

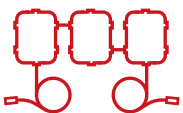
Efficiency up to
19.56%

Power Output
380W+

72 Monocrystalline
5BB solar cells

HALF IS THE NEW FULL

- SUPERIOR PRICE PERFORMANCE
- INCREASED SHADE TOLERANCE
- REDUCED POWER LOSS



SPLIT JUNCTION
BOX DESIGN



HIGHEST PRECISION
MANUFACTURING



LESS
HOT SPOT



MORE
POWER OUTPUT

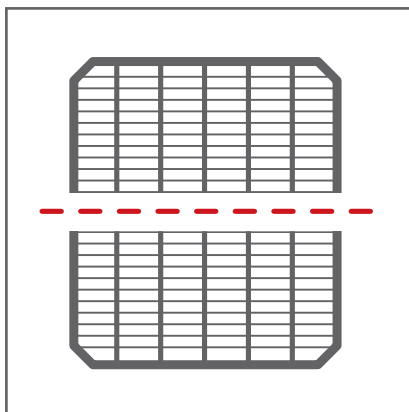
INCREASING POWER WITHOUT COMPROMISING ON THE COST

Vikram Solar's new module based on the latest half-cell technology increases the module output of up to 15 Wp per module compared to standard PV modules and boasts an efficiency up to 19.56%.

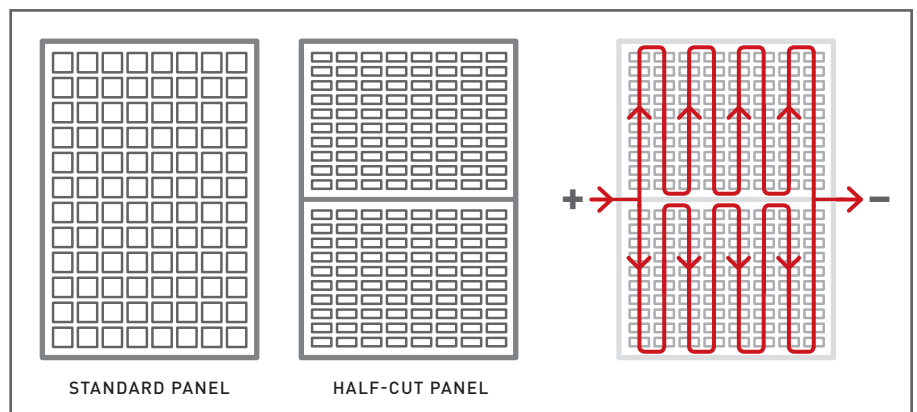
- The module consists of 144/120 half-cells instead of 72/60 full cells yet keeps nearly the same dimension as a standard 72/60 cell module
- Higher energy yield through lower cell resistance. Half-cell modules have a higher fill factor and higher efficiency
- The cells are cut with low temperature and lower kerf depth maximizing cell yield
- Module power loss is reduced by a factor of four as power loss is proportional to the square of the current
- The split junction box provides better heat dissipation improving the life of the module

Available with Mono PERC, Mono and Polycrystalline cells

HOW DOES IT WORK?



The cells are cut into two equal pieces (156.75 × 78.375 mm), known as 'half-cells', which reduce internal resistance and increase the overall power.



Once the half-cells are connected in strings, the module is laid out into two parallel connected 'twin' sections with equal numbers of cells connected in a series –

appearing as a top and a bottom half.

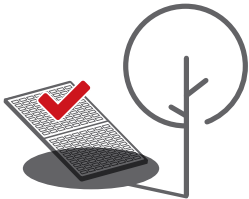
Mono PERC cell technology, 5 bus bar cells and a split junction box supplements this innovative solution.





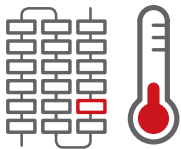
→ SUPERIOR PRICE PERFORMANCE

Half-cell design improves the efficiency of a standard module, increasing the module output without adding much to the cost. Customers can enjoy cost effective solutions without compromising on power output.



