

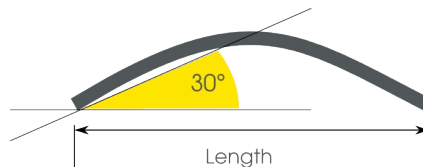
## The QSF-A by QSOLAR



- ✓ The most flexible silicon panel ever
- ✓ Bends to a 30° angle
- ✓ Less than 5mm thick
- ✓ 50% lighter than glass panels
- ✓ No EVA, no TPT and no glass
- ✓ PID-free with HST
- ✓ 10-year product warranty
- ✓ Available in any color

### About the QSOLAR QSF-A

The QSF-A is the latest innovation in the QSOLAR semi-flexible crystalline-silicon module range: half the weight of a glass panel, just a few millimetres thick, and totally unique. The QSF-A can be installed on any curve such that the top and bottom edges of the module form as much as a 30° angle with the center.



### HST - Heat Sink Technology

Since the inception of solar cells and solar panels, there has been an ongoing effort to increase efficiency. The main effort was concentrated in increasing the efficiency of solar cells, something which was achieved but with a significant increase in cost. In general, high efficiency cells are up to 25% more expensive than lower efficiency cells, although the final panel output does not change. Only the panel area changes.

A higher efficiency panel requires less area than a lower efficiency panel to produce the same power. The differences in area are usually of the order of 5%, something that is insignificant in most cases.

QSOLAR has developed its second-generation panels by incorporating a heat sink in the substrate, without increasing the cost. As a result, QSOLAR panels run cooler than glass panels, especially in hot climates. QSOLAR HST technology reduces the temperature of the cells in a solar panel by up to 10°C in comparison to glass panels. In this way, QSOLAR panels produce **up to 5% more power than any glass panel with the same type of cells**. To put it a simpler way, instead of increasing the cell efficiency at a higher cost, QSOLAR has increased the efficiency of the end product, the solar panel, without any increase in the cost at all. And this is applicable to panels using any type of cell.

QSOLAR modules are encapsulated with our patented SPRAYTEK® material, which offers better protection than glass and EVA. Our encapsulant also exhibits strong UV-reflective properties to maintain constant cell temperature. Using this material, we are able to produce lightweight, flexible, impenetrable panels with no exposed metal parts, of any size, any power and any colour.



Model	QS 210 QSF-A	QS 240 QSF-A	QS 250 QSF-A
<b>General Specifications</b>			
Length (mm)	1639	1805	1805
Width (mm)	994	994	994
Depth (mm)	4	4	4
Weight (kg)	9.4	10.4	10.4
Number of Cells	54	60	60
<b>Electrical Specifications</b>			
Pmax (W)	210	240	250
Vmp (V)	27.7	31.2	31.6
Imp (A)	7.87	8.05	8.14
Voc (V)	33.5	37.6	37.9
Isc (A)	8.46	8.6	8.68
Module Efficiency	12.9%	13.4%	13.9%
Number of Bypass Diodes	3	3	3
Power Tolerance		+5%	
Maximum System Voltage (V)		1000	
Fuse Rating (A)		15	
<b>Component Data</b>			
Cell Type	Polycrystalline silicon		
Cell Dimensions (mm)	156 x 156		
Frame	None		
Edge Protection	Edge Sealant Adhesive Tape		
Encapsulant	Spraytek99® ESS®		
Backsheet	Aluminium Heat-Sink		
Junction Box	IP67 Class II (IEC/UL Certified)		
Output Cables	1.2 m, 6 mm, PV Cable (IEC/UL Certified)		
Connectors	MC4 IP67 (IEC/UL Certified)		
<b>Temperature Coefficients</b>			
Pmax (%/°C)	-0.43		
Vmp (%/°C)	-0.43		
Imp (%/°C)	-0.019		
Voc (%/°C)	-0.32		
Isc (%/°C)	+0.04		

### Local Distributor Information:



## About QSOLAR

QSOLAR is a leading innovator in solar panel technology, with a wide range of products designed to meet the needs of any solar power application. Visit us at [WWW.QSOLAR.NET](http://WWW.QSOLAR.NET) to find out more.

QSOLAR Limited is a Canadian company headquartered in Calgary (Alberta) and listed on the Canadian Stock Exchange (CSE) under the symbol QSL ([www.cnsx.ca](http://www.cnsx.ca)).

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