

# YGE 72 CELL SERIES 2 BLACK SILICON

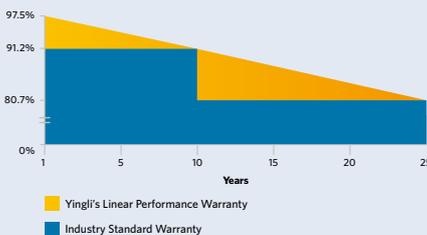


**19.0%**  
CELL EFFICIENCY

**10 YEAR**  
PRODUCT WARRANTY

**0-5W**  
POWER TOLERANCE

## 25 Year Linear Warranty



# BLACK POWERFUL HIGH-TECH FOR YOUR SYSTEM

YGE Black Silicon modules are another milestone in Yingli's 20 year R&D history. A special production process leads to a black cell surface which absorbs most of the sunlight. More absorbed light means less reflection and a higher energy conversion efficiency and electricity output, boosting the power of your system.

### + $\frac{W}{m^2}$ High Power Density

An increased power density of the modules leads to a smaller footprint of your system and a decrease in specific system costs.



### Low Light Behavior

YGE Black Silicon Series modules are highly sensitive for photons and continue to produce energy even at low light levels.



### PID Resistant

Tested to the industry's most rigorous durability standards, YGE Black Silicon Series modules are PID-resistant in accordance to IEC 62804. To ensure PID-resistance at higher system voltages, these cells receive an extra layer of protective silicon nitride.



### Advanced Glass

Our high-transmission glass features a unique anti-reflective coating that directs more light on the solar cells, resulting in a higher energy yield.

### 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. Deploying more than 17GW solar panels worldwide, Yingli Solar makes solar power possible for communities everywhere by using our global manufacturing and logistics expertise to address unique local challenges.

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## ELECTRICAL PERFORMANCE

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

| Module type             | YLxxxP-35b(XXX=Pmax) |   |         |      |      |      |      |      |
|-------------------------|----------------------|---|---------|------|------|------|------|------|
| Power output            | $P_{max}$            | W | 335     | 330  | 325  | 320  | 315  | 310  |
| Power output tolerances | $\Delta P_{max}$     | W | 0 / + 5 |      |      |      |      |      |
| Module efficiency       | $\eta_m$             | % | 17.2    | 17.0 | 16.7 | 16.5 | 16.2 | 15.9 |
| Voltage at $P_{max}$    | $V_{mpp}$            | V | 37.6    | 37.4 | 37.3 | 37.0 | 36.8 | 36.3 |
| Current at $P_{max}$    | $I_{mpp}$            | A | 8.91    | 8.84 | 8.72 | 8.64 | 8.56 | 8.53 |
| Open-circuit voltage    | $V_{oc}$             | V | 46.7    | 46.4 | 46.3 | 46.0 | 45.7 | 45.6 |
| Short-circuit current   | $I_{sc}$             | A | 9.34    | 9.29 | 9.24 | 9.18 | 9.12 | 8.99 |

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          | $P_{max}$ | W | 244.4 | 240.7 | 237.1 | 233.4 | 229.8 | 226.1 |
| Voltage at $P_{max}$  | $V_{mpp}$ | V | 34.3  | 34.0  | 34.0  | 33.8  | 33.6  | 33.1  |
| Current at $P_{max}$  | $I_{mpp}$ | A | 7.13  | 7.07  | 6.98  | 6.91  | 6.85  | 6.82  |
| Open-circuit voltage  | $V_{oc}$  | V | 43.1  | 42.8  | 42.8  | 42.5  | 42.2  | 42.1  |
| Short-circuit current | $I_{sc}$  | A | 7.55  | 7.51  | 7.47  | 7.42  | 7.37  | 7.27  |

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 $P_{max}$ | $\gamma$       | %/°C | -0.42    |
| Temperature coefficient of $V_{oc}$  | $\beta_{Voc}$  | %/°C | -0.32    |
| Temperature coefficient of $I_{sc}$  | $\alpha_{Isc}$ | %/°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) | 72 / 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)                       | 1100mm / 4mm <sup>2</sup>  |
| Plug connector (type / protection degree)                   | MC4 / IP68 or YTO8-1S / IP67 or Amphenol H4 / IP68 or Forsol SIKE4 / IP68 or Renhe RH05-6 / IP67 |

- 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, MCS, ISO 9001:2008, ISO 14001:2004, BS OHSAS 18001:2007, PV Cycle, SA 8000



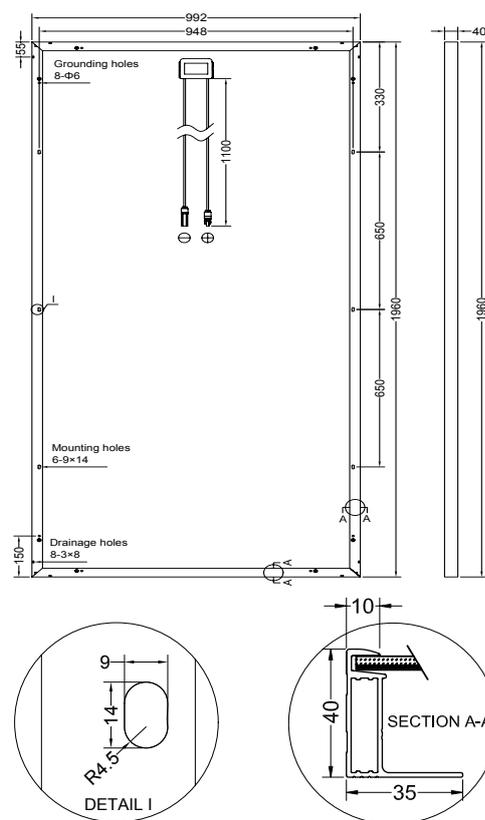
## GENERAL CHARACTERISTICS

|                        |                       |
|------------------------|-----------------------|
| Dimensions (L / W / H) | 1960mm / 992mm / 40mm |
| Weight                 | 22kg                  |

## PACKAGING SPECIFICATIONS

|                                      |                      |
|--------------------------------------|----------------------|
| Number of modules per pallet         | 26                   |
| Number of pallets per 40' container  | 24                   |
| Packaging box dimensions (L / W / H) | 1995mm/1145mm/1170mm |
| Box weight                           | 616kg                |

Unit: mm



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

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