Backsheet Monocrystalline Module

425 W+
Maximum Power Output

0/+5 W
Positive Power Tolerance

21.3%
Maximum Efficiency

Outstanding Visual Appearance
- Designed with aesthetics in mind
- Ultra-thin, virtually invisible busbars
- Excellent cell color control by machine selection

Small in size, big on power
- Generates up to 425 W, 21.3% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping, lower series resistance, improved current collection and enhanced reliability
- Excellent low light performance (IAM) with cell process and module material optimization

Optimal solution for residential rooftops
- Designed for compatibility with existing mainstream inverters, optimizers and mounting systems
- Perfect size and low weight for easy handling. Optimized transportation cost
- Reduces installation cost with higher power bin and efficiency
- Flexible installation solutions for system deployment

High Reliability
- Positive load up to 6,000 Pa (snow)
- Negative load up to 4,000 Pa (wind)

Extended Vertex S Warranty
2%
1st year max. degradation

0.55%
Max. annual degradation from year 2 to 25

15 Years
Product Workmanship Warranty

Comprehensive Product and System Certificates
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
DIMENSIONS OF PV MODULE (mm)

Front View

Rear View

I-V CURVES OF PV MODULE (415W)

P-V CURVES OF PV MODULE (415W)

ELECTRICAL DATA (STC)

<table>
<thead>
<tr>
<th></th>
<th>TSM-405</th>
<th>TSM-410</th>
<th>TSM-415</th>
<th>TSM-420</th>
<th>TSM-425</th>
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<tbody>
<tr>
<td>Peak Power Watts-PMAX (Wp)*</td>
<td>405</td>
<td>410</td>
<td>415</td>
<td>420</td>
<td>425</td>
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<tr>
<td>Power Tolerance-PMAX (W)</td>
<td>0/+5</td>
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<tr>
<td>Maximum Power Voltage-VMPP (V)</td>
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<td>Maximum Power Current-IMPP (A)</td>
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<td>Open Circuit Voltage-VOC (V)</td>
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<td>Short Circuit Current-ISC (A)</td>
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<td>Module Efficiency η (m (%))</td>
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<td>20.5</td>
<td>20.8</td>
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ELECTRICAL DATA (NOCT)

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<td>306</td>
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<td>Short Circuit Current-ISC (A)</td>
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<td>8.49</td>
<td>8.50</td>
<td>8.53</td>
<td>8.55</td>
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MECHANICAL DATA

Solar Cells: Monocrystalline
No. of cells: 144 cells
Module Dimensions: 1762×1134×30 mm
Weight: 21.8 kg
Glass: 3.2 mm, High Transmissio, AR-Coated Heat Strengthened Glass
Encapsulant material: EVA/POE
Backsheet: Black-White
Frame: 30 mm Anodized Aluminium Alloy
J-Box: IP 68 rated
Cables: Photovoltaic Technology Cable 4.0 mm²
Landscape: 1100/1100 mm
Portrait: 280/350 mm*
Connector: TS4/MC4 EVO2*

TEMPERATURE RATINGS

NoCT: (Nominal Operating Cell Temperature) 43°C (±2 K)
Temperature Coefficient of Pmax: -0.34 %/K
Temperature Coefficient of Voc: -0.25 %/K
Temperature Coefficient of Isc: 0.04 %/K

WARRANTY

15 Year product workmanship warranty
25 Year power warranty
2% First year degradation
0.55% Annual power degradation

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 936 pieces

MAXIMUM RATINGS

Operational Temperature: -40 to +85 °C
Maximum System Voltage: 1500 V DC (IEC)
Max Series Fuse Rating: 20 A

*Special order only

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