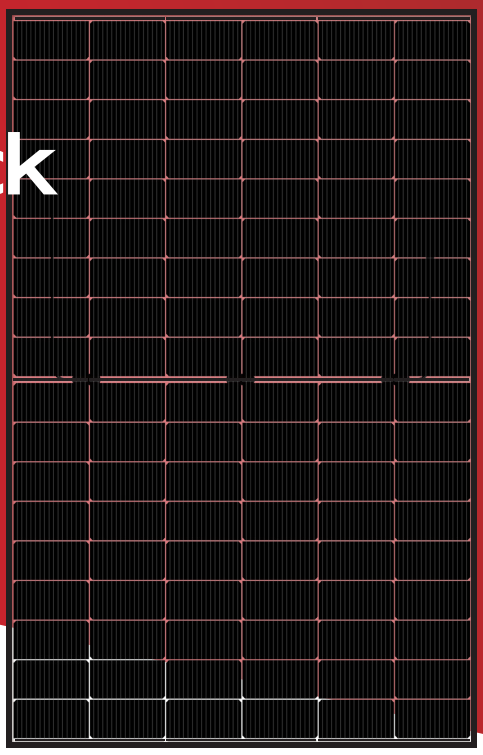
SUNOVA SOLAR

Pv Tech Expert.

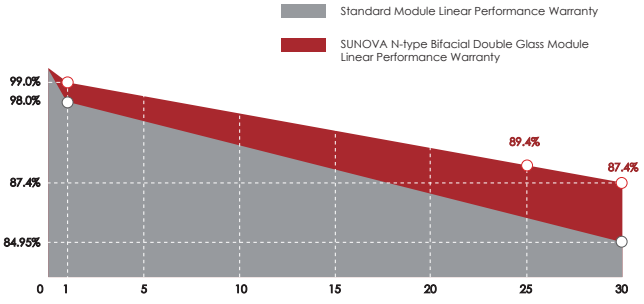
Tangra™ S Pro Black 420-440W

N-type Bifacial Double Glass Mono Module



- Bifacial technology enables additional energy harvesting from rear side (up to 30%)
- 30 years lifespan brings 10-30% additional power generation comparing with conventional P-type module
- N-type solar cell has no LID naturally which can increase power generation
- Excellent low irradiance performance.
- Better light trapping and current collection to improve module power output and reliability.
- Industry leading lowest thermal co-efficient of power.
- Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.
- Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa).
- 100% triple EL test enabling remarkable reduction of hidden crack rate of modules

LINEAR PERFORMANCE WARRANTY



15 years
Product quality & process guarantee

30 years
Linear power guarantee

0.40%
Annual Degradation

PERFORMANCE INSURANCE

Ariel Re

LLOYD'S Underwriters

中国平安
PING AN
P & C INSURANCE CO CN SZN

* Optional performance warranty insurance.
Please contact our local sales staff for more information.

COMPREHENSIVE CERTIFICATES

ISO 9001: Quality Management System

ISO 14001: Environmental Management System Standard

ISO 45001: International Occupational Health and Safety Assessment System Standard

SA 8000: 2014 Social Accountability Management System

* Different markets have different certification requirements.
Also, the products are under rapid innovation.
Please confirm the certification status with regional sales representatives.

ELECTRIC CHARACTERISTICS

108 cells

Model of modules	SS-BG420-54MDH(T)		SS-BG425-54MDH(T)		SS-BG430-54MDH(T)		SS-BG435-54MDH(T)		SS-BG440-54MDH(T)	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum power — P_{mp} (W)	420	313	425	317	430	320	435	324	440	328
Open-circuit voltage — V_{oc} (V)	37.58	35.48	37.75	35.63	38.07	35.94	38.26	36.12	38.32	36.17
Short-circuit current — I_{sc} (A)	13.93	11.25	13.99	11.30	14.00	11.31	14.08	11.38	14.22	11.49
Maximum power voltage — V_{mp} (V)	31.91	29.87	32.22	30.16	32.49	30.38	32.52	30.44	32.57	30.49
Maximum power current — I_{mp} (A)	13.16	10.48	13.19	10.50	13.24	10.53	13.38	10.64	13.51	10.75
Module efficiency — η_m (%)	21.5		21.8		22.0		22.3		22.5	

