SolarSpace
中润光能

Lumina II

SSA-48HDB 430-450N

All Black Module

450W
Maximum
Power Output

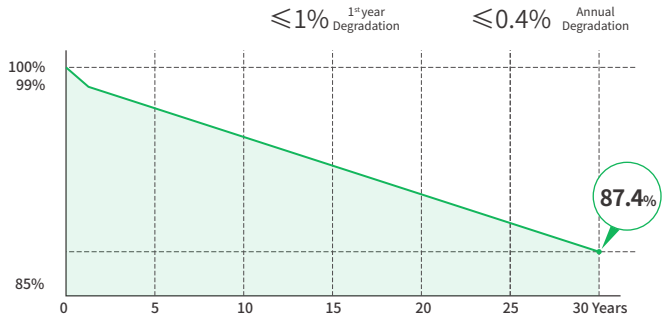
22.52%
Maximum
Module Efficiency

Super Power Output
SolarSpace advanced N-Type cells combined with MBB and high-density encapsulation provides ultra-high power output

High Reliability
Excellent harsh tests results and advanced half-cell tech improve product reliability for long-term life cycle

Extra power generation
N-type wafers and cells bring ultralow LID&LeTID degradation, less than 1% 1st year degradation guaranteed, in addition lower temperature coefficient and better weak-light response provide extra power generation

High ROI
Bifacial power generation reduces BOS and system LCOE dramatically, promoting the project ROI



12 Years Product Warranty **30** Years Linear Power Warranty

Comprehensive Certificates

- IEC61215
- IEC61730
- UL61215
- UL61730
- IEC61701:Salt mist corrosion test
- IEC62716:Ammonia corrosion test
- IEC60068:Dust and Sand test
- ISO9001:2015: Quality Management System
- ISO14001:2015: Environment Management System
- ISO45001:2018: Occupational Health and Safety Management Systems

SolarSpace Technology Co., Ltd. was established in 2011, as a world leading solar cell and module manufacturer, concentrating on high efficient solar-technology production with 60GW+ capacity of solar cell and 7.2GW capacity of solar module in China and overseas.

*Please refer to SolarSpace for details

Electric Characteristics (STC)

Module Type	SSA-48HDB -430N	SSA-48HDB -435N	SSA-48HDB -440N	SSA-48HDB -445N	SSA-48HDB -450N
Maximum Power (Pmax) [W]	430	435	440	445	450
Open-Circuit Voltage (Voc)[V]	34.48	34.66	34.84	35.02	35.20
Maximum Power Voltage (Vmp) [V]	29.37	29.55	29.73	29.91	30.09
Short-Circuit Current (Isc)[A]	15.84	15.89	15.94	15.99	16.04
Maximum Power Current (Imp) [A]	14.65	14.73	14.81	14.89	14.97
Module Efficiency	21.52%	21.77%	22.02%	22.27%	22.52%

Irradiation 1000W/m², Cell Temperature 25°C, AM=1.5

Bifacial Output-Rearside Power Gain (445W)

Power Gain	5%	10%	15%	20%	25%
Maximum Power (Pmax) [W]	467	490	512	534	556
Open-Circuit Voltage (Voc)[V]	35.02	35.02	35.02	35.12	35.12
Maximum Power Voltage (Vmp) [V]	29.91	29.91	29.91	30.01	30.01
Short-Circuit Current (Isc)[A]	16.79	17.59	18.39	19.19	19.99
Maximum Power Current (Imp) [A]	15.62	16.37	17.11	17.79	18.54

Electric Characteristics (NMOT)

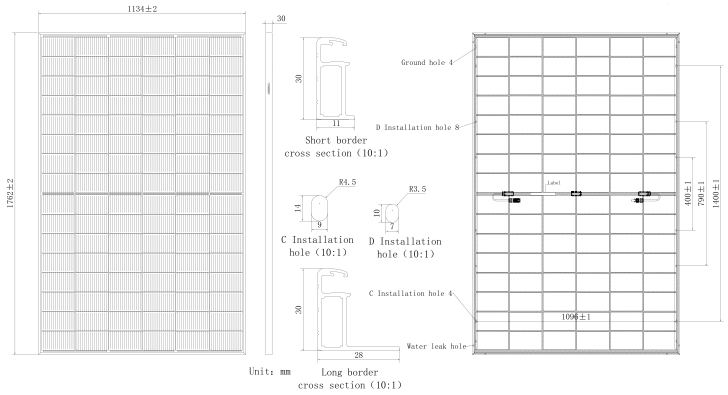
Module Type	SSA-48HDB -430N	SSA-48HDB -435N	SSA-48HDB -440N	SSA-48HDB -445N	SSA-48HDB -450N
Maximum Power (Pmax) [W]	323	327	331	335	339
Open-Circuit Voltage (Voc)[V]	32.60	32.80	33.00	33.10	33.30
Maximum Power Voltage (Vmp) [V]	27.20	27.50	27.70	27.90	28.00
Short-Circuit Current (Isc)[A]	12.80	12.90	12.90	12.90	13.00
Maximum Power Current (Imp) [A]	11.90	11.90	12.00	12.00	12.10

Irradiance 800 W/m² , Ambient Temperature 20 °C, Wind Speed 1 m/s, AM=1.5

Temperature coefficients

Temperature coefficient of Isc	+0.045%/°C
Temperature coefficient of Voc	-0.260%/°C
Temperature coefficient of Pmax	-0.290%/°C
NMOT	45±2°C

Engineering Design

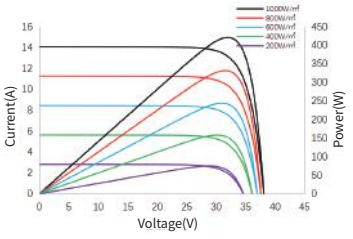


Mechanical Characteristics

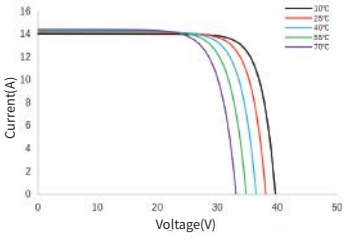
Cell Type	N-Type
Number of Cells	96(6x16)
Dimensions	1762X1134X30mm
Weight	24.5kg
Glass	Front glass, 2.0mm coated semi-tempered glass
	Back Glass, 2.0mm glazed semi-tempered glass
Frame	Black, Anodized Aluminum Alloy
Output Cables	4mm²(IEC),12AWG(UL), 300mm(including connector) or Customized Length
Junction Box	IP68 Rated, 3 diodes
Connector	MC4-EVO2 or MC4 Compatible
Packaging	36 Pieces/Pallet, 936 pieces/40' container

Characteristics

I-V/P-V Curve at Different Irradiation
SSA-48HDB-445N



I-V Curve at Different Temperature
SSA-48HDB-445N



Operating Conditions

Maximum System Voltage	1500V DC (IEC)
Power Tolerance	0~+3%
Operating Temperature	-40°C~+85°C
Maximum Series Fuse Rating	30A
Mechanical Load Front Rear	5400Pa
Mechanical Load Back Rear	2400Pa
Bifaciality	80±10%