

BIFACIAL MONO CRYSTALLINE DOUBLE GLASS MODULE - SHINGLED CELL TECHNOLOGY

415 / 420 / 425 / 430 / 435 Watts

Puma Series

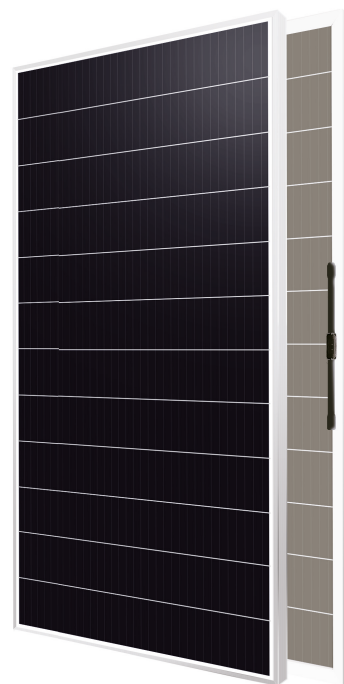


Superior Performance and Reliability

Shingled technology eliminates traditional ribbon connection with shingles connected in series. By removing the soldered ribbons, the active area of the module is improved and thermal stresses are reduced - resulting in exceptional efficiency and reliability over standard interconnections.

Key Benefits

	Higher yield per surface area		Higher Light Conversion
	Higher yield in hot climate		25 Years Limited Product Warranty
	Low LCOE		Low Resistive Losses



Outstanding performance under extreme heat as well as low intensity solar radiation



Industry leading low Pmax thermal coefficient



Positive Tolerance

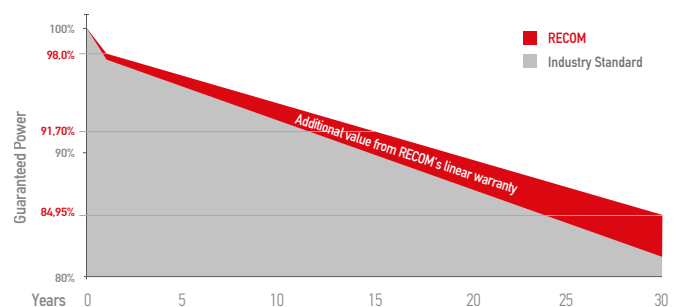


100 % electro-luminescence tested

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
Insurance	Product liability insurance provided by Allianz
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"> • 25-year limited product warranty • 15-year manufacturer warranty on 91.70% of the nominal performance • 30-year transferable linear power output warranty

Linear Performance Warranty



First Year Output	≥ 98%	2-30 Year Decline	≤ 0.45%	30 Year Output	≥ 84.95%
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RCM-xxx-SBMA (xxx=415-435)

Electrical Characteristics

POWER CLASS ⁽¹⁾			415		420		425		430		435	
Testing Condition			STC ⁽²⁾	NMOT ⁽³⁾	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	Pmax	[Wp]	415	308	420	311	425	315	430	319	435	322
Maximum Power Voltage	Vmp	[V]	37,19	35,16	37,40	35,30	37,61	35,51	37,79	35,72	37,99	35,86
Maximum Power Current	Imp	[A]	11,16	8,76	11,23	8,81	11,30	8,87	11,38	8,93	11,45	8,98
Open Circuit Voltage	Voc	[V]	45,95	43,45	46,05	43,49	46,13	43,54	46,21	43,61	46,28	43,67
Short Circuit Current	Isc	[A]	11,90	9,61	11,96	9,66	12,01	9,70	12,06	9,74	12,11	9,78
Module Efficiency	Eff	[%]	19,10		19,30		19,60		19,80		20,00	
Maximum Series Fuse	IR	[A]	20									
Maximum System Voltage	Vsys	[V]	1000 V DC (IEC) / 1500 V DC (IEC)									

(1) Measurement Tolerances: P_{max} (± 3%), I_{sc} & V_{oc} (± 5%) - 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)

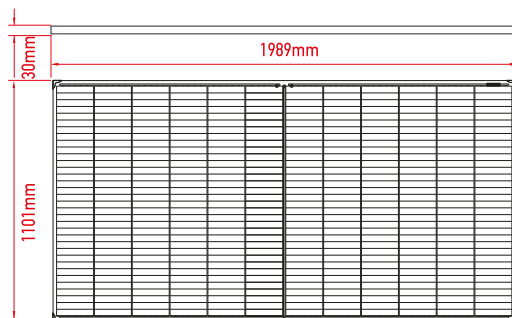
POWER CLASS			415		420		425		430		435	
			P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]
Power with Backside Gain	+5	[%]	435,8	19,9%	441,0	20,1%	446,3	20,4%	451,5	20,6%	456,8	20,9%
	+10	[%]	456,5	20,8%	462,0	21,1%	467,5	21,3%	473,0	21,6%	478,5	21,9%
	+15	[%]	477,3	21,8%	483,0	22,1%	488,8	22,3%	494,5	22,6%	500,3	22,8%
	+20	[%]	498,0	22,7%	504,0	23,0%	510,0	23,3%	516,0	23,6%	522,0	23,8%
	+25	[%]	518,8	23,7%	525,0	24,0%	531,3	24,3%	537,5	24,5%	543,8	24,8%
	+30	[%]	539,5	24,6%	546,0	24,9%	552,5	25,2%	559,0	25,5%	565,5	25,8%

(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	1989mm x 1101mm x 30mm
Weight	26.0 Kg
Cell Type	PERC Mono-crystalline (158.75 mm) - G1
Front Glass	2.5mm Tempered and low iron glass + ARC
Rear Side	2.5mm Tempered and low iron glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68 (2 bypass diodes)
Connector	MC4 compatible connector
Cable	4.0mm ² - Lenght 1.2m or customized

Dimensions

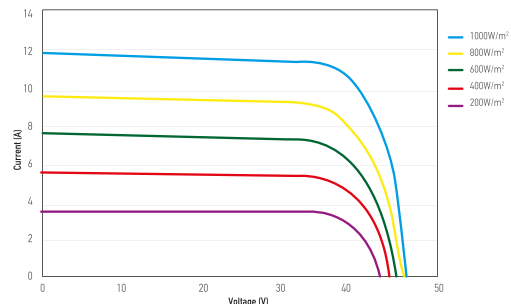


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I-V Curve

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



Temperature Characteristics

P _{max} Temperature Coefficient	-0.45% / °C
V _{oc} Temperature Coefficient	-0.34% / °C
I _{sc} Temperature Coefficient	+0.06% / °C
Operating Temperature	-40 ~ +85 °C
(NMOT) Nominal Module Operating Temperature	41.3 ± 2 °C

Packing Configuration

Container	40'HC
Pieces per Pallet	35
Pallets per Container	22
Pieces per Container	770

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