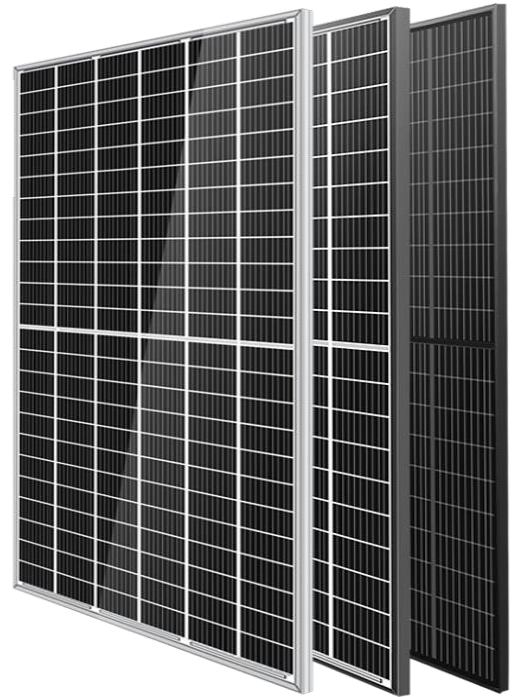


COULEE ULTRA SOLAR MODULE

Mono PERC Half-cut Cell Series



72 × 2 CELL
MONOCRYSTALLINE MODULE

430-450W
POWER OUTPUT RANGE

20.4%
MAXIMUM EFFICIENCY

0 - +3%
POSITIVE POWER TOLERANCE



Coulee Ultra is the top performance reference solar module series. Based on the advanced mono wafer and PERC Half-cut technology, Ultra offers as much power as 450W with outstanding cell efficiency up to 22.3% and module efficiency 20.4%

Thanks to the Half-Cut technology, the cell internal resistance is reduced, which provides an additional module power even while shading, cloudy weather, and in low light conditions.

9BB cells: More uniform current collection capability, reducing the current heat loss of the internal cells.

Product Certificates

IEC/EN 61215, IEC/EN 61730



CAUTIONS:
READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE
USING THE PRODUCT.

Ideal For Large Scale Installations

- Reduce BOS cost by connecting more modules in a string
- Up to 1500VDC system voltage

Maximum Limited Space

- Up to 204W/m² power density

Highly Reliable Due to Stringent Quality Control

- Over 30 in-house tests (UV, TC, HF, etc.)
- In-house testing goes well beyond certification requirements
- Fire Class A tested
- 100% EL double inspection

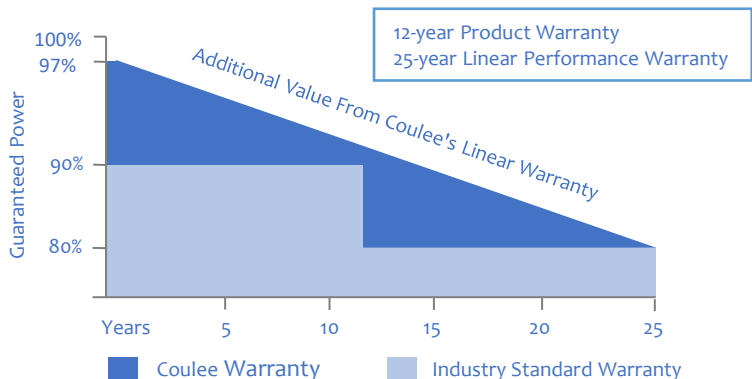
Severe Weather Resilience

- 2400Pa wind load
- 5400Pa snow load
- 35mm hail stones at 97km/h

Reduced Hot Spot Risk

- With optimized electrical design and lower operating current

Linear Performance Warranty



12-year Product Warranty
25-year Linear Performance Warranty

Additional Value From Coulee's Linear Warranty

■ Coulee Warranty ■ Industry Standard Warranty

Construction Materials

Front Glass	3.2mm, Low Iron, Tempered Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68 Rated
Output Cables	4mm ² , Landscape: 1300mm, Portrait: N 150mm/P 300mm
Connector	MC4 Compatible
Encapsulation Material	EVA
Backsheet	TPT (White OR Black)
Fixing Adhesive	Silicone Sealant

