Shingled bifacial module

TH405~430TMBG 54ZDDF

Features of Module

NZS Technology
Non-Coplanar Zero Spacing Technology, ultra high density with 0.2% added.

Dazzling Appearance
Simplified cell graphics design and extreme all black design.

Excellent flexible interconnection
Eliminates the interconnection crack and increases the mechanical load resistance.

High output performance
420W+ output power with N-TOPCon technology.

Low Hot Spot Risk
Lower current design reduces damage risk.

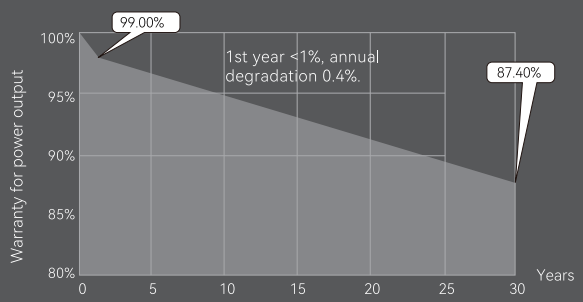
Low Shading Loss
Full parallel arrangement brings high effective power generation hours.

Eco-friendly
Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

25 25-year warranty for materials.

30 30-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730、IEC62804(PID)、IEC61701(Salt)、
IEC62716 (Ammonia)、IEC60068-2-68(Sand)
ISO 9001:2015 / quality management system
ISO 14001:2015 / environmental management system
ISO 45001:2018 / occupation health safety management system
ISO 50001:2011 / energy management system
IEC TS 62941—2016 / PV industry quality management system

Electrical Characteristics (STC)

Module type: · TH *** TMBG-54ZDDF	430	425	420	415	410	405
Maximum power - Pm(W)	430	425	420	415	410	405
Open circuit voltage - Voc(V)	38.4	38.3	38.2	38.1	38.0	37.9
Short circuit current Isc(A)	13.98	13.86	13.73	13.60	13.47	13.34
Maximum Power Voltage - Vm(V)	32.8	32.7	32.6	32.5	32.4	32.3
Maximum Power Current - Im(A)	13.14	13.02	12.90	12.78	12.66	12.54
Module Efficiency - η (%)	22.4%	22.1%	21.8%	21.6%	21.3%	21.1%

Electrical Characteristics (NMOT)

Maximum power - Pm(W)	323	320	316	312	308	305
Open circuit voltage - Voc(V)	36.5	36.4	36.3	36.2	36.1	36.0
Short circuit current - Isc (A)	11.29	11.19	11.08	10.98	10.88	10.77
Maximum Power Voltage - Vm(V)	31.1	31.0	31.0	30.9	30.8	30.7
Maximum Power Current - Im(A)	10.39	10.30	10.20	10.11	10.01	9.92

* STC: Irradiation 1000W/m²; AM1.5; environmental temperature 25℃; tested according to EN 60904-3;
* NMOT: irradiation 800W/m²; wind speed 1m/s; environmental temperature 20℃;
* Pm tolerance: 0~+5W ; power test uncertainty: ±3%; Voc[V], Isc[A], Vm[V] and Im[A] test tolerance: ±3%.

Comparison of Rear Power Gains (415W)

Power Gain-PG	5%	10%	15%	20%	25%	30%
Maximum Power - Pm(W)	436	457	477	498	519	540
Open Circuit Voltage - Voc(V)	47.0	47.0	47.0	47.0	47.0	47.0
Short Circuit Current - Isc(A)	14.28	14.96	15.64	16.32	17.00	17.68
Maximum Power Voltage - Vm(V)	39.0	39.0	39.0	39.0	39.0	39.0
Maximum Power Current - Im(A)	11.17	11.70	12.23	12.77	13.30	13.83

Mechanical Parameters

Dimensions	1696 × 1134 × 30 mm
Weight	23.5kg±0.3%
Front Glass	Tempered glass, 2.0mm
Frame	Anodized aluminum profile
Cells	N type TOPCon solar cell
Cell Orientation	108 (2*54)
Junction Box	IP68, three diodes
Cable	4mm², +280mm/-280mm, Can be customized by customers
Packaging mode	36pcs/ box; 1008pcs/ 40'HQ

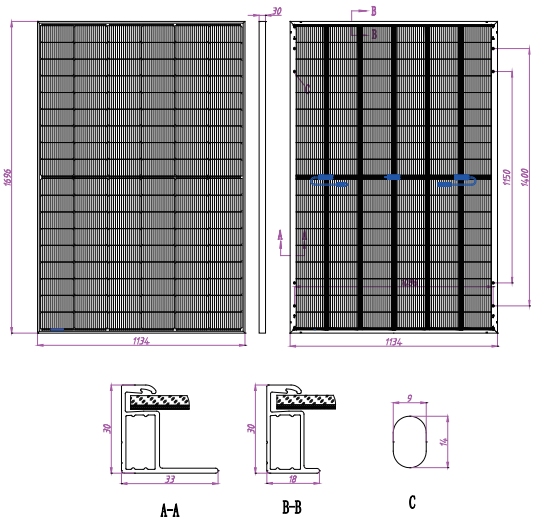
Temperature Parameters

NMOT	45℃ (±2℃)
Temperature Coefficient of Voc	-0.25%/℃
Temperature Coefficient of Isc	0.046%/℃
Temperature Coefficient of Pm	-0.30%/℃

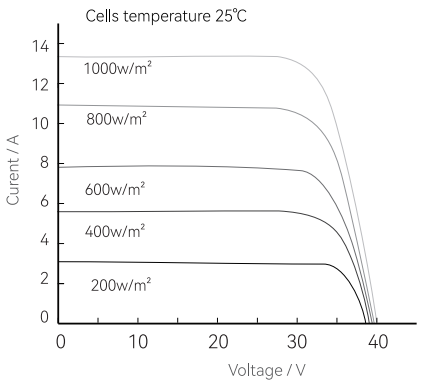
Maximum Rated Parameters

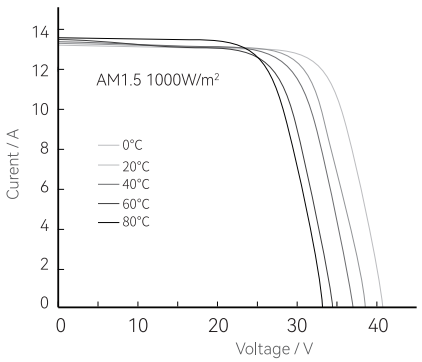
Maximum System Voltage (V)	DC1500
Series Fuse Rating (A)	25
Surface Load Capacity(Pa)	Front 5400 / Back 2400
Temperature Range(℃)	-40 ~ +85
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m/s

Drawings



I-V Curve





Statement:
With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

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