

## MONO CRYSTALLINE - SHINGLED CELL TECHNOLOGY

400 / 405 / 410 / 415 / 420 / 425 / 430 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.



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



Significantly low Pmax thermal coefficient



Positive Tolerance



100 % electro-luminescence tested

## Key Benefits



Higher yield per surface area



Low Pmax Temperature Coefficient



Higher yield in hot climate



25 Years Limited Product Warranty



Low LCOE

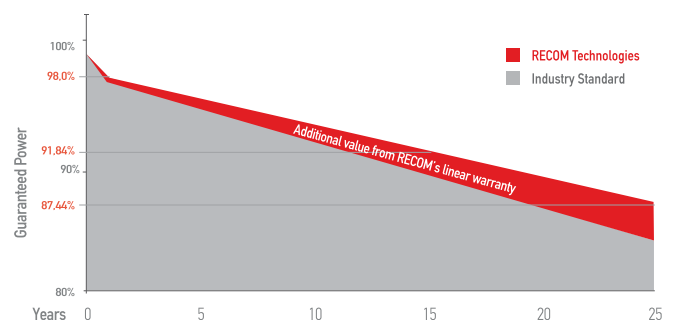


Low Resistive Losses

## 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	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)
Withstanding Hail	Maximum Diameter of 25 mm with impact speed of 23 m/s
Power Tolerance	Guaranteed +0/+5W (STC condition)
Warranties	<ul style="list-style-type: none"> <li>• 25-year limited product warranty</li> <li>• 15-year manufacturer warranty on 91.84% of the nominal performance</li> <li>• 25-year transferable linear power output warranty</li> </ul>

## Linear Performance Warranty



First Year Output  $\geq 98.0\%$     2-25 Year Decline  $\leq 0.44\%$     25 Year Output  $\geq 87.44\%$

**Puma**  
**MONO CRYSTALLINE - SHINGLED CELL TECHNOLOGY**  
 RCM-xxx-SMD2 (xxx=400-430)

**Electrical Characteristics**

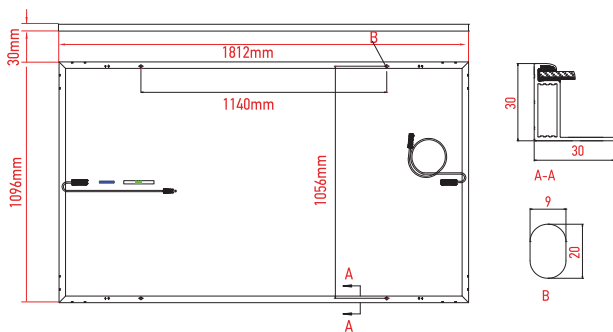
POWER CLASS <sup>(1)</sup>			400		405		410		415		420		425		430	
Testing Condition			STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	P <sub>max</sub>	[Wp]	400	301	405	305	410	309	415	312	420	316	425	320	430	324
Maximum Power Voltage	V <sub>mp</sub>	[V]	34,2	32,6	34,3	32,7	34,4	32,8	34,4	32,8	34,5	32,9	34,6	33,0	34,7	33,1
Maximum Power Current	I <sub>mp</sub>	[A]	11,71	9,24	11,82	9,33	11,93	9,41	12,08	9,53	12,19	9,62	12,30	9,70	12,40	9,79
Open Circuit Voltage	V <sub>oc</sub>	[V]	41,2	39,3	41,3	39,4	41,4	39,5	41,5	39,6	41,6	39,7	41,7	39,8	41,8	39,8
Short Circuit Current	I <sub>sc</sub>	[A]	12,41	10,00	12,53	10,09	12,65	10,19	12,80	10,31	12,92	10,41	13,03	10,50	13,05	10,51
Module Efficiency	Eff	[%]	20,1		20,4		20,6		20,9		21,1		21,4		21,7	
Maximum Series Fuse	I <sub>R</sub>	[A]	25													
Maximum System Voltage	V <sub>sys</sub>	[V]	1.500 VDC (IEC)													

(1) Measurement Tolerances: P<sub>max</sub> (± 3%), I<sub>sc</sub> & V<sub>oc</sub> (± 3%) - Power Classification 0/+5W  
 (2) STC (Standard Testing Condition): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM 1.5  
 (3) NMOT (Nominal Operating Module Temperature): Irradiance 800W/m<sup>2</sup>, NMOT, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s

**Mechanical Data**

Dimensions	1812mm x 1096mm x 30mm
Weight	20.8 Kg
Cell Type	PERC Mono-210 x 30mm - 305 pcs - G12
Front Glass	3.2mm Tempered and low iron glass + ARC
Backsheet	Anti-aging film (White)
Frame	Anodized Aluminium Alloy (Silver)
Junction Box	IP68 - 2 bypass diodes
Connector	MC4 compatible
Cable	4.0mm <sup>2</sup> - V=(+) 300mm (-) 1000mm; H=(+) 220mm (-) 180mm or can be customized

**Dimensions**

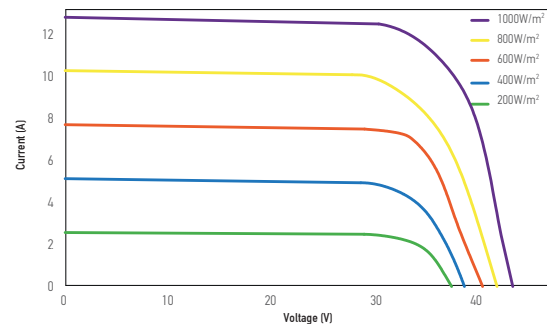


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**I-V Curve**

The module relative power loss at low light irradiance of 200W/m<sup>2</sup> is less than 3%.



**Temperature Characteristics**

P <sub>max</sub> Temperature Coefficient	-0.34% / °C
V <sub>oc</sub> Temperature Coefficient	-0.27% / °C
I <sub>sc</sub> Temperature Coefficient	+0.04% / °C
Operating Temperature	-40 ~ +85 °C
(NMOT) Nominal Module Operating Temperature	42.3 ± 2 °C

**Packing Configuration**

Container	40'HC
Pieces per Pallet	36 / 30
Pallets per Container	24 + 2
Pieces per Container	(36 + 36) x 12 + (30 + 30) = 924 pcs

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