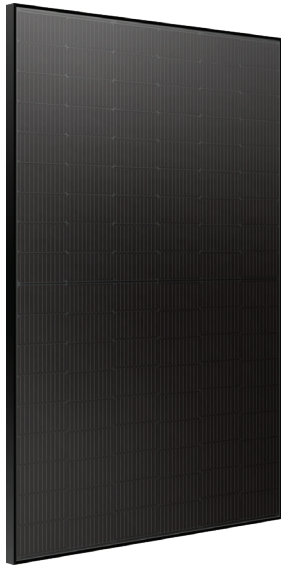


## SOLAHART SILHOUETTE N-TYPE RESIDENTIAL PANELS

SOLAHART415S5



The new Solahart Silhouette panel is our most advanced PV panel ever, featuring ultra-high performance, superior efficiency, and an impressive 30-year performance warranty. With its signature all-black design and innovative cell technology, it's the ideal solution for Australian homes.

This new model boosts panel efficiency to up to 21.3%, and with positive tolerance of up to 5W, guarantees that each Silhouette panel will have a rated maximum power on or above 415W at Standard Test Conditions.<sup>(1)</sup>

The state-of-the-art n-type, monocrystalline half-cell and multi-busbar design offers excellent performance under Australian conditions, on hot summer days and even in low-light environments.

An exceptionally low panel degradation of 1% in the first year and 0.4% thereafter, combined with a lower temperature coefficient, means higher power generation and higher savings over the life of the system compared to p-type PERC panels in the same power class.

The exceptional 25-Year Solahart Australian Product Warranty and a 30-Year Performance Guarantee provide ultimate confidence and peace of mind.\*

### How you benefit:



#### MODERN DESIGN

Premium n-type technology with a contemporary design and striking all-black finish



#### HIGH SOLAR YIELD

Excellent low-light and temperature behaviour results in more energy production per square metre of panels.



#### HIGH PERFORMANCE

High efficiency (21.3%) and lower degradation for excellent performance and reliability.



#### DESIGNED FOR AUSTRALIA

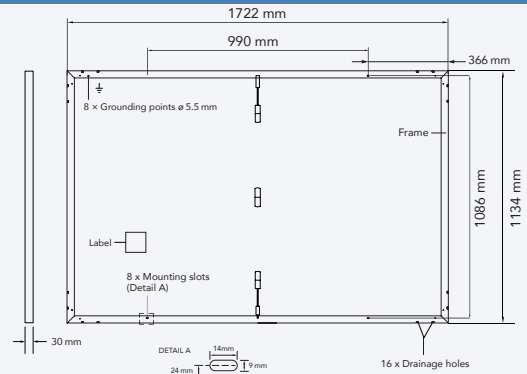
Designed for Australia to perform in all conditions, from low-light environment to high temperatures.



#### SOLAHART WARRANTY

25-Year Solahart Product Warranty for peace of mind, plus a 30-Year Performance Guarantee for long-term returns.\*

Model	SOLAHART415S5	
<b>Mechanical Data</b>		
Dimensions (H x W x D)	1722 x 1134 x 30 mm (including frame)	
Weight	21.3 Kg	
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology	
Back Cover	Composite film	
Frame	Black Anodised Aluminium	
Cell	6 x 18 n-type monocrystalline solar half-cells	
Junction Box	Protection class IP68, with bypass diodes	
Cable	4 mm <sup>2</sup> solar cable; (+) 1200 mm, (-) 1200 mm	
Connector	Stäubli MC4 connectors (PV-KST4 & PV-KSB4), IP68	

