THE

DUOMAX™

HALF-CELL DUAL GLASS 144 LAYOUT MODULE

144 LAYOUT
MONOCRYSTALLINE MODULE

390-415W
POWER OUTPUT RANGE

20.5%
MAXIMUM EFFICIENCY

0~+5W
POSITIVE POWER TOLERANCE

Products

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>POWER RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSM-DEG15M.20(II)</td>
<td>390-415W</td>
</tr>
</tbody>
</table>

High power
- Up to 415W front power and 20.5% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Lower resistance of half-cut and good reflection effect of MBB ensure high power

High reliability
- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Proven to be reliable in high temperature and humidity areas
- Certified to fire class A
- Minimizes micro-crack and snail trails
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load

High energy generation
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Lower temp coefficient (-0.35%) and NMOT bring more energy leading to lower LCOE
- Better anti-shading performance and lower operating temperature

Easy to install
- Frame design makes module compatible with all racking and installation methods
- Easy to handle and install as normal framed module during transportation

Trina Solar’s DUOMAX Performance Warranty

From the 2nd year to the 30th year, the average annual power decline will be no more than 0.5%.

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

Comprehensive Products and System Certificates
- IEC61215/IEC61730/IEC61701/IEC62716/UL1703
- ISO 9001: Quality Management System
- ISO 14001: Environmental Management System
- ISO 14064: Greenhouse Gases Emissions Verification
- OHSAS 18001: Occupation Health and Safety Management System
- EU-28 WEEE
- RECYCLABLE PACKAGING
- ISO 9001: Quality Management System
- www.tuv-sud.com/ms-cert

Trina Solar
**ELECTRICAL DATA (STC)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>390</th>
<th>395</th>
<th>400</th>
<th>405</th>
<th>410</th>
<th>415</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Power Watts-P_{MAX} (Wp)*</td>
<td>390</td>
<td>395</td>
<td>400</td>
<td>405</td>
<td>410</td>
<td>415</td>
</tr>
<tr>
<td>Power Output Tolerance-P_{MAX} (W)</td>
<td>0 ~ +/-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Power Voltage-V_{MPPT} (V)</td>
<td>40.0</td>
<td>40.1</td>
<td>40.3</td>
<td>40.5</td>
<td>40.7</td>
<td>40.9</td>
</tr>
<tr>
<td>Maximum Power Current-I_{MPPT} (A)</td>
<td>9.75</td>
<td>9.86</td>
<td>9.92</td>
<td>10.00</td>
<td>10.07</td>
<td>10.15</td>
</tr>
<tr>
<td>Open Circuit Voltage-V_{OC} (V)</td>
<td>48.5</td>
<td>48.7</td>
<td>49.0</td>
<td>49.2</td>
<td>49.4</td>
<td>49.6</td>
</tr>
<tr>
<td>Short Circuit Current-I_{SC} (A)</td>
<td>10.30</td>
<td>10.37</td>
<td>10.45</td>
<td>10.52</td>
<td>10.59</td>
<td>10.66</td>
</tr>
<tr>
<td>Module Efficiency η (%)</td>
<td>19.2</td>
<td>19.5</td>
<td>19.7</td>
<td>20.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
</tbody>
</table>

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.

- Measuring tolerance: ±3%.

---

**ELECTRICAL DATA (NMOT)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>295</th>
<th>299</th>
<th>303</th>
<th>307</th>
<th>310</th>
<th>314</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Power-P_{MAX} (Wp)</td>
<td>295</td>
<td>299</td>
<td>303</td>
<td>307</td>
<td>310</td>
<td>314</td>
</tr>
<tr>
<td>Maximum Power Voltage-V_{MPPT} (V)</td>
<td>37.7</td>
<td>37.9</td>
<td>38.1</td>
<td>38.3</td>
<td>38.5</td>
<td>38.7</td>
</tr>
<tr>
<td>Maximum Power Current-I_{MPPT} (A)</td>
<td>7.83</td>
<td>7.89</td>
<td>7.95</td>
<td>8.01</td>
<td>8.06</td>
<td>8.12</td>
</tr>
<tr>
<td>Open Circuit Voltage-V_{OC} (V)</td>
<td>45.8</td>
<td>46.0</td>
<td>46.3</td>
<td>46.5</td>
<td>46.6</td>
<td>46.8</td>
</tr>
<tr>
<td>Short Circuit Current-I_{SC} (A)</td>
<td>8.29</td>
<td>8.35</td>
<td>8.41</td>
<td>8.47</td>
<td>8.52</td>
<td>8.58</td>
</tr>
</tbody>
</table>

NMOT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

---

**MECHANICAL DATA**

- Solar Cells: Monocrystalline
- Cell Orientation: 144 cells (6 × 24)
- Module Dimensions: 2024 × 1002 × 30 mm (79.69 × 39.45 × 1.18 inches)
- Weight: 26.0 kg (57.3 lb)
- Encapsulant Material: EVA
- Back Glass: 2.0 mm (0.08 inches), Heat Strengthened Glass
- Frame: 30 mm (1.18 inches) Anodized Aluminium Alloy
- J-Box: IP 68 rated
- Cables: Photovoltaic Technology Cable 4.0mm² (0.006 inches²), Portrait: N 140mm/P 285mm (5.51/11.22 inches), Landscape: N 1400mm/P 1400mm (55.12/55.12 inches)
- Connector: MC4 EVO2 / TS4*

*Please refer to regional datasheet for specified connector.

---

**TEMPERATURE RATINGS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMOT (Nominal Module Operating Temperatures)</td>
<td>41°C (±3°C)</td>
</tr>
<tr>
<td>Temperature Coefficient of P_{MAX}</td>
<td>0.35%/°C</td>
</tr>
<tr>
<td>Temperature Coefficient of V_{OC}</td>
<td>0.25%/°C</td>
</tr>
<tr>
<td>Temperature Coefficient of I_{SC}</td>
<td>0.04%/°C</td>
</tr>
</tbody>
</table>

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

---

**WARRANTY**

- 12 year Product Workmanship Warranty
- 30 year Power Warranty

(please refer to product warranty for details)

---

**PACKAGING CONFIGURATION**

- Modules per box: 35 pieces
- Modules per 40’ container: 770 pieces

---

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
© 2020 Trina Solar Limited. All rights reserved. Specifications included in this datasheet are subject to change without notice.
Version number: TSM_EN_2020_A
www.trinasolar.com