

MONO CRYSTALLINE HALF-CUT BIFACIAL MODULE

640 / 645 / 650 / 655 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



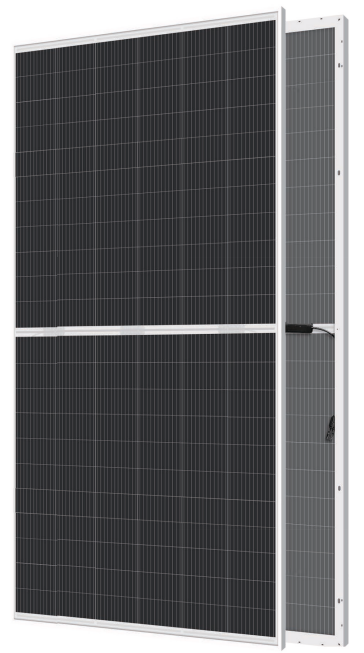
15 Years Limited Product Warranty



Low Resistive Losses



Low LCOE



Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance

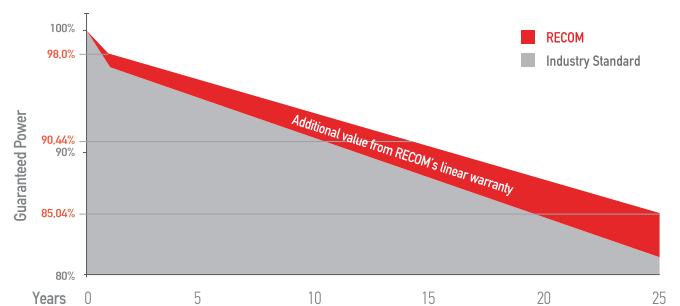


100 % electro-luminescence tested

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-8MM (xxx=640-655)

Electrical Characteristics

POWER CLASS ⁽¹⁾			640		645		650		655	
Testing Condition			STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	Pmax	[Wp]	640	484	645	488	650	491	655	495
Maximum Power Voltage	Vmp	[V]	37,21	34,49	37,41	34,68	37,61	34,86	37,81	35,05
Maximum Power Current	Imp	[A]	17,20	14,03	17,24	14,06	17,28	14,09	17,32	14,13
Open Circuit Voltage	Voc	[V]	45,18	41,93	45,38	42,11	45,58	42,30	45,78	42,48
Short Circuit Current	Isc	[A]	18,06	14,81	18,11	14,85	18,16	14,89	18,21	14,93
Module Efficiency	Eff	[%]	20,60		20,76		20,92		21,09	
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)

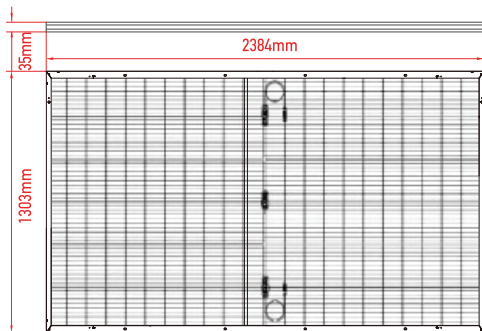
POWER CLASS			640		645		650		655	
			Pmax [Wp]	Eff [%]	Pmax [Wp]	Eff [%]	Pmax [Wp]	Eff [%]	Pmax [Wp]	Eff [%]
Power with Backside Gain	+5	[%]	672,0	27,4%	677,3	27,6%	682,5	27,8%	687,8	28,0%
	+10	[%]	704,0	28,7%	709,5	28,9%	715,0	29,1%	720,5	29,3%
	+15	[%]	736,0	30,0%	741,8	30,2%	747,5	30,4%	753,3	30,7%
	+20	[%]	768,0	31,3%	774,0	31,5%	780,0	31,8%	786,0	32,0%
	+25	[%]	800,0	32,6%	806,3	32,8%	812,5	33,1%	818,8	33,3%
	+30	[%]	832,0	33,9%	838,5	34,1%	845,0	34,4%	851,5	34,7%

(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	4mm ² - Length 1200mm

Dimensions

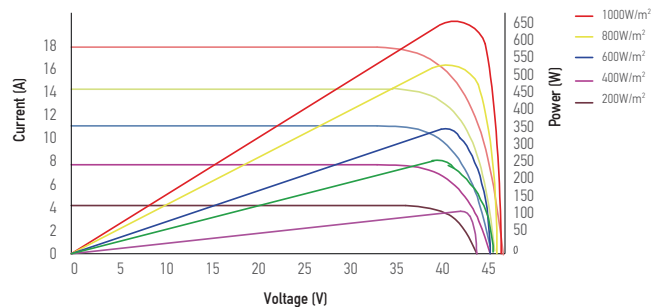


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I-V Curve

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



Temperature Characteristics

Pmax Temperature Coefficient	-0.36% / °C
Voc Temperature Coefficient	-0.28% / °C
Isc Temperature Coefficient	+0.05% / °C
Operating Temperature	-40~+85 °C
Nominal Operating Module Temperature (NMOT)	41 ± 3°C

Packing Configuration

Container	40'HC
Pieces per Pallet	31
Pallets per Container	18
Pieces per Container	(31+31)x9=558 pcs

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