

415W-435W

CMD-108BDE

22.31%
MAXIMUM EFFICIENCY

108
HALF CELLS

- ◆ N-type cell technology
- ◆ High efficiency and power output
- ◆ Cost-effective scalability and market dominance
- ◆ Low degradation and high durability
- ◆ No LID or LeTID



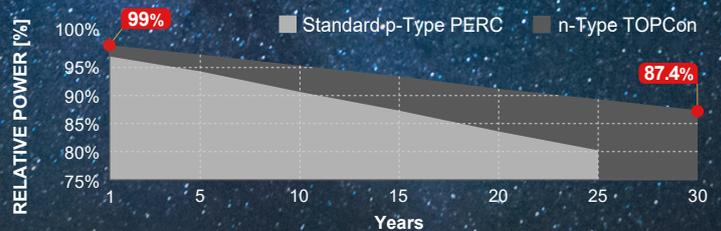
Ver. 25.9.1

30 YEARS
Performance Warranty

up to **30 YEARS***
Product Warranty

*The regular product warranty is 15 years, please refer to the latest version of AESOLAR Limited Warranty for the duration of the product warranty under special conditions. For extensions, please contact AESOLAR staff.

OUR PERFORMANCE WARRANTY



LID
RESISTANT



PID
RESISTANT



SALT CORROSION
RESISTANT



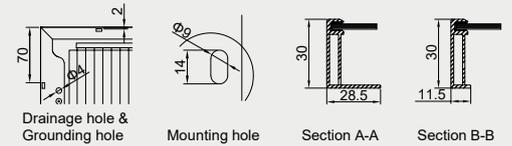
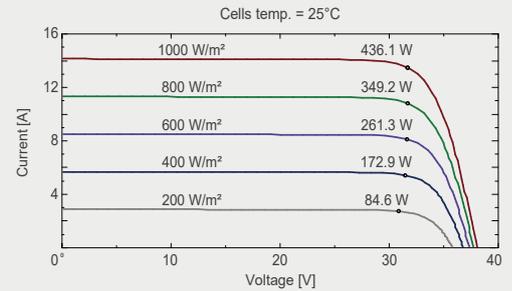
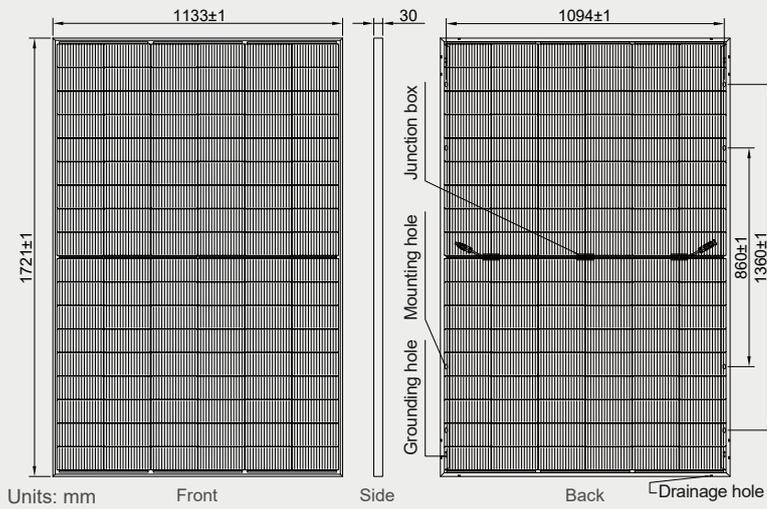
SAND
RESISTANT



AMMONIA
RESISTANT



HIGHLY STABLE
AND TOUGH



Electrical specifications (STC*):

