



panda 3.0 Pro 1

610W

MAXIMUM MODULE EFFICIENCY

23.6%

POSITIVE POWER TOLERANCE

0~+5_w



N-type TOPCon Bifacial Module

**IMPROVED POWER
NEVER SETTLE FOR LESS**



Backside Yield



Wide Applications



Superior Yield



Outstanding Bifaciality



Excellent Durability



Yingli Solar Website



QUALIFICATIONS & CERTIFICATES

IEC 61215, IEC 61730, CE

ISO 9001: Quality management systems

ISO 14001: Environmental management systems

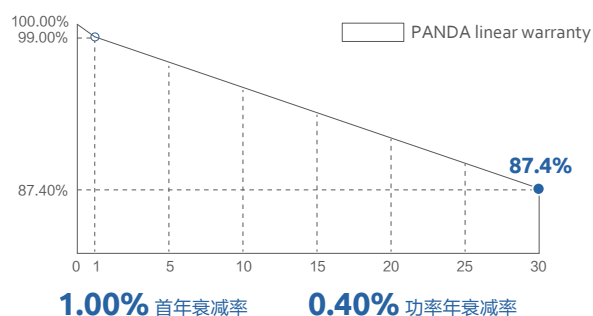
IEC 62941: Quality system for PV module manufacturing

ISO 45001: Occupational health and safety management systems

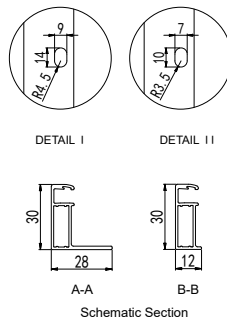
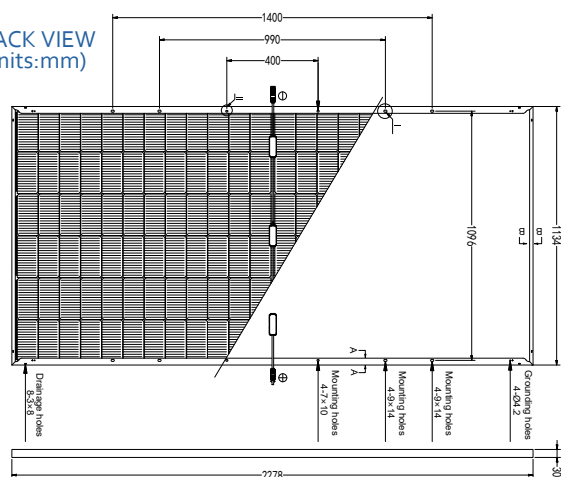


Warranty partner

Munich RE



BACK VIEW
(units:mm)

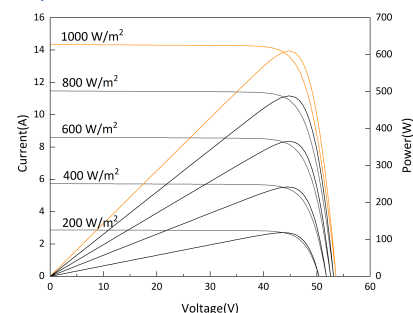


Schematic Section



Warning: Read the Installation and User Manual in its entirety before handling, installing and operating Yingli Solar modules.

I-V / P-V CURVES



Electrical Parameters at Standard Test Conditions (STC)

Module type	YLxxxCF72 e/2 (xxx=Pmax)					
Power output*-Pmax (W)	585	590	595	600	605	610
Power output tolerances- ΔPmax (W)	0 / + 5					
Module efficiency-η _m (%)	22.6	22.8	23.0	23.2	23.4	23.6
Voltage at Pmax - V _{mpp} (V)	44.36	44.49	44.62	44.75	44.88	45.01
Current at Pmax-I _{mp} (A)	13.19	13.27	13.34	13.41	13.49	13.56
Open-circuit voltage*-V _{oc} (V)	52.83	52.98	53.13	53.28	53.43	53.58
Short-circuit current*-I _{sc} (A)	13.99	14.06	14.13	14.20	14.27	14.34

STC: 1000 W·m⁻² irradiance, 25°C cell temperature, AM 1.5. *Measuring tolerance: ±3%.

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Electrical Parameters at Nominal Operating Cell Temperature (NOCT)

Power output-Pmax (W)	445	449	453	456	460	464
Voltage at Pmax - Vmpp (V)	42.32	42.44	42.56	42.69	42.81	42.94
Current at Pmax-Imp (A)	10.52	10.58	10.64	10.69	10.76	10.81
Open-circuit voltage-Voc (V)	50.17	50.31	50.45	50.60	50.74	50.88
Short-circuit current-Isc (A)	11.27	11.33	11.38	11.44	11.50	11.55

NOCT: open-circuit module operation temperature at $800 \text{ W}\cdot\text{m}^{-2}$ irradiance, 20°C ambient temperature, $1 \text{ m}\cdot\text{s}^{-1}$ wind speed.

Bifacial Electrical Parameters at Standard Test Conditions(BNPI)

Power output-Pmax (W)	648	654	660	665	671	676
Voltage at Pmax - Vmpp (V)	44.36	44.49	44.62	44.75	44.88	45.01
Current at Pmax-Impp (A)	14.61	14.70	14.78	14.86	14.95	15.02
Open-circuit voltage-Voc (V)	52.83	52.98	53.13	53.28	53.43	53.58
Short-circuit current-Isc (A)	15.50	15.58	15.66	15.73	15.81	15.89

BNPI: $1000 \text{ W} \cdot \text{m}^{-2}$ on the front side and $135 \text{ W} \cdot \text{m}^{-2}$ on the back side, 25°C cell temperature, AM 1.5. Bifaciality coefficient is $80\% \pm 5\%$.

Thermal Characteristics

Nominal operating cell temperature–NOCT(°C)	42 ± 2
Temperature coefficient of Pmax– γ (% / °C)	– 0.29
Temperature coefficient of Voc– β (% / °C)	– 0.24
Temperature coefficient of Isc– α (% / °C)	0.042

Packaging Specifications

Number of modules per pallet	36
Number of pallets per 40' container	20
Packaging box dimensions (L / W / H)	2300 mm / 1110 mm / 1245 mm
Box weight	1193 kg

Operating Conditions

Max. system voltage	1500 V _{DC}
Max. series fuse rating*	30 A
Operating temperature range	- 40°C~ 85°C
Max. static load, front (e.g., snow)	5400 Pa
Max. static load, back (e.g., wind)	2400 Pa
Max. hailstone impact (diameter / velocity)	25 mm / 23 m·s ⁻¹

*Do not connect fuse in combiner box with two or more strings in parallel connection.

General Characteristics

Dimensions (L / W / H)	2278 mm / 1134 mm / 30 mm
Weight	31.6 kg

Construction Materials

Cell (material / quantity)	n-type monocrystalline silicon / 6 x 24
Glass (thickness)	2.0 mm / 2.0 mm
Frame (material)	anodized aluminum alloy
Junction box (type / protection degree)	3 bypass diodes / $\geq$ IP68
Cable (length / cross-sectional area)	$\pm$ 300 mm or customized length / 4 mm ²

• Due to continuous innovation, research and product improvement, the specifications in this product information sheet are subject to change without prior notice. The specifications may deviate slightly and are not guaranteed.

• The data do not refer to a single module and they are not part of the offer, they only serve for comparison to different module types.



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