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.

290W Smart Module
JAP60S04 270-290/SC Series

Introduction

- Safer solar
- More efficient O&M
- Flexible system assembly
- 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

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

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Shanghai JA Solar Technology Co., Ltd.

Version No. : Global_EN_20181206A
JA Solar Smart Module Components with Inverter and Gateway

**System Architecture**

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

**Smart Curve Technology**

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

**Electrical Parameters at STC**

<table>
<thead>
<tr>
<th>Type</th>
<th>JAP60S04-270/SC</th>
<th>JAP60S04-275/SC</th>
<th>JAP60S04-280/SC</th>
<th>JAP60S04-285/SC</th>
<th>JAP60S04-290/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Maximum Power (Pmax) [W]</td>
<td>270</td>
<td>275</td>
<td>280</td>
<td>285</td>
<td>290</td>
</tr>
<tr>
<td>Open Circuit Voltage (Voc) [V]</td>
<td>36.06</td>
<td>36.29</td>
<td>36.58</td>
<td>36.70</td>
<td>36.99</td>
</tr>
<tr>
<td>Maximum Power Voltage (Vmp) [V]</td>
<td>31.13</td>
<td>31.34</td>
<td>31.61</td>
<td>31.70</td>
<td>31.98</td>
</tr>
<tr>
<td>Maximum Power Current (Imp) [A]</td>
<td>8.67</td>
<td>8.77</td>
<td>8.86</td>
<td>9.01</td>
<td>9.07</td>
</tr>
<tr>
<td>Module Efficiency [%]</td>
<td>16.5</td>
<td>16.8</td>
<td>17.1</td>
<td>17.4</td>
<td>17.7</td>
</tr>
<tr>
<td>Power Tolerance</td>
<td>0~+5W</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient of Voc (β_Voc)</td>
<td>+0.05%/°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient of Isc (α_Isc)</td>
<td>+0.4%/°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Operating Conditions**

- Irradiance 1000W/m², cell temperature 25°C, AM1.5G

**Characteristics**

- Current-Voltage Curve
- With Smart-Curve
- Without Smart-Curve

**Mechanical Diagrams**

**Specifications**

- Cell: Poly
- Weight: 18.2 kg
- Dimensions: 1600 mm x 991 mm x 35 mm
- Cable Cross Section Size: 4 mm²
- No. of cells: 60 (6x10)
- Junction Box: Tigo smart J-Box IP67
- Connector: PV-KST4(Male), PV-KBT4(Female)
- PVZH-202(NBZH)
- Country of Manufacturer: China/Vietnam

**Electrical Parameters at STC**

<table>
<thead>
<tr>
<th>Type</th>
<th>JAP60S04-270/SC</th>
<th>JAP60S04-275/SC</th>
<th>JAP60S04-280/SC</th>
<th>JAP60S04-285/SC</th>
<th>JAP60S04-290/SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Maximum Power (Pmax) [W]</td>
<td>200</td>
<td>204</td>
<td>208</td>
<td>211</td>
<td>215</td>
</tr>
<tr>
<td>Open Circuit Voltage (Voc) [V]</td>
<td>33.85</td>
<td>34.06</td>
<td>34.29</td>
<td>34.44</td>
<td>34.76</td>
</tr>
<tr>
<td>Maximum Power Voltage (Vmp) [V]</td>
<td>29.29</td>
<td>29.48</td>
<td>29.69</td>
<td>29.83</td>
<td>30.14</td>
</tr>
<tr>
<td>Short Circuit Current (Isc) [A]</td>
<td>7.27</td>
<td>7.33</td>
<td>7.40</td>
<td>7.49</td>
<td>7.55</td>
</tr>
<tr>
<td>NOCT</td>
<td>35°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Operating Conditions**

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

**Characteristics**

- Current-Voltage Curve: JAP60S04-270/SC
- Current-Voltage Curve: JAP60S04-275/SC

**System Architecture**

- Gateway
- Management Unit
- Cloud Data Center
- Web Applications

**Inverter**

- Gateway
- Web Applications

**Cloud Data Center**

- Smart Modules
- Gateway
- Management Unit
- Web Applications

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