THORNOVA solar

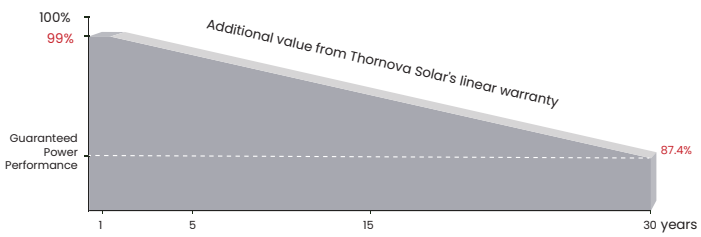
495-510 W

High Efficiency Bifacial Dual Glass TOPCon Module
In Heavy Snow Load

TS-BGT54-G11 All Black

- Bifacial technology allows for the harvesting of up to an additional 25% energy from the rear side of the module.
- 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.
- Enhanced light trapping and optimized current collection contribute to the improvement of both module power output and reliability.
- Industry leading lowest thermal coefficient of power.
- Design optimized for lower operating current, resulting in minimized hot spot loss and improved temperature coefficient.
- Certified to withstand: wind load (5000 Pa) and snow load (8100 Pa).
- 100% triple EL test enables remarkable reduction of module hidden crack rate.

LINEAR PERFORMANCE WARRANTY



15 years
Product quality & process guarantee

30 years
Linear power guarantee

0.40 %
Annual degradation Over 30 years

RE INSURANCE

Munich RE

Ariel Re

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

COMPREHENSIVE CERTIFICATES

Intertek

ISO 9001: Quality Management System
ISO 14001: Environmental Management System Standard
ISO 45001: International Occupational Health and Safety Assessment System Standard

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

ELECTRICAL CHARACTERISTICS

2×54 cells

Model of modules	TS-BGT54(495)-G11		TS-BGT54(500)-G11		TS-BGT54(505)-G11		TS-BGT54(510)-G11	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak power - P_{mp} (W)	495	378	500	382	505	386	510	390
Open circuit voltage - V_{oc} (V)	39.80	37.70	40.10	38.00	40.30	38.30	40.50	38.60
Short circuit current - I_{sc} (A)	15.83	12.76	15.86	12.78	15.89	12.81	15.92	12.84
MPP voltage - V_{mp} (V)	33.10	31.30	33.30	31.52	33.50	31.80	33.70	32.05
MPP current - I_{mp} (A)	14.97	12.08	15.03	12.11	15.09	12.15	15.14	12.18
Module efficiency - η_m (%)	22.3 %		22.5 %		22.7 %		22.9 %	

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25 ℃, Spectra at AM1.5
NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20℃, Spectra at AM1.5, Wind at 1m/s

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

Peak power - P_{mp} (W)	549	555	560	565
Open circuit voltage - V_{oc} (V)	39.80	40.10	40.30	40.50
Short circuit current - I_{sc} (A)	17.54	17.57	17.61	17.64
MPP voltage - V_{mp} (V)	33.10	33.30	33.50	33.70
MPP current - I_{mp} (A)	16.59	16.65	16.72	16.78
Irradiance ratio (rear/front)	13.5%			

STRUCTURAL CHARACTERISTICS

Module dimension (L*W*H)	1961 x 1134 x 35 mm (77.20 x 44.65 x 1.38 inch)
Weight	28 kg (61.73 lbs)
Number of cells	108 cells
Cell	N-type monocrystalline
Glass	(F)2.0mm, Anti-Reflection Coating (B)2.0mm, Heat Strengthened Glass
Frame	Anodized aluminum alloy
Junction box	IP68, 3 bypass diodes
Output wire	4.0 mm²
Wire length	300 mm / 1200 mm / Customized length
Connector	MC4 - EVO2
Packing specification	31 pcs/Pallet; 620 pcs/40'HQ

OPERATING PARAMETERS

Power tolerance (W)	(0,+5)
Maximum system voltage (V)	1500
Maximum rated fuse current (A)	30
Current operating temperature (℃)	-40~+85 ℃
Bifaciality	80±5%

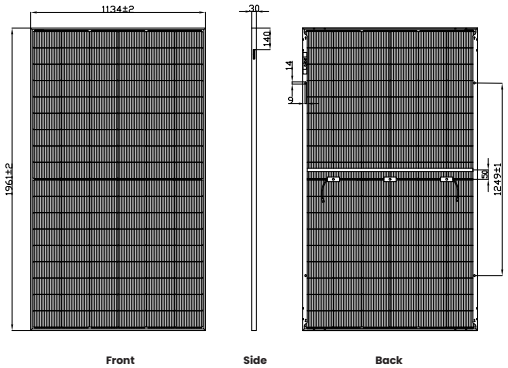
MECHANICAL LOADING

Front side maximum static loading (Pa)	8100
Rear side maximum static loading (Pa)	5000
Hailstone test (mm)	35

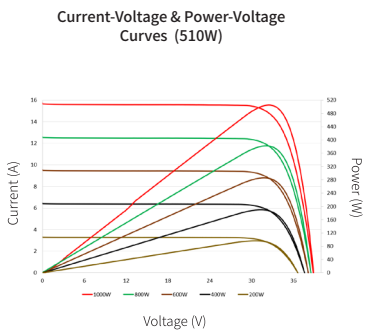
TEMPERATURE RATINGS

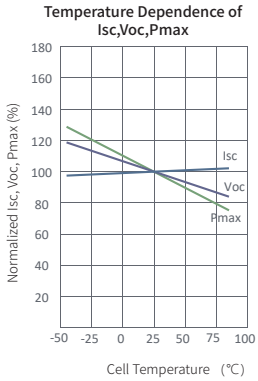
Temperature coefficient (P_{max})	-0.30 %/℃
Temperature coefficient (V_{oc})	-0.28 %/℃
Temperature coefficient (I_{sc})	+0.04 %/℃
Nominal operating cell temperature	45±2 ℃

MODULE DIMENSIONS (MM)



*** The unmarked tolerance is ±1 mm**
Length shown in mm





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