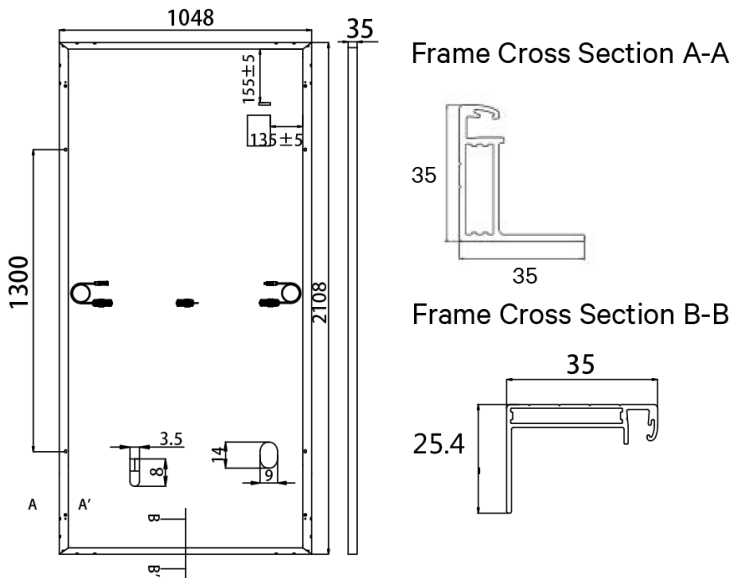
Mechanical Data

Solar Cells	Mono 166mm × 83mm
Number of Cells	72 × 2pcs
Module Dimensions	2108mm × 1048mm × 35mm
Weight	24.1kg

Temperature Coefficient

Power Tolerance	0 ~ +3%
Temperature Coefficient of Pmax	-0.36%/°C
Temperature Coefficient of Voc	-0.28%/°C
Temperature Coefficient of Isc	+0.05%/°C
NOTC	(45 ± 2) °C

Mechanical Diagrams



Operating Conditions

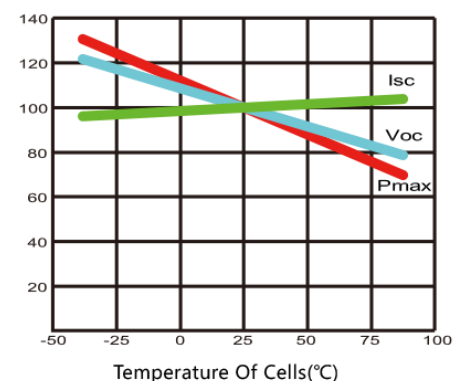
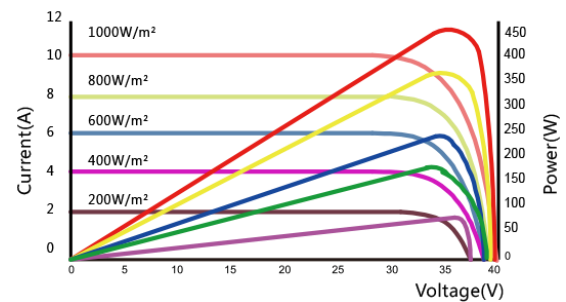
Max. System Voltage	1500VDC (IEC)
Max. System Fuse Rating	20A
Operating Temperature	-40 ~ +85°C
Max. Static Load, Front (Snow)	5400Pa
Max. Static Load, Back (Wind)	2400Pa

Electrical Parameters at STC

Module type	CLM-450M-72 Series				
Rated Maximum Power (Pmax/W)	430	435	440	445	450
Maximum Power Voltage (Vmp/V)	40.6	40.8	41.0	41.2	41.4
Open-circuit Voltage (Voc/V)	49.2	49.4	49.6	49.8	50.0
Maximum Power Current (Imp/A)	10.61	10.67	10.74	10.81	10.88
Short-circuit Current (Isc/A)	11.19	11.26	11.33	11.40	11.47
Module Efficiency (%)	19.5	19.7	19.9	20.1	20.4

STC: Irradiance 1000W/m, Cell Temperature 25°C, AM = 1.5

IV Curves



Packaging Configuration

Pieces Per Pallet: 66 | Pallets Per 40HQ: 11 | Pieces Per 40HQ: 726