

# PANDA BIFACIAL 60CF

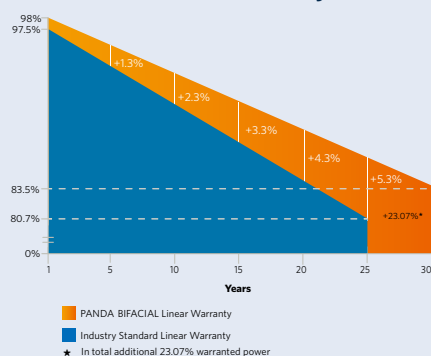


**20.5%**  
CELL EFFICIENCY

**10 YEAR**  
PRODUCT WARRANTY

**0-5W**  
POWER TOLERANCE

## PANDA BIFACIAL 30 Years Linear Warranty



## DUAL POWER MAXIMIZED YIELD

PANDA BIFACIAL modules generate power from the front as well as from the back side. Together with the cutting-edge PANDA N-type crystalline silicon solar cells, which wake up earlier than conventional P-type and go to sleep later, the energy yield can be increased by 10-30%\*.



### Bifacial Power

In contrast to conventional modules, PANDA BIFACIAL modules generate energy from both sides. As the backside makes use of the reflected and scattered light from the surroundings, the modules can yield up to 30% power more, depending on the albedo.



### High Yield

Once used, PANDA BIFACIAL modules generate more energy, because of low LID, good low-light performance and temperature coefficient of N-type monocrystalline silicon solar cells.



### Durability

Durable PANDA BIFACIAL modules work well in muggy conditions, and independently tested for harsh environmental conditions beyond IEC standards, such as exposure to salt mist, ammonia or known PID risk factors.



### Mechanical Performance

No shading aluminium frames enhance the mechanical performance of modules and the installation efficiency of system.

### Yingli Green Energy

Yingli Green Energy Holding Company Limited (NYSE: YGE), known as "Yingli Solar", is one of the world's leading solar panel manufacturers with the mission to provide affordable green energy for all. Yingli Solar makes solar power possible for communities everywhere by using our global manufacturing and logistics expertise to address unique local challenges.

\*Depending on the environmental condition of installation.

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## ELECTRICAL PERFORMANCE

### Electrical parameters at Standard Test Conditions (STC)

Module type	YLxxxCG2530F-1 (xxx=P <sub>max</sub> )						
Power output	P <sub>max</sub>	W	295	290	285	280	275
Power output tolerance	ΔP <sub>max</sub>	W	0 / + 5				
Module efficiency	η <sub>m</sub>	%	17.8	17.5	17.2	16.9	16.6
Voltage at P <sub>max</sub>	V <sub>mpp</sub>	V	32.6	32.3	32.0	31.7	31.4
Current at P <sub>max</sub>	I <sub>mp</sub>	A	9.06	8.98	8.91	8.83	8.75
Open-circuit voltage	V <sub>oc</sub>	V	39.4	39.2	39.0	38.8	38.6
Short-circuit current	I <sub>sc</sub>	A	9.39	9.34	9.30	9.25	9.21

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3.  
Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

### Electrical parameters at Nominal Operating Cell Temperature (NOCT)

Power output	P <sub>max</sub>	W	217.2	213.5	209.8	206.1	202.4
Voltage at P <sub>max</sub>	V <sub>mpp</sub>	V	30.1	29.8	29.6	29.3	29.0
Current at P <sub>max</sub>	I <sub>mp</sub>	A	7.22	7.15	7.10	7.03	6.97
Open-circuit voltage	V <sub>oc</sub>	V	36.5	36.4	36.2	36.0	35.8
Short-circuit current	I <sub>sc</sub>	A	7.58	7.53	7.50	7.46	7.43

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

## THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	46 ± - 2
Temperature coefficient of P <sub>max</sub>	γ	%/°C	-0.38
Temperature coefficient of V <sub>oc</sub>	β <sub>Voc</sub>	%/°C	-0.30
Temperature coefficient of I <sub>sc</sub>	α <sub>Isc</sub>	%/°C	0.04

## OPERATING CONDITIONS

Max. system voltage	1500V <sub>DC</sub>
Max. series fuse rating	20A
Limiting reverse current	20A
Operating temperature range	-40°C to 85°C
Max. snow load, front	5400Pa
Max. wind load, back	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s
Fire class	A

## CONSTRUCTION MATERIALS

Front and back cover (material / thickness)	semi-tempered glass / 2.5mm x 2
Cell (quantity / material / dimensions / number of busbar)	60 / monocrystalline silicon / 156.75mm x 156.75mm (±0.25mm) / 4 or 5
Frame	anodized aluminum alloy
Junction box (protection degree)	≥ IP67
Cable (length / cross-sectional area)	200mm / 4mm <sup>2</sup>
Plug connector (type / protection degree)	RH 05-8 / IP67 or LSC-R1 / IP68 or LSC-R4 / IP68

\* 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.

