



**panda** n-type TOPCon Bifacial Module

# 470-495 W

MAXIMUM MODULE EFFICIENCY

## 22.9%

POSITIVE POWER TOLERANCE

## 0 TO +5 W



IDEAL FOR:



Residential Projects



Commercial & Industrial Projects

## POWER YOUR LIFE

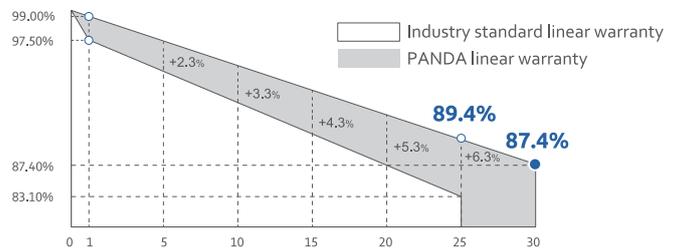
Outstanding Bifaciality | Strong Lightweight Construction | Built for the Australian Environment

### 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
- SA8000 Standard (Social Accountability International)

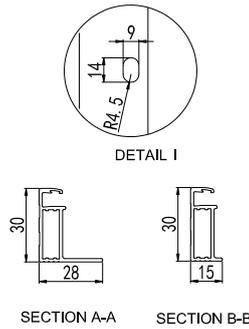
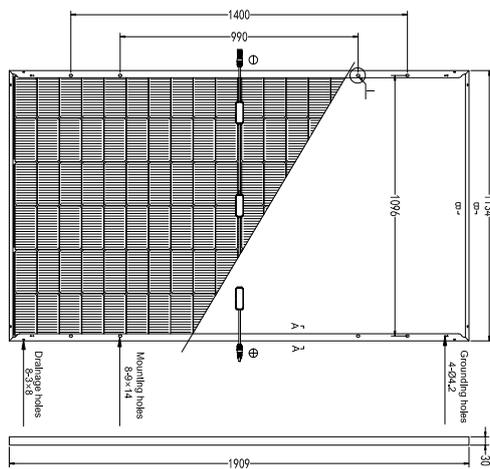


Munich RE

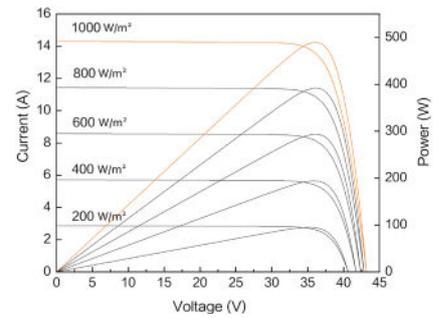


**0.40%** annual power degradation

BACK VIEW (units: mm)



I-V / P-V CURVES



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

**DIMENSIONS** 1909 mm / 1134 mm / 30 mm **WEIGHT** 27.3 kg  
**FIRE RESISTANCE RATING** Class A

Electrical Parameters

	YL470CF60 e/2		YL480CF60 e/2		YL485CF60 e/2		YL490CF60 e/2		YL495CF60 e/2	
	STC	NOCT								
Power output-Pmax (W)	470	357	480	365	485	369	490	373	495	377
Power output tolerances-ΔPmax (W)	0 / + 5		0 / + 5		0 / + 5		0 / + 5		0 / + 5	
Module efficiency-ηm (%)	21.7		22.2		22.4		22.6		22.9	
Voltage at Pmax - Vmpp (V)	35.50	33.86	35.90	34.25	36.10	34.44	36.30	34.63	36.49	43.81
Current at Pmax-Impp (A)	13.24	10.56	13.38	10.67	13.44	10.72	13.50	10.76	13.57	10.82
Open-circuit voltage-Voc (V)	42.40	40.26	42.80	40.64	43.00	40.83	43.20	41.02	43.39	41.20
Short-circuit current-Isc (A)	14.06	11.33	14.18	11.42	14.24	11.47	14.30	11.52	14.36	11.57

\*STC: 1000 W·m<sup>-2</sup> irradiance, 25°C cell temperature, AM 1.5.

\*NOCT: open-circuit module operation temperature at 800 W·m<sup>-2</sup> irradiance, 20°C ambient temperature, 1 m·s<sup>-1</sup> wind speed.

Bifacial Electrical Parameters at Standard Test Conditions (BNPI\*)

Power output-Pmax (W)	521	532	538	543	549
Voltage at Pmax - Vmpp (V)	35.50	35.90	36.10	36.30	36.49
Current at Pmax-Impp (A)	14.67	14.83	14.89	14.96	15.04
Open-circuit voltage-Voc (V)	42.40	42.80	43.00	43.20	43.39
Short-circuit current-Isc (A)	15.58	15.71	15.78	15.84	15.91

\*1000W·m<sup>-2</sup> on the front side and 135W·m<sup>-2</sup> on the back side, 25°C cell temperature, AM 1.5. Bifaciality coefficient is 80% ± 5%.

φPmax = 80%, φIsc = 80% and φVoc = 99% with tolerance ±5% for reference. Measurement tolerance: Pmax ±3%, Voc ±3% and Isc ±3%.

Bifacial Output-Rearside Power Gain

5%	Maximum Power (Pmax)	489	499	504	510	515
	Module Efficiency STC (%)	22.6%	23.0%	23.3%	23.5%	23.8%
15%	Maximum Power (Pmax)	526	538	543	549	554
	Module Efficiency STC (%)	24.3%	24.8%	25.1%	25.3%	25.6%
25%	Maximum Power (Pmax)	564	576	582	588	594
	Module Efficiency STC (%)	26.0%	26.6%	26.9%	27.1%	27.4%

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

Operating Conditions

Max. system voltage	1500 Vdc
Max. series fuse rating*	30 A
Operating temperature range	-40°C ~ 70°C
Max. static load, front (e.g., snow)	1600 Pa
Max. static load, back (e.g., wind)	1600 Pa
Max. hailstone impact (diameter / velocity)	25 mm / 23 m·s <sup>-1</sup>

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

Packaging Specifications

Number of modules per pallet	36
Number of pallets per 40' container	24
Packaging box dimensions (L / W / H)	1920 mm / 1110 mm / 1245 mm
Box weight	1025 kg

Construction Materials

Cell (material / quantity)	n-type monocrystalline silicon / 6 x 20
Glass (thickness)	2.0 mm / 2.0 mm
Frame (material)	Anodised aluminum alloy
Junction box (type / protection degree)	3 bypass diodes / IP68
Plug connector (type)	Staubli EVO2 or Yitong YT18-01 or Renhe RHC2
Cable (length / cross-sectional area)	±300 mm / 4 mm <sup>2</sup>

- Proudly manufactured in China.
- 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 does not refer to a single module and they are not part of the offer, they only serve as a comparison to different module types.

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Note: images are a guide only. Check with the manufacturer before purchasing.

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