | | | | |
|---|---|---|---|---|---|
| Maximum System Voltage | $V_{SYS}$ | 1000/1500VDC (IEC) | PV module classification | | Class II |
| Maximum Reverse Current | $I_R$ | 35A | Fire Rating based UL61730 | | Type 29 |
| Max. Design Load, Push / Pull | | 5400 / 2400 | Permitted Module Temperature on Continuous Duty | | -40~+85°C |
| Max. Test Load, Push / Pull | | 8100 / 4000 | | | |

## ■ Qualifications and Certificates

Quality Controlled PV - CSA;
UL 61730-1;
UL 61730-2.

C SA US

## Packaging Information

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vertical packaging | 1330 mm | 1055 mm | 2300 mm | 1120 kg | 20 pallets | 18 pallets | 31 modules |



**SUNPLUS pursues minimizing paper output in consideration of the global environment**

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