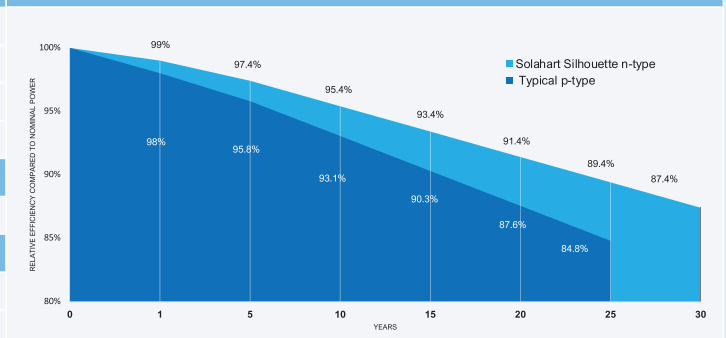


<b>Electrical Data</b>	
Minimum performance at standard test conditions, STC <sup>(1)</sup> (Power Tolerance +5 W / -0 W)	
Power at MPP <sup>(2)</sup> - P <sub>MPP</sub>	415 Wp
Short circuit current <sup>(2)</sup> - I <sub>sc</sub>	13.76 A
Open circuit voltage <sup>(2)</sup> - V <sub>oc</sub>	37.80 V
Current at MPP <sup>#</sup> - I <sub>MPP</sub>	13.06 A
Voltage at MPP <sup>#</sup> - V <sub>MPP</sub>	31.76 V
Efficiency <sup>(1)</sup> - η	21.3 %
Minimum performance at normal operating conditions, NMOT <sup>(3)</sup>	
Power at MPP - P <sub>MPP</sub>	312.1 Wp
Short circuit current <sup>#</sup> - I <sub>sc</sub>	11.11 A
Open circuit voltage <sup>#</sup> - V <sub>oc</sub>	35.91 V
Current at MPP <sup>#</sup> - I <sub>MPP</sub>	10.44 A
Voltage at MPP <sup>#</sup> - V <sub>MPP</sub>	29.90 V

<b>Other information</b>	
Part Number	SOLAHART415S5
Solahart Product Warranty*	25 years
Performance Guarantee*	30 years
Country of Manufacture	China

<b>Temperature Coefficients</b>	
Normal module operating temperature (NMOT)	41+/-2 °C
Temperature coefficient of P <sub>MPP</sub> - γ	-0.30 % / °C
Temperature coefficient of V <sub>oc</sub> - β	-0.24 % / °C
Temperature coefficient of I <sub>sc</sub> - α	+0.043 % / °C

### Performance Guarantee



<b>Qualifications and Certificates</b>	
IEC 61215: 2016; IEC 61730: 2016, Application class II.	

<b>Properties for System Design</b>	
Permitted module temp on continuous duty	-40°C up to +85°C
Maximum system voltage - V <sub>SY</sub>	1500 V
Maximum reverse current - I <sub>R</sub>	25 A
Maximum design load, Push / Pull	3600 / 1600 Pa
Maximum test load, Push / Pull	5400 / 2400 Pa
Safety class	II
Fire rating based on ANSI / UL 61730	C / TYPE 2

At least 99% of nominal power during the first year. Thereafter max 0.4% degradation per year.  
 At least 95.4% of nominal power up to 10 years.  
 At least 89.4% of nominal power up to 25 years.  
 At least 87.4% of nominal power up to 30 years.  
 All data within measurement tolerances.

Specifications and designs included in this data sheet are subject to change without notice.

<sup>(1)</sup>1000 W/m<sup>2</sup>, 25±2°C, AM 1.5 G. <sup>(2)</sup>Measurement tolerances PMPP ±3%; ISC, VOC ±5% at STC. <sup>(3)</sup>800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5 G. # Typical values, actual values may differ.  
 \* 30-year Solahart Product Warranty covers certain defects with the Solahart Silhouette panels. Please refer to the 'Solahart PV Systems Owner's Guide' for full details, available on Solahart's website [www.solahart.com.au](http://www.solahart.com.au). 30-year Performance Guarantee is provided by the manufacturer of the Solahart Silhouette panels and guarantees the maximum reduction in power output performance of the panels over a 30-year period. Neither the Solahart Product Warranty nor the Performance Guarantee are intended to exclude, restrict or modify your rights under the Australian Consumer Law.  
 \*APT test conditions according to IEC/TS 62804-1:2015, method B (-1500 V, 168 h).