## QUALIFICATIONS & CERTIFICATES

IEC 61215, IEC 61730, CE, ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007, PV Cycle, SA 8000



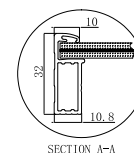
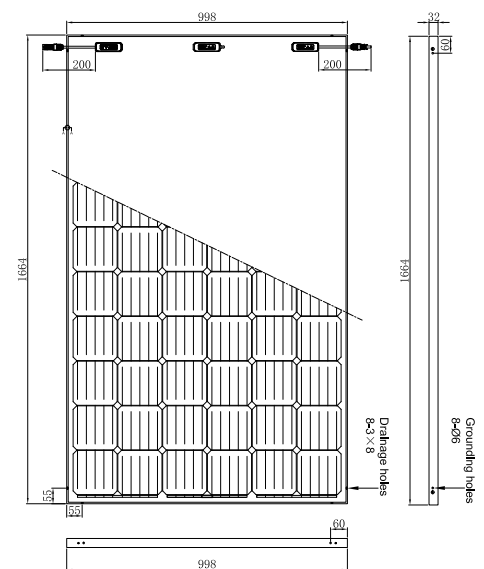
## GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1664mm / 998mm / 32mm
Weight	24.5kg

## PACKAGING SPECIFICATIONS

Number of modules per pallet	32
Number of pallets per 40' container	25
Packaging pallets dimensions (L / W / H)	1730mm / 1160mm / 1165mm
Pallet weight	829kg

Unit: mm



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

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## YL295CG2530F-1 Optimized electrical parameters (considering the power gain from rear side)

Power output from the front	$P_{max}$	W	295				
Energy yield			5%	10%	15%	20%	25%
Power output from both sides	$P_{max}$	W	310	325	339	354	369
Module efficiency	$\eta_m$	%	18.7	19.6	20.4	21.3	22.2
Voltage at $P_{max}$	$V_{mpp}$	V	32.6	32.6	32.6	32.6	32.6
Current at $P_{max}$	$I_{mpp}$	A	9.51	9.97	10.42	10.87	11.33
Open-circuit voltage	$V_{oc}$	V	39.4	39.4	39.4	39.4	39.4
Short-circuit current	$I_{sc}$	A	9.86	10.33	10.80	11.27	11.74

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3. Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

## YL290CG2530F-1 Optimized electrical parameters (considering the power gain from rear side)

Power output from the front	$P_{max}$	W	290				
Energy yield			5%	10%	15%	20%	25%
Power output from both sides	$P_{max}$	W	305	319	334	348	363
Module efficiency	$\eta_m$	%	18.4	19.2	20.1	21.0	21.9
Voltage at $P_{max}$	$V_{mpp}$	V	32.3	32.3	32.3	32.3	32.3
Current at $P_{max}$	$I_{mpp}$	A	9.43	9.88	10.33	10.78	11.23
Open-circuit voltage	$V_{oc}$	V	39.2	39.2	39.2	39.2	39.2
Short-circuit current	$I_{sc}$	A	9.81	10.27	10.74	11.21	11.68

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3. Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

## YL285CG2530F-1 Optimized electrical parameters (considering the power gain from rear side)

Power output from the front	$P_{max}$	W	285				
Energy yield			5%	10%	15%	20%	25%
Power output from both sides	$P_{max}$	W	299	314	328	342	356
Module efficiency	$\eta_m$	%	18.0	18.9	19.8	20.6	21.4
Voltage at $P_{max}$	$V_{mpp}$	V	32.0	32.0	32.0	32.0	32.0
Current at $P_{max}$	$I_{mpp}$	A	9.36	9.80	10.25	10.69	11.14
Open-circuit voltage	$V_{oc}$	V	39.0	39.0	39.0	39.0	39.0
Short-circuit current	$I_{sc}$	A	9.77	10.23	10.70	11.16	11.63

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3. Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

## YL280CG2530F-1 Optimized electrical parameters (considering the power gain from rear side)

Power output from the front	$P_{max}$	W	280				
Energy yield			5%	10%	15%	20%	25%
Power output from both sides	$P_{max}$	W	294	308	322	336	350
Module efficiency	$\eta_m$	%	17.7	18.5	19.4	20.2	21.1
Voltage at $P_{max}$	$V_{mpp}$	V	31.7	31.7	31.7	31.7	31.7
Current at $P_{max}$	$I_{mpp}$	A	9.27	9.71	10.15	10.60	11.04
Open-circuit voltage	$V_{oc}$	V	38.8	38.8	38.8	38.8	38.8
Short-circuit current	$I_{sc}$	A	9.71	10.18	10.64	11.10	11.56

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3. Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

## YL275CG2530F-1 Optimized electrical parameters (considering the power gain from rear side)

Power output from the front	$P_{max}$	W	275				
Energy yield			5%	10%	15%	20%	25%
Power output from both sides	$P_{max}$	W	289	303	316	330	344
Module efficiency	$\eta_m$	%	17.4	18.2	19.0	19.9	20.7
Voltage at $P_{max}$	$V_{mpp}$	V	31.4	31.4	31.4	31.4	31.4
Current at $P_{max}$	$I_{mpp}$	A	9.19	9.63	10.06	10.50	10.94
Open-circuit voltage	$V_{oc}$	V	38.6	38.6	38.6	38.6	38.6
Short-circuit current	$I_{sc}$	A	9.67	10.13	10.59	11.05	11.51

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5 spectrum according to EN 60904-3. Average relative efficiency reduction of 1.9% at 200W/m<sup>2</sup> according to EN 60904-1.

## QUALIFICATIONS & CERTIFICATES

IEC 61215, IEC 61730, CE, ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007, PV Cycle, SA 8000

