TWMND-54HS415-435W
N-type Half-cell Monofacial Module (54)

PRODUCT FEATURES

- High Power Output
- Low LCOE
- Maximum Power 435W+
- High Reliability
- Low LID

POWER WARRANTY

1st year <1%, 0.4% power degradation per year from 2 to 30 years

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

MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION

- ISO9001: 2015/Quality Management System
- ISO14001: 2015/Environment Management System
Electrical Characteristics (STC)

Module Type: TWMNO-54+1500X

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Circuit Voltage: Voc [V]</td>
<td>37.85</td>
<td>38.00</td>
<td>38.15</td>
<td>38.30</td>
<td>38.45</td>
</tr>
<tr>
<td>Voltage at Maximum Power: Vmp [V]</td>
<td>31.25</td>
<td>31.41</td>
<td>31.57</td>
<td>31.73</td>
<td>31.89</td>
</tr>
<tr>
<td>Module Efficiency: η [%]</td>
<td>21.3</td>
<td>21.5</td>
<td>21.8</td>
<td>22.0</td>
<td>22.3</td>
</tr>
</tbody>
</table>

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass 1.5, Measuring Tolerance: ±3%

Electrical Characteristics (NMOT)

<table>
<thead>
<tr>
<th>Maximum Power: Pmax [W]</th>
<th>312.0</th>
<th>316.0</th>
<th>320.0</th>
<th>324.0</th>
<th>328.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Circuit Voltage: Voc [V]</td>
<td>35.98</td>
<td>36.14</td>
<td>36.30</td>
<td>36.46</td>
<td>36.62</td>
</tr>
<tr>
<td>Short Circuit Current: Isc [A]</td>
<td>11.51</td>
<td>11.57</td>
<td>11.63</td>
<td>11.69</td>
<td>11.75</td>
</tr>
<tr>
<td>Voltage at Maximum Power: Vmp [V]</td>
<td>29.18</td>
<td>29.34</td>
<td>29.50</td>
<td>29.66</td>
<td>29.82</td>
</tr>
<tr>
<td>Current at Maximum Power: Ipm [A]</td>
<td>10.69</td>
<td>10.77</td>
<td>10.85</td>
<td>10.92</td>
<td>11.00</td>
</tr>
</tbody>
</table>

NMOT: Irradiance 800W/m², Ambient Temperature 20°C, Air Mass 1.5, Wind Speed 1m/s

Mechanical Parameters

- Cells: TNC
- Cell Orientation: 108 [6X18]
- Dimension: 1722x2 X1134x2X30mm
- Weight: 20.5kg
- Front Glass: 3.32mm high transmittance, AR coated tempered glass
- Backsheet: White
- Frame: Anodized aluminum alloy frame
- Junction Box: IP68, 3 diodes
- Output Cable: 4.0mm²
- Cable Length: +400mm, -200mm or ±1200mm, length can be customized
- Wind/Snow Load: 2400Pa/5400Pa
- Packaging: 36pcs per pallet, 936pcs per 40THC

Operating Parameters

- Operational Temperature: -40°C~+85°C
- Maximum System Voltage: 1500V DC
- Maximum Series Fuse Rating: 25A
- Power Output Tolerance: 0~+5W

Temperature Ratings

- Temperature Coefficient (Pmax): -0.30%/°C
- Temperature Coefficient (Voc): -0.25%/°C
- Temperature Coefficient (Isc): -0.046%/°C
- NMOT: 45±2°C

Drawings (Unit: mm)