JA smart modules incorporate innovative power electronics from Tigo Energy to achieve module-level diagnostics, maximum energy harvest through module level DC power optimization, and reduction of arc, fire and safety hazards. Integration of the module optimizer into the junction box enables patented Smart Curve technology, which allows up to 30% longer strings and significant balance-of-system (BOS) savings.

**330W PERC Smart Module**

**JAM60S13 310-330/PR Series**

**Introduction**

- More efficient O&M
- Flexible system assembly
- Safer solar
- Maximized energy harvest

**Superior Warranty**

- 12-year product warranty
- 25-year linear power output warranty

**Comprehensive Certificates**

- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems

Specifications subject to technical changes and tests. JA Solar reserves the right of final interpretation.
**SYSTEM ARCHITECTURE**

JA smart system components work together with any inverter to maximize energy harvest. JA smart modules communicate wirelessly through the gateway, allowing users to monitor system performance in real time.

**SMART CURVE TECHNOLOGY**

Module-integrated smart technology reduces the open circuit voltage range for each module and allows longer strings to be designed. The maximum voltage is programmed by JA Solar in the factory.

- Hardware voltage clamp prevents over-voltage
- Design up to 30% longer strings
- Fewer combiner boxes, fuses and wiring
- Smaller resistance losses

**MECHANICAL DIAGRAMS**

**ELECTRICAL PARAMETERS AT NOCT**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Max Power(Pmax) [W]</td>
<td>229</td>
<td>233</td>
<td>237</td>
<td>241</td>
<td>244</td>
</tr>
<tr>
<td>Open Circuit Voltage(Voc) [V]</td>
<td>35.36</td>
<td>35.70</td>
<td>36.03</td>
<td>36.36</td>
<td>36.69</td>
</tr>
<tr>
<td>Maximum Power Voltage(Vmp) [V]</td>
<td>30.67</td>
<td>31.00</td>
<td>31.32</td>
<td>31.64</td>
<td>31.96</td>
</tr>
<tr>
<td>Short Circuit Current(Isc) [A]</td>
<td>7.93</td>
<td>7.97</td>
<td>8.01</td>
<td>8.05</td>
<td>8.09</td>
</tr>
<tr>
<td>Maximum Power Current(Imp) [A]</td>
<td>7.48</td>
<td>7.52</td>
<td>7.56</td>
<td>7.60</td>
<td>7.64</td>
</tr>
<tr>
<td>NOCT</td>
<td>35±1°C</td>
<td>1000W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CHARACTERISTICS**

**ELECTRICAL PARAMETERS AT STC**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Maximum Power(Pmax) [W]</td>
<td>310</td>
<td>315</td>
<td>320</td>
<td>325</td>
<td>330</td>
</tr>
<tr>
<td>Open Circuit Voltage(Voc) [V]</td>
<td>37.70</td>
<td>38.01</td>
<td>38.30</td>
<td>38.58</td>
<td>38.91</td>
</tr>
<tr>
<td>Maximum Power Voltage(Vmp) [V]</td>
<td>32.60</td>
<td>32.89</td>
<td>33.17</td>
<td>33.44</td>
<td>33.75</td>
</tr>
<tr>
<td>Short Circuit Current(Isc) [A]</td>
<td>10.04</td>
<td>10.11</td>
<td>10.18</td>
<td>10.25</td>
<td>10.32</td>
</tr>
<tr>
<td>Module Efficiency [%]</td>
<td>18.8</td>
<td>19.1</td>
<td>19.4</td>
<td>19.7</td>
<td>20.0</td>
</tr>
<tr>
<td>Power Tolerance</td>
<td>0~+5W</td>
<td>0%</td>
<td>+0.060%/℃</td>
<td>0%</td>
<td>-0.370%/℃</td>
</tr>
<tr>
<td>Temperature Coefficient of Isc(Isc) [α_Isc]</td>
<td>0℃</td>
<td>0%</td>
<td>+0.060%/℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient of Voc(Voc) [β_Voc]</td>
<td>0℃</td>
<td>0%</td>
<td>-0.370%/℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient of Pmax(γ_Pmax)</td>
<td>0℃</td>
<td>0%</td>
<td>+0.060%/℃</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- Cell: Mono
- Weight: 18.4kg±3%
- Dimensions: 1657±2mm×996±2mm×35±1mm
- Cable Cross Section Size: 4mm²
- No. of cells: 60(6x10)
- Junction Box: Tigo smart J-Box IP67
- Connector: Genuine MC4
- Country of Manufacturer: China/Vietnam

**OPERATING CONDITIONS**

- Maximum System Voltage: 1000V DC (IEC)
- Operating Temperature: -40℃~+95℃
- Maximum Series Fuse: 20A
- Maximum Static Load: Front 3600Pa, 1.5
- Maximum Static Load: Back 1600Pa, 1.5
- NOCT: 45±2°C
- Application Class: Class A

**Remark:** Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

**Remark:** Customized frame color and cable length available upon request.