PANDA BIFACIAL modules generate power from the front side as well as from the back. 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 highest increased by 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 could yield more.

**High Power Output**
Multi-busbar half cells and series & parallel electrical structure could reduce CTM loss and increase module output power.

**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, dust or known PID risk factors.

**Optimal Self-cleaning@CL**
Optimal self-cleaning due to frameless module design.

**Mechanical Performance@CF**
Specially designed aluminium frames enhance the mechanical performance of modules and the installation efficiency of systems.

**Yingli Green Energy**
Yingli Green Energy Holding Company Limited, 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.
## ELECTRICAL PERFORMANCE

<table>
<thead>
<tr>
<th>Module type</th>
<th>144HCL (144 half-cell, frameless): YxxxCG2536L-2 1/2</th>
<th>144HCF (144 half-cell, framed): YxxxCG2536F-2 1/2 (xxx=Pmax)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Electrical Parameters at Standard Test Conditions (STC)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power output ($P_{max}$) W</td>
<td>415 410 405 400 395 390 385 380</td>
<td></td>
</tr>
<tr>
<td>Voltage at $P_{max}$ ($V_{max}$) V</td>
<td>42.74 42.40 42.06 41.72 41.37 41.01 40.66 40.30</td>
<td></td>
</tr>
<tr>
<td>Open-circuit voltage ($V_{oc}$) V</td>
<td>50.70 50.30 49.90 49.50 49.10 48.70 48.30 47.90</td>
<td></td>
</tr>
<tr>
<td>Short-circuit current ($I_{sc}$) A</td>
<td>10.20 10.16 10.12 10.08 10.04 10.00 9.96 9.92</td>
<td></td>
</tr>
<tr>
<td>Power output tolerance ($AP_{max}$) W</td>
<td>0 / + 5</td>
<td></td>
</tr>
</tbody>
</table>

| Module efficiency of $144HCL$ ($n_{max}$) %                | 20.45 20.21 19.96 19.71 19.47 19.22 18.98 18.73   |  |
| Module efficiency of $144HCF$ ($n_{max}$) %                | 20.27 20.03 19.78 19.54 19.29 19.05 18.81 18.56   |  |

### PACKAGING SPECIFICATIONS

#### PACKAGING SPECIFICATIONS

<table>
<thead>
<tr>
<th>Dimensions (L / W / H)</th>
<th>203mm / 999mm / 6mm</th>
<th>Dimensions (L / W / H)</th>
<th>2037mm / 1000mm / 30mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>28.4kg</td>
<td>Weight</td>
<td>29.8kg</td>
</tr>
<tr>
<td>Number of modules per pallet</td>
<td>32</td>
<td>Number of modules per pallet</td>
<td>35</td>
</tr>
<tr>
<td>Number of pallets per 40’ container</td>
<td>22</td>
<td>Number of pallets per 40’ container</td>
<td>22</td>
</tr>
<tr>
<td>Packaging pallets dimensions (L / W / H)</td>
<td>2160mm / 125mm / 1182mm</td>
<td>Packaging pallets dimensions (L / W / H)</td>
<td>2090mm / 110mm / 1157mm</td>
</tr>
<tr>
<td>Pallet weight</td>
<td>984kg</td>
<td>Pallet weight</td>
<td>1087kg</td>
</tr>
</tbody>
</table>

#### THERMAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Nominal module operating temperature</th>
<th>NMOT</th>
<th>°C</th>
<th>3912</th>
<th>Bifaciality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature coefficient of $P_{max}$</td>
<td>$V_{max}$ % / °C</td>
<td>-0.35</td>
<td>Bifaciality of $P_{max}$</td>
<td>$\Phi_{max}$ %</td>
</tr>
<tr>
<td>Temperature coefficient of $V_{oc}$</td>
<td>$\beta_{oc}$ % / °C</td>
<td>-0.30</td>
<td>Bifaciality of $V_{oc}$</td>
<td>$\Phi_{oc}$ %</td>
</tr>
<tr>
<td>Temperature coefficient of $I_{sc}$</td>
<td>$\alpha_{sc}$ % / °C</td>
<td>0.04</td>
<td>Bifaciality of $I_{sc}$</td>
<td>$\Phi_{sc}$ %</td>
</tr>
</tbody>
</table>

#### OPERATING CONDITIONS

Max. system voltage: 1500V
Max. series fuse rating*: 20A
Operating temperature range: -40°C to 85°C
Fire resistance: Class A
Halstone impact (diameter / velocity): 25mm / 23m·s⁻¹
Snow load, front (144HCL / 144HCF): 3000Pa / 5400Pa
Wind load, back (144HCL / 144HCF): 2400Pa / 2400Pa
Plug connector (type / protection degree): RH DS-8 / IP67

*DO NOT connect Fuse in Combiner Box with two or more strings in parallel connection.

#### CONSTRUCTION MATERIALS

- Front and back cover (material / thickness): low-iron semi-tempered glass / 2.5mm x 2
- Low-iron semi-tempered glass / 5-12
- Frame: none / anodized aluminum alloy
- Cables (length / cross-sectional area): 200mm / 4mm²
- Junction box (protection degree): N-type monocrystalline / S-12
- Grounding: 4-Φ4.2
- Roofing: 8-3×8
- Hinges: 8-4×10
- Nuts: 20-2×14

#### QUALIFICATIONS & CERTIFICATES


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

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