STC (Standard Testing Conditions): Irradiance 1000W/m^2, Cell Temperature 25 °C , Spectra at AM1.5
NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m^2, Ambient Temperature 20°C , Spectra at AM1.5, Wind at 1m/s

ELECTRICAL CHARACTERISTICS WITH DIFFERENT POWER BIN (REFERENCE TO 13.5% IRRADIANCE RATIO)

Peak Power (P_{max}) (W)	465	471	476	482	488
Open Circuit Voltage (V_{oc}) (V)	37.58	37.75	38.07	38.26	38.32
Short Circuit Current (I_{sc}) (A)	15.43	15.50	15.52	15.60	15.76
MPP Voltage (V_{mp}) (V)	31.91	32.22	32.49	32.52	32.57
MPP Current (I_{mp}) (A)	14.59	14.61	14.67	14.82	14.97

STRUCTURAL CHARACTERISTICS

Module size (L*W*H)	1722 x 1134 x 30 mm
Weight	24.2 kg
Cell	108 cells, N-type Monocrystalline 182 x 91 mm
Front glass	2.0mm, Anti-Reflection Coating
Back glass	2.0mm, Heat Strengthened Glass
Frame	Anodized aluminum alloy
Junction box	IP68, 3 diodes
Output wire	4.0 mm^2
Wire length	300mm/1200mm/customized
Connector	MC4 Compatible
Packing Specification	36pcs/Pallet; 936 pcs/40'HQ

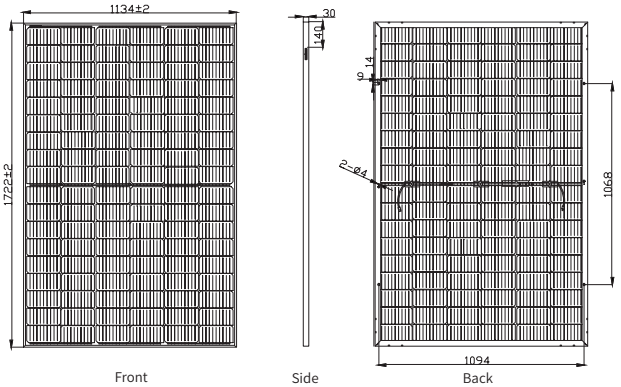
OPERATING PARAMETERS

Power tolerance (W)	(0,+5)
Maximum system voltage (V)	1500
Maximum rated fuse current (A)	30
Current operating temperature (°C)	-40~+85 °C
Mechanical load	5400 Pa / 2400 Pa

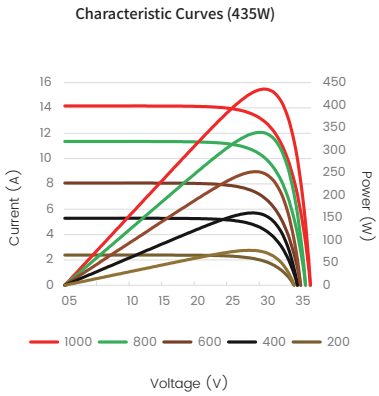
TEMPERATURE RATINGS

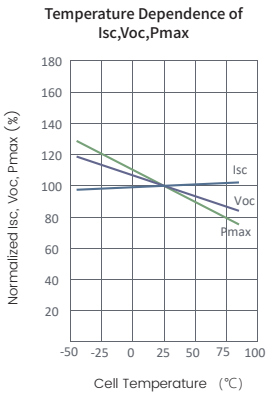
Temperature coefficient (P_{max})	-0.30 %/°C
Temperature coefficient (V_{oc})	-0.26 %/°C
Temperature coefficient (I_{sc})	+0.046 %/°C
Nominal operating cell temperature	43±2 °C

MODULE DIMENSIONS (MM)



* The unma rance is ±1 mm
Length shown in mm





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