

# Black Jade Harmony series

## 470~485Watt

UL-\*\*\*M-108CDGBH (Full Black design)

- ▶ **Extreme Efficiency, 23.8%+**
- ▶ **High Power Generation**  
Leading HPBC2.0 technology, more power generation under the same area
- ▶ **Low Carbon and Environmentally Friendly**  
Low carbon for the whole lifecycle process, more environmentally friendly
- ▶ **Safety Function**  
Anti-Shading and Prevent Localized Overheating
- ▶ **Pure Black Appearance**  
No gridlines, low glare

### Complete System and Product Certifications

IEC61215, IEC 61730

ISO9001: Quality Management System

ISO14001: Environment Management System

ISO45001: Occupational Health and Safety Management System

IEC62941: Quality System for PV Module Manufacturing

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30

30-Year Warranty for Materials and Processing

30

30-Year Warranty for Extra Linear Power Output



**23.8%**  
MAX MODULE  
EFFICIENCY

**0~3%**  
POWER  
TOLERANCE

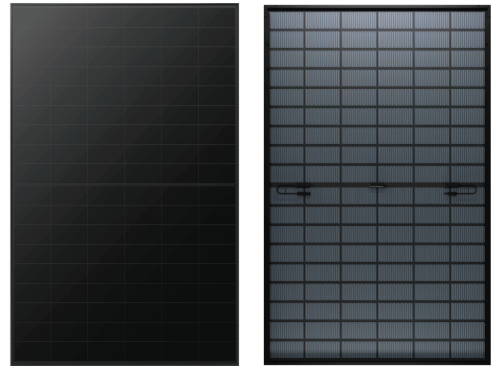
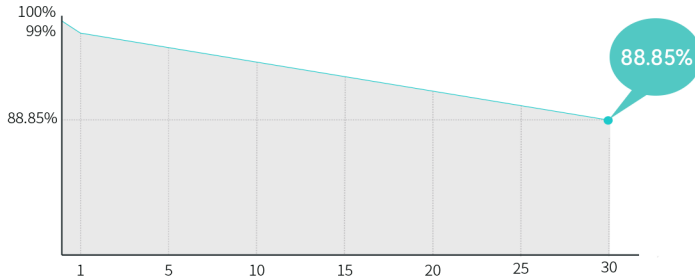
**<1%**  
FIRST YEAR  
POWER DEGRADATION

**0.35%**  
YEAR 2-30  
POWER DEGRADATION

**BC-CELL**  
LOWER OPERATING  
TEMPERATURE

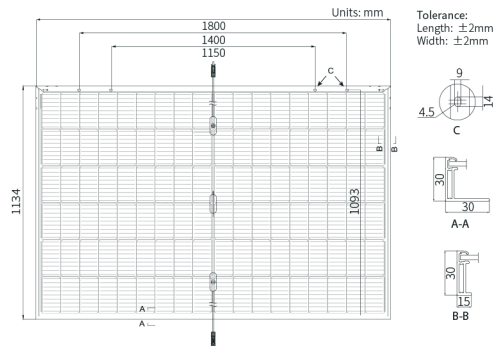
### Additional Value

#### 30-Year Power Warranty



### Mechanical Parameters

Cell Orientation	108 (6×18)
Junction Box	IP68
Output Cable	4mm <sup>2</sup> , +400, -200mm/±1200mm length can be customized
Glass	Double glass 2.0mm semi-tempered glass+1.6mm semi-tempered glass
Frame	Black anodized aluminum alloy frame
Weight	23.5kg
Dimension	1800×1134×30mm
Packaging	36pcs per pallet / 216pcs per 20' GP / 864pcs per 40' HC



### Electrical Characteristics

STC: AM1.5 1000W/m<sup>2</sup> 25°C

NOCT: AM1.5 800W/m<sup>2</sup> 20°C 1m/s

Test uncertainty for Pmax: ±3%

Module Type	UL-470M-108CDGBH		UL-475M-108CDGBH		UL-480M-108CDGBH		UL-485M-108CDGBH	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	470	357	475	361	480	365	485	369
Open Circuit Voltage (Voc/V)	40.31	38.28	40.42	38.39	40.53	38.50	40.64	38.61
Short Circuit Current (Isc/A)	14.78	11.84	14.88	11.93	14.98	12.02	15.08	12.10
Voltage at Maximum Power (Vmp/V)	33.29	31.6	33.40	31.71	33.51	31.82	33.62	31.93
Current at Maximum Power (Imp/A)	14.13	11.3	14.23	11.39	14.33	11.48	14.43	11.56
Module Efficiency(%)	23.0		23.3		23.5		23.8	

### Electrical characteristics with different rear side power gain (reference to 470W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
494	40.31	15.52	33.29	14.82	5%
517	40.31	16.26	33.29	15.53	10%
541	40.41	17.00	33.39	16.19	15%
564	40.41	17.74	33.39	16.89	20%
588	40.41	18.48	33.39	17.60	25%

### Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC)
Maximum Series Fuse Rating	30A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	IEC Class C

### Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

### Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.200%/°C
Temperature Coefficient of Pmax	-0.260%/°C



Specifications included in this datasheet are subject to change without notice.

Ulica Solar reserves the right of final interpretation.

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Website