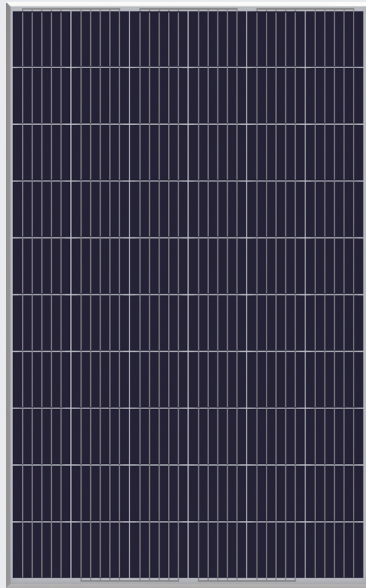


**YGE  
60 CELL  
SERIES 2  
HSF SMART**

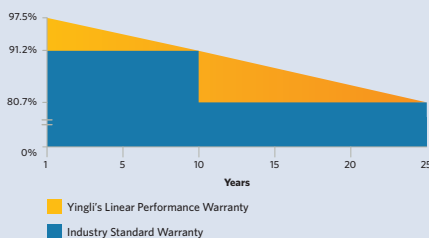


**19.6%**  
CELL EFFICIENCY

**10 YEAR**  
PRODUCT WARRANTY

**0-5W**  
POWER TOLERANCE

**25 Years Linear Warranty**



**PROVEN  
PERFORMANCE  
AND VERSATILITY**

The circuit design of YGE series modules developed by Yingli has been optimized. Each of its cell has been improved by bypass design so that they can be used in more shadowy and complex areas. Meanwhile, in land scarcity areas, the distance between modules has been shortened to increase the installed capacity and thus further improve power generating capacity in a systematic way.



**Hot spot free**

Every piece of cells parallels a diode, when a cell is covered by shade or occurs an exception, the paralleled diode can bypass this cell, thus avoid hot spot, and can retain the maximum power output.



**Lower temperature**

When the module gets shielded, its operating temperature will be no higher than 85°C. It ensures the security of the system, increases the power output of the low-temperature module, and lengthens its service life.



**High Power**

Compared with conventional modules, the use of smart hot spot free module for anti-shielding can increase the system power generating capacity by 1% with the same installation spacing and save land by 25% with the same amount of generated electricity.



**PID Resistant**

Tested in accordance to the standard IEC 62804, our PV modules have demonstrated resistance against PID (Potential Induced Degradation), which translates to security for your investment.

**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.

# YGE 60 CELL SERIES 2 HSF SMART

## ELECTRICAL PERFORMANCE

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

Module type	YLxxxPD-29b (xxx=P <sub>max</sub> )						
Power output	P <sub>max</sub>	W	290	285	280	275	265
Power output tolerances	ΔP <sub>max</sub>	W	0 / + 5				
Module efficiency	η <sub>m</sub>	%	17.4	17.1	16.8	16.5	15.9
Voltage at P <sub>max</sub>	V <sub>mpp</sub>	V	31.8	31.6	31.4	31.0	30.7
Current at P <sub>max</sub>	I <sub>mpp</sub>	A	9.12	9.02	8.92	8.90	8.80
Open-circuit voltage	V <sub>oc</sub>	V	38.5	38.4	38.2	37.9	37.8
Short-circuit current	I <sub>sc</sub>	A	9.65	9.55	9.45	9.35	9.18

STC: 1000W/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5g spectrum according to EN 60904-3.  
Average relative efficiency reduction of 3.3% 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	211.5	207.9	204.2	200.6	196.9	193.3
Voltage at P <sub>max</sub>	V <sub>mpp</sub>	V	29.0	28.8	28.6	28.2	28.0	27.8
Current at P <sub>max</sub>	I <sub>mpp</sub>	A	7.30	7.22	7.14	7.12	7.04	6.96
Open-circuit voltage	V <sub>oc</sub>	V	35.6	35.5	35.3	35.0	35.0	34.9
Short-circuit current	I <sub>sc</sub>	A	7.80	7.72	7.64	7.56	7.49	7.42

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	-0.42
Temperature coefficient of V <sub>oc</sub>	β <sub>Voc</sub>	%/°C	-0.32
Temperature coefficient of I <sub>sc</sub>	α <sub>Isc</sub>	%/°C	0.05

## OPERATING CONDITIONS

Max. system voltage	1000V <sub>DC</sub>
Max. series fuse rating	15A
Limiting reverse current	15A
Operating temperature range	-40°C to 85°C
Max. static load, front (e.g., snow)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter / velocity)	25mm / 23m/s

## CONSTRUCTION MATERIALS

Front cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions / number of busbars)	60 / multicrystalline silicon / 156.75mm x 156.75mm (+/-0.25) / 4 or 5
Frame (material)	anodized aluminum alloy
Junction box (protection degree)	≥ IP67
Cable (length / cross-sectional area)	1000mm / 4mm <sup>2</sup>
Plug connector (type / protection degree)	MC4 / IP68 or PV-ZH202 / 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, SA 8000



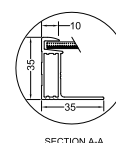
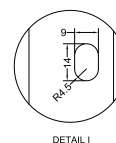
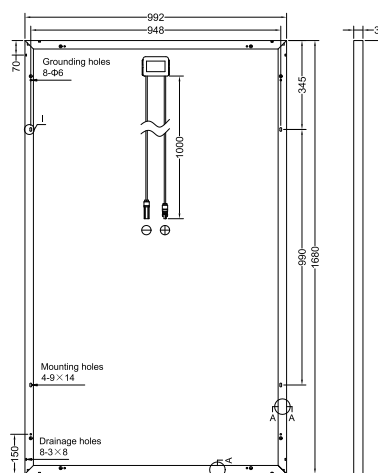
## GENERAL CHARACTERISTICS

Dimensions (L / W / H)	1680mm / 992mm / 35mm
Weight	19kg

## PACKAGING SPECIFICATIONS

Number of modules per pallet	30
Number of pallets per 40' container	28
Packaging box dimensions (L / W / H)	1720mm / 1135mm / 1165mm
Box weight	603kg

Unit: mm



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

Yingli Partners:



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