

# Think **Black** series



**PERLIGHT**  
smart.black

285W / 290W / 295W / 300W **60 CELLS**  
High Efficiency PERC Cells



## THE REAL BLACK IN SOLAR SLEEK, POWERFUL, STYLISH MONOCRYSTALLINE SILICON SOLAR MODULE

- HIGH QUALITY BLACK WELDING STRIPS - Prevents over heating of the panel (Patent pending)
- LONGER LIFE - Less panel degradation over the life of the panel
- ULTRA SMOOTH TEMPERED GLASS - Less dust and grime collecting on the panels
- NEW GENERATION ANTI REFLECTIVE GLASS COATING - Increases light transmittance
- HIGH QUALITY EVA FILM - Widens light transmittance range



# Think Black series

## ELECTRICAL PERFORMANCE

| Module type             | PLM-290MB-60 Series |   |       |       |       |       |       |       |  |
|-------------------------|---------------------|---|-------|-------|-------|-------|-------|-------|--|
| Power output            | $P_{max}$           | W | 280   | 285   | 290   | 295   | 300   | 305   |  |
| Power output tolerances | $\Delta P_{max}$    | % | 0~+5  |       |       |       |       |       |  |
| Voltage at Pmax         | $V_{mpp}$           | V | 32.08 | 32.39 | 32.70 | 32.93 | 33.12 | 33.30 |  |
| Current at Pmax         | $I_{mpp}$           | A | 8.73  | 8.80  | 8.87  | 8.96  | 9.06  | 9.16  |  |
| Open-circuit voltage    | $V_{oc}$            | V | 38.82 | 39.19 | 39.57 | 39.85 | 40.08 | 40.29 |  |
| Short-circuit current   | $I_{sc}$            | A | 9.34  | 9.41  | 9.48  | 9.55  | 9.65  | 9.75  |  |
| Solar Module Efficiency | Eff.                | % | 17.21 | 17.51 | 17.82 | 18.13 | 18.44 | 18.74 |  |

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM 1.5g spectrum according to EN 60904-3.  
Power measurement uncertainty is within +/- 3%

## THERMAL CHARACTERISTICS

|                                    |                |      |       |
|------------------------------------|----------------|------|-------|
| Nominal operating cell temperature | NOCT           | °C   | 45±2  |
| Temperature coefficient of Pmax    | $\gamma$       | %/°C | -0.40 |
| Temperature coefficient of Voc     | $\beta_{voc}$  | %/°C | -0.30 |
| Temperature coefficient of Isc     | $\alpha_{isc}$ | %/°C | 0.06  |

## OPERATING CONDITIONS

|                                     |                         |
|-------------------------------------|-------------------------|
| Max. system voltage                 | 1000V <sub>DC</sub>     |
| Limiting reverse current            | 15A                     |
| Operating temperature range         | -40°C to 85°C           |
| Max. static load front (e.g., snow) | 3800Pa Safe factor: 1.5 |
| Max. static load back (e.g., wind)  | 1600Pa Safe factor: 1.5 |

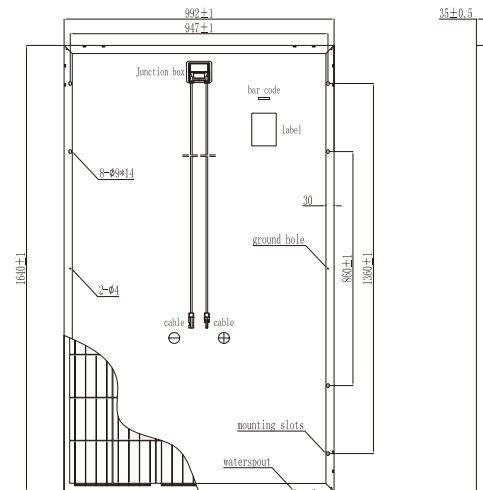
## MECHANICAL CHARACTERISTICS

|                                     |  |
|-------------------------------------|--|
| Front cover (material / thickness)  | low-iron tempered glass / 3.2mm  |
| Backsheet (color)                   | black  |
| Cell (quantity/material/dimensions) | 60 / monocrystalline silicon / 156.75x156.75mm   |
| Frame (material / color)            | anodized aluminum alloy / black  |
| Junction box (protection degree)    | ≥IP67  |
| Cables & Plug connectors            | Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd.<br>PV-CY05L; Rated voltage=1000VDC; Rated current=30A; Ip67<br>Zhejiang Jiamei Tianheyuan Photovoltaic Technology Co., Ltd.<br>PV-JM601; Rated voltage=1000VDC; Rated current=16A; Ip67<br>Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.<br>PV-ZH202; Rated voltage=1000VDC; Rated current=30A; Ip67 |
| Module Dimensions (L / W / H)       | 1640mm x 992mm x 35mm  |
| Module Weight                       | 18 kg  |

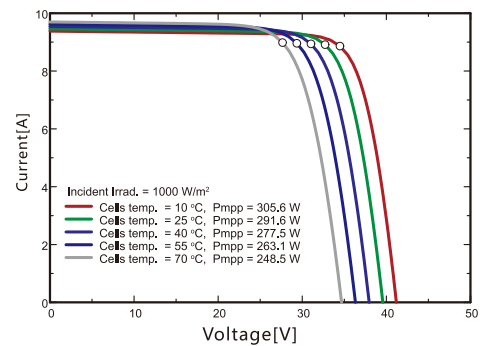
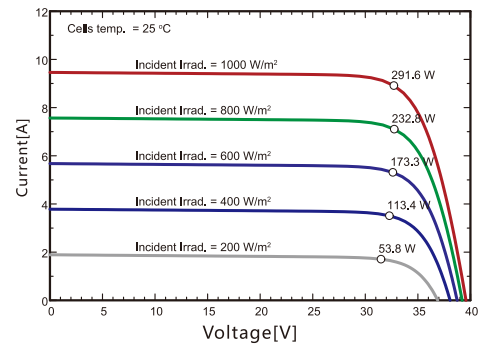
## PACKING DETAILS

|                       |       |       |
|-----------------------|-------|-------|
| Container             | 20'GP | 40'HQ |
| Pieces per pallet     | 60    | 66    |
| Pallets per container | 6     | 14    |
| Pieces per container  | 360   | 924   |

## Module Diagram:

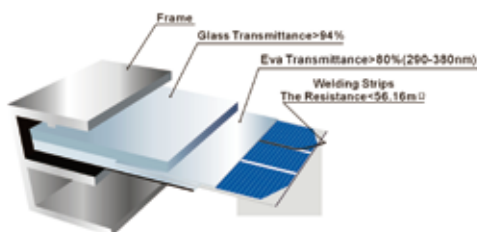


## Electrical Curves:



Perlight Partners

### ALL BLACK PANELS



### REGULAR BLACK PANELS