Parameter	Symbol	415	420	425	430	435
Nominal max. power	P_{max} (Wp)	415	420	425	430	435
Maximum operating voltage	V_{MPP} (V)	32.04	32.25	32.43	32.64	32.84
Maximum operating current	I_{MPP} (A)	12.95	13.02	13.11	13.17	13.25
Open-circuit voltage	V_{oc} (V)	37.86	38.08	38.26	38.46	38.66
Short-circuit current	I_{sc} (A)	13.70	13.79	13.89	13.98	14.06
Module efficiency	η (%)	21.28	21.54	21.80	22.05	22.31
Power tolerance	(W)	0~+5				
Maximum system voltage	(V)	1500				
Maximum series fuse rating	(A)	25				

*STC: Standard Test Conditions (irradiance 1000 W/m², cell temperature 25°C and air mass of AM1.5), measurement tolerance P_{max}: ±3%

Electrical specifications (NMOT*):

Parameter	Symbol	315	320	325	330	335
Nominal max. power	P_{max} (Wp)	315	320	325	330	335
Maximum operating voltage	V_{MPP} (V)	30.02	30.34	30.62	30.93	31.22
Maximum operating current	I_{MPP} (A)	10.49	10.55	10.62	10.67	10.73
Open-circuit voltage	V_{oc} (V)	35.48	35.82	36.12	36.44	36.76
Short-circuit current	I_{sc} (A)	11.10	11.17	11.25	11.32	11.39

*NMOT: Normal Module Operating Temperature (irradiance 800 W/m², ambient temperature 20°C, air mass of AM1.5 and wind speed of 1 m/s)

Bifacial electrical specifications

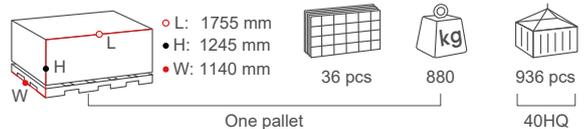
Parameter	415	420	425	430	435
Max. power front-side	415	420	425	430	435
P_{max} front (Wp)					
Backside Power Gain	5% 10%	5% 10%	5% 10%	5% 10%	5% 10%
Total equivalent power	436 457	441 462	446 468	452 473	457 479
P_{max} equ (Wp)					
Module efficiency	22.35 23.41	22.62 23.69	22.89 23.98	23.16 24.26	23.42 24.54
η (%)					

*Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on the mounting (structure, height, tilt angle, etc.) and albedo of the ground.

Mechanical and design specification

Cell type	n-Type TOPCon technology, half-cut cells
No. of cells	108
Bifaciality	80 ± 5%
Front cover	2.0 mm glass, high transmission, AR coated, tempered
Encapsulation	POE
Back cover	2.0 mm black glazed glass, tempered
Junction box	IP68 rated, 3 bypass diodes
Frame	30 mm anodized aluminium alloy
Cable (Including Connector)	1 x 4 mm ² , 350 mm length or customized
Connectors	MC 4 / MC 4 compatible
Dimension	1721 mm x 1133 mm x 30 mm
Weight	23.5 kg
Hail resistance	Max. Ø 25 mm at 23 m/s
Wind load	2400 Pa or 244 kg/m ²
Snow load	5400 Pa or 550 kg/m ²
Fire rating	Class A (according to UL 790)

Packaging information



Temperature ratings

Operating temperature	-40 to +85°C
Temp. coefficient of P_{max}	-0.29 %/°C
Temp. coefficient of V_{oc}	-0.25 %/°C
Temp. coefficient of I_{sc}	0.046 %/°C
Nom. operating cell temp. NOCT	42 ± 2°C

SYSTEM AND PRODUCT CERTIFICATIONS



IEC 61215 IEC 61730
Regular Production Surveillance
www.tuv.com

IEC 62716 (Ammonia corrosion)
IEC 61701 (Salt mist corrosion)
IEC 60068 (Sand and dust)
IEC 62804 (PID resistance)

The specifications and characteristics contained in this datasheet may deviate slightly from our actual products due to the product developments and uncertainty of measurement devices. The specifications included in the datasheet are subject to change without prior notice.



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