

MONO CRYSTALLINE HALF-CUT BIFACIAL MODULE

645 / 650 / 655 / 660 / 665 Watts

Panther



Overview

Ground breaking technology: higher power output, improved system performance - the ideal solution for end users who want a fast turnaround on their investments. A fully certified premium quality and high efficiency module made with A Grade materials.

Key Benefits



Certified by Independent Engineering Bodies



Higher Light Conversion



Ultra High Power Output



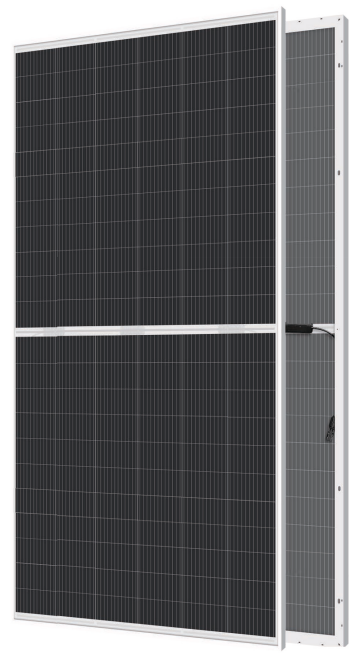
15 Years Limited Product Warranty



Low Resistive Losses



Low LCOE



Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance

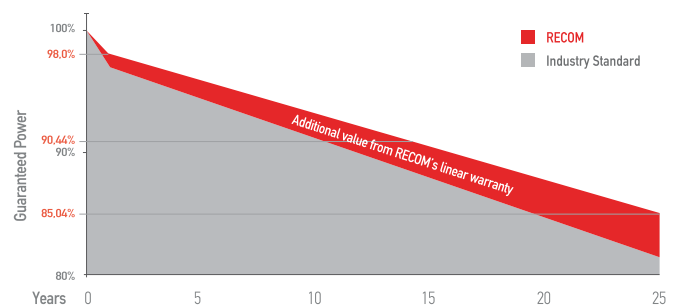


100 % electro-luminescence tested

Tests, Certifications and Warranties

| | |
|-----------------------------|---|
| Standard Tests | IEC 61215, IEC 61730 |
| Factory Quality Tests | ISO 9001: 2015, ISO 14001: 2015 |
| Certifications | Conformity to CE, PV CYCLE Fire safety Class C according to UL790 |
| Insurance | Third party liability insurance provided by Liberty Mutual |
| Wind and Snow Loads Testing | Module certified to withstand extreme wind (2400 Pascal) and snow loads (5400 Pascal) |
| Power Tolerance | Guaranteed +0%/+5% (STC condition) |
| Warranties | <ul style="list-style-type: none"> 15-year limited product warranty 15-year manufacturer warranty on 90.44% of the nominal performance 25-year transferable linear power output warranty |

Linear Performance Warranty



First Year Output $\geq 98\%$ 2-25 Year Decline $\leq 0.54\%$ 25 Year Output $\geq 85.04\%$

MONO CRYSTALLINE HALF-CUT BIFACIAL MODULE

RCM-xxx-8BMM (xxx=645-665)

Electrical Characteristics

| POWER CLASS ⁽¹⁾ | | | 645 | | 650 | | 655 | | 660 | | 665 | |
|----------------------------|------|------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Testing Condition | | | STC | NMOT | STC | NMOT | STC | NMOT | STC | NMOT | STC | NMOT |
| Maximum Power | Pmax | [Wp] | 645 | 488 | 650 | 491 | 655 | 495 | 660 | 499 | 665 | 503 |
| Maximum Power Voltage | Vmp | [V] | 37,41 | 34,68 | 37,61 | 34,86 | 37,81 | 35,05 | 38,01 | 35,24 | 38,21 | 35,42 |
| Maximum Power Current | Imp | [A] | 17,24 | 14,06 | 17,28 | 14,09 | 17,32 | 14,13 | 17,36 | 14,16 | 17,40 | 14,19 |
| Open Circuit Voltage | Voc | [V] | 45,38 | 42,11 | 45,58 | 42,30 | 45,78 | 42,48 | 45,98 | 42,67 | 46,18 | 42,86 |
| Short Circuit Current | Isc | [A] | 18,11 | 14,85 | 18,16 | 14,89 | 18,21 | 14,93 | 18,26 | 14,97 | 18,31 | 15,01 |
| Module Efficiency | Eff | [%] | 20,76 | | 20,92 | | 21,09 | | 21,25 | | 21,41 | |
| Maximum Series Fuse | IR | [A] | 30 | | | | | | | | | |
| Maximum System Voltage | Vsys | [V] | 1500 V DC | | | | | | | | | |

