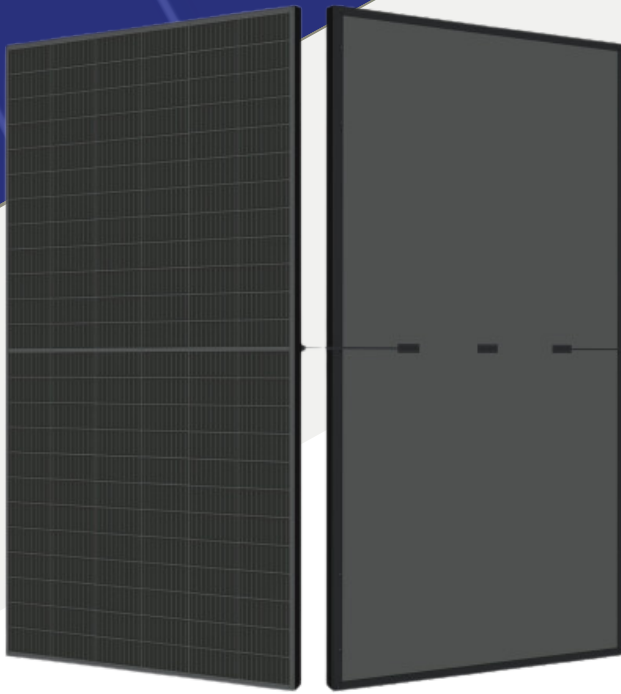


TOPSUN

# ALL BLACK

HIGH PERFORMANCE  
MONOCRYSTALLINE  
N-TYPE TECHNOLOGY

108



## TOP - 415/435M-108AB

**108 CELL**  
Mono N - Type Module

**415 - 435Wp**  
Power Output Range

**1500VDC**  
Maximum System Voltage

**22.28%**  
Maximum Efficiency

### KEY SALIENT FEATURES



Industry leading lowest thermal co-efficient of power



Industry leading 15 years product warranty



Excellent low irradiance performance



Excellent PID resistance



Positive power tolerance of 0~+3%



Fully automated production at all stages



Fully Reduced power loss by minimizing the effect of shadow shading ( 9 - 18 Busbar)



European Warranty & After - Sales Service



### TAMESOL BUILDING A GREEN FUTURE S.L

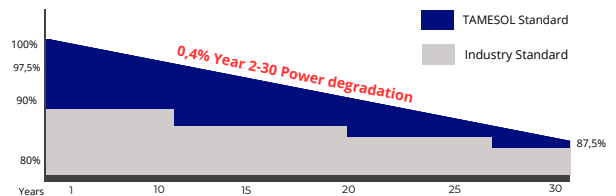
TAMESOL is a global provider of high-efficiency PV panels with a 10GW annual production capacity and a 100% automated production line, innovating state-of-the-art products for over 15 years. Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the grid.

Tel : +34 872 222 388

E - mail: [info@tamesol.com](mailto:info@tamesol.com) Website: [www.tamesol.com](http://www.tamesol.com)

### LINEAR PERFORMANCE WARRANTY

15 year Product Warranty / 30-Year Linear Power Warranty



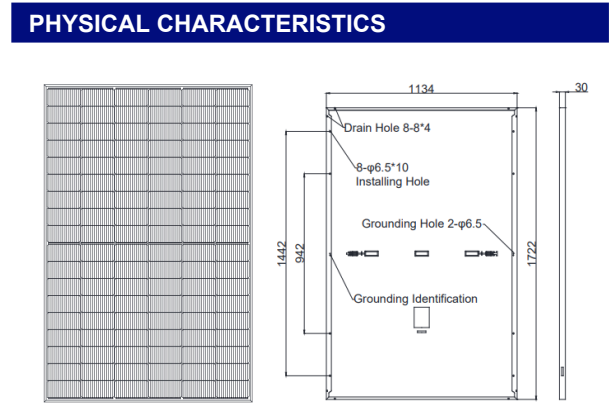
**TAMESOL** 15 YEARS

*Since 2007, building a green future*

<b>22,28%</b> MAX MODULE EFFICIENCY	<b>0 - 3%</b> POWER TOLERANCE	<b>1,0%</b> FIRST YEAR POWER DEGRADATION	<b>0,40%</b> YEAR 2-30 POWER DEGRADATION	<b>N-TYPE CELL</b> Lower operating temperature
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ELECTRICAL CHARACTERISTICS		STC: AM1.5 1.000W/m2 NOTC: AM1.5 800W/m2 20° 1 m/s Test uncertainty for Pmax +-3%									
Module type	TM - 415M-108AB		TM - 420M-108AB		TM - 425M-108AB		TM - 430M-108AB		TM - 435M-108AB		
Testing condition	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC	
Maximum Power (Pmax/w)	415	312	420	316	425	320	430	323	435	327	
Open Circuit Voltage (Voc/V)	37,92	36,02	38,11	36,20	38,30	36,39	38,49	36,57	38,68	36,75	
Short Circuit Current (Isc/A)	13,99	11,07	14,07	11,15	14,15	11,22	14,23	11,26	14,31	11,33	
Voltage at Maximum Power (Vmp/V)	31,32	29,75	31,51	29,93	31,70	30,12	31,88	30,29	32,06	30,46	
Current at maximum Power (Imp/A)	13,25	10,49	13,33	10,56	13,41	10,63	13,49	10,67	13,57	10,74	
Module Efficiency (%)	21,25%		21,51%		21,76%		22,02%		22,28%		

MECHANICAL PARAMETERS	
Cell Orientation	single crystal N-Topcon 182x91mm (108 pieces)
Junction Box	IP68, three diodes
Output Cable	4.0mm² 300mm(+) / 300mm(-) or customized
Glass	3.2mm high transparency, tempered glass
Frame	Anodized aluminum alloy frame
Weight	20,5kg
Dimensión	1722*1134*30mm
Packaging	36 pcs*pallet / 936pcs*40HC



OPERATING PARAMETERS	
Operational Temperature	-40°C - +85°C
Power Output Tolerance	(0, +3%)
Voc and Isc Tolerance	±3%
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25 A
Nominal Operating Cell Temperature	45±2°C
Protection Glass	Class II
Fire Rating	Class C

MECHANICAL LOADING	
Front Side Maximum Static Loading	5400 PA
Rear Side Maximum Static Loading	2400 PA
Hailstone Test	Diameter 25mm, impact speed 23m/s

PACKING MANNER	
Container	40ft(HQ)
Number of modules per container	936
Number of modules per pallet	36
Number of pallets per container	26

TEMPERATURA RATINGS (STC)	
Temperature Coefficient of Isc	+0.046%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.30%/°C

TAMESOL Authorized Solar Dealer

**Note:** The specifications are obtained under the Standard Test Conditions (STCs): 1000 W/m2 solar irradiance, 1.5 Air Mass, and cell temperature of 25°C. The NOCT is obtained under the Test Conditions: 800 W/m2, 20°C ambient temperature, 1m/s wind speed, AM 1.5 spectrum. Please contact [info@tamesol.com](mailto:info@tamesol.com) for technical support. The actual transactions will be subject to the contracts. This parameter is for reference only and it is not a part of the contracts. The specifications are subject to change without prior notice.