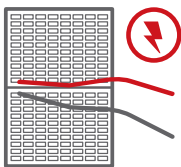
→ INCREASED SHADE TOLERANCE

Bypass diodes and innovative series-parallel connections enables the half-cell module to perform better in partial shadow conditions. With 6 module cell strings, a half-cell module has twice as much cell-strings as a standard solar module. With more strings, the effect of partial shade is less severe.



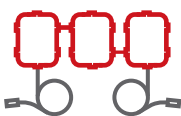
→ LESS HOT SPOT

With half-cells, one cell generates only half the current than that of a standard cell. So heat production declines, thus reducing the chances of a hot spot generation when one solar cell in a module cell string is shaded. Lower heat production positively affects module longevity.



→ REDUCED POWER LOSS

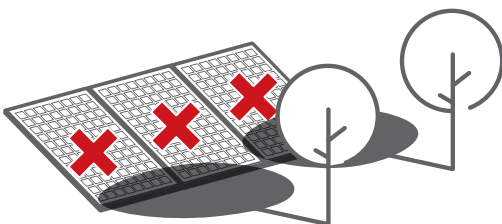
Half-cell technology reduces resistive losses in the interconnection of solar modules. Less resistance between the cells increases the power output of a module.



→ IMPROVED HEAT DISSIPATION

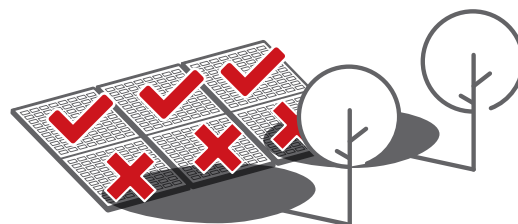
The use of three separate, smaller junction boxes with each containing one bypass diode, reduces internal resistance and enables the new layout design for increased output.

SHADOW EFFECT EXPLANATION



STANDARD MODULE

Shadow affects the entire cell string and reduces power output to zero.



HALF-CELL MODULE

Thanks to the innovative series-parallel design, the half-cell module works as two modules joined parallel. Therefore, half of the cell string still works in case of partial shadowing.

TECHNICAL DATA

THIS DATASHEET IS APPLICABLE FOR:
SOMERA VSMH.72.AAA.03.04 (AAA=345-385)

Electrical Data¹ All data refers to STC (AM 1.5, 1000 W/m², 25°C)

	345	350	355	360	365	370	375	380	385
Peak Power P _{max} (Wp)	345	350	355	360	365	370	375	380	385
Maximum Voltage V _{mpp} (V)	39.4	39.6	39.7	39.9	39.9	40.1	40.2	40.4	40.5
Maximum Current I _{mp} (A)	8.77	8.85	8.94	9.04	9.15	9.23	9.32	9.42	9.53
Open Circuit Voltage V _{oc} (V)	46.7	47.1	47.7	47.8	47.8	48.1	48.4	48.7	49.1
Short Circuit Current I _{sc} (A)	9.27	9.31	9.35	9.45	9.59	9.65	9.72	9.8	9.87
Module Efficiency η(%)	17.53	17.80	18.04	18.30	18.55	18.81	19.06	19.32	19.56

¹ STC: 1000 W/m² irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3. Average relative efficiency reduction of 5% at 200 W/m² according to EN 60904-1.

Electrical Parameters at NOCT²

Power (W)	260	264	268	272	276	279	283	287	291
V@P _{max} (V)	36.6	36.8	36.9	37.1	37.1	37.3	37.4	37.5	37.6
I@P _{max} (A)	7.12	7.18	7.25	7.34	7.42	7.49	7.56	7.64	7.73
V _{oc} (V)	43.4	43.8	44.3	44.4	44.5	44.7	45.0	45.3	45.7
I _{sc} (A)	7.52	7.55	7.59	7.67	7.78	7.83	7.89	7.95	8.01

² NOCT irradiance 800 W/m², ambient temperature 20°C, wind speed 1 m/sec

Temperature Coefficients (Tc)

permissible operating conditions