(1) Measurement Tolerances: Pmax (± 3%), Isc & Voc (± 3%) - Power Classification 0/+5W

(2) STC (Standard Testing Condition): Irradiance 1000W/m², Cell Temperature 25°C, AM 1.5

(3) NMOT (Nominal Operating Module Temperature): Irradiance 800W/m², NMOT, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s

Bi Facial Output (4)

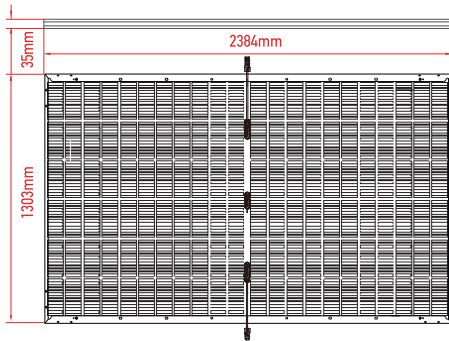
| POWER CLASS | | | 645 | | 650 | | 655 | | 660 | | 665 | | | |
|--------------------------|-------|--------------------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-------|-------|
| Power with Backside Gain | Power | with Backside Gain | Pmax [Wp] | Eff [%] | Pmax [Wp] | Eff [%] | Pmax [Wp] | Eff [%] | Pmax [Wp] | Eff [%] | Pmax [Wp] | Eff [%] | | |
| | | | +5 | [%] | 677,3 | 21,8% | 682,5 | 22,0% | 687,8 | 22,1% | 693,0 | 22,3% | 698,3 | 22,5% |
| | | | +10 | [%] | 709,5 | 22,8% | 715,0 | 23,0% | 720,5 | 23,2% | 726,0 | 23,4% | 731,5 | 23,5% |
| | | | +15 | [%] | 741,8 | 23,9% | 747,5 | 24,1% | 753,3 | 24,2% | 759,0 | 24,4% | 764,8 | 24,6% |
| | | | +20 | [%] | 774,0 | 24,9% | 780,0 | 25,1% | 786,0 | 25,3% | 792,0 | 25,5% | 798,0 | 25,7% |
| | | | +25 | [%] | 806,3 | 26,0% | 812,5 | 26,2% | 818,8 | 26,4% | 825,0 | 26,6% | 831,3 | 26,8% |
| | | | +30 | [%] | 838,5 | 27,0% | 845,0 | 27,2% | 851,5 | 27,4% | 858,0 | 27,6% | 864,5 | 27,8% |

(4) Bifaciality Factor > 70% - Back-side power gain depends upon the specific project albedo - Efficiency is according to the surface of the module

Mechanical Data

| | |
|--------------|--|
| Dimensions | 2384mm x 1303mm x 35mm |
| Weight | 34 Kg |
| Cell Type | Mono Perc - 210mm x 105mm (2 x 66 Pcs) - G12 |
| Front Glass | 3.2mm Tempered and low iron glass + ARC |
| Rear Side | Anti-aging film (Clear) |
| Frame | Anodized Aluminium Alloy |
| Junction Box | IP68 - 3 Bypass diodes |
| Connector | MC4 compatible |
| Output cable | 4 mm ² - Length = 320mm or customized |

Dimensions

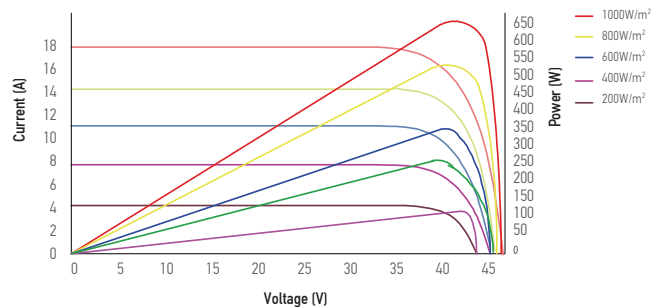


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I-V Curve

The module relative power loss at low light irradiance of 200W/m² is less than 3%.



Temperature Characteristics

| | |
|---|-------------|
| Pmax Temperature Coefficient | -0.34% / °C |
| Voc Temperature Coefficient | -0.25% / °C |
| Isc Temperature Coefficient | +0.04% / °C |
| Operating Temperature | -40~+85 °C |
| Nominal Operating Module Temperature (NMOT) | 42 ± 2°C |

Packing Configuration

| | |
|-----------------------|---------------------|
| Container | 40'HC |
| Pieces per Pallet | 32 |
| Pallets per Container | 18 |
| Pieces per Container | (32+32) x 9=576 pcs |

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