TWMPD-60HS445-465W
P-type Half-cell Monofacial Module (60)

PRODUCT FEATURES
- High Power Output
- Low LCOE
- Maximum Power 465W+
- High Reliability
- Low LID

POWER WARRANTY
1st year <2%, 0.55% power degradation per year from 2 to 25 years

- 12-year Warranty for Materials
- 25-year Warranty for Linear Power Output

MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION
- ISO9001: 2015/Quality Management System
- ISO14001: 2015/Environment Management System

Front

Rear
### Electrical Characteristics (STC)

<table>
<thead>
<tr>
<th>Module Type: TWMPD-60P</th>
<th>445</th>
<th>450</th>
<th>455</th>
<th>460</th>
<th>465</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Power: Pmax [W]</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Open Circuit Voltage: Voc [V]</td>
<td>41.04</td>
<td>41.21</td>
<td>41.38</td>
<td>41.55</td>
<td>41.72</td>
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<tr>
<td>Voltage at Maximum Power: Vmp [V]</td>
<td>33.67</td>
<td>33.83</td>
<td>33.99</td>
<td>34.15</td>
<td>34.31</td>
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<tr>
<td>Module Efficiency: η [%]</td>
<td>20.6</td>
<td>20.8</td>
<td>21.0</td>
<td>21.3</td>
<td>21.5</td>
</tr>
</tbody>
</table>

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: ±3%

### Electrical Characteristics (NMOT)

<table>
<thead>
<tr>
<th>Module Type: TWMPD-60P</th>
<th>336.7</th>
<th>340.5</th>
<th>344.3</th>
<th>348.1</th>
<th>351.9</th>
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</thead>
<tbody>
<tr>
<td>Maximum Power: Pmax [W]</td>
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<tr>
<td>Short Circuit Current: Isc [A]</td>
<td>10.88</td>
<td>10.91</td>
<td>10.95</td>
<td>10.97</td>
<td>11.01</td>
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<tr>
<td>Voltage at Maximum Power: Vmp [V]</td>
<td>32.15</td>
<td>32.37</td>
<td>32.59</td>
<td>32.81</td>
<td>33.02</td>
</tr>
</tbody>
</table>

NMOT: Irradiance 800W/m², Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s

### Mechanical Parameters

- Cells: TPC
- Cell Orientation: 120°(6x20)
- Dimension: 1908x2 x1134 x12 x35mm
- Weight: 24.2kg
- Front Glass: 3.2mm high transmittance, AR coated tempered glass
- Backsheet: White
- Frame: Anodized aluminum alloy frame
- Junction Box: IP68, 3 diodes
- Output Cable: 4.0mm²
- Cable Length: +1200mm, -1200mm, length can be customized
- Wind/Snow Load: 2400Pa/6400Pa
- Packaging: 31pcs per pallet, 744pcs per 40HC

### Operating Parameters

- Operational Temperature: -40°C to +85°C
- Maximum System Voltage: 1500V DC
- Maximum Series Fuse Rating: 25A
- Power Output Tolerance: 0±15W

### Temperature Ratings

- Temperature Coefficient (Pmax): -0.34%/°C
- Temperature Coefficient (Voc): -0.27%/°C
- Temperature Coefficient (Isc): +0.04%/°C
- NMOT: 45±7°C

### Drawings (Unit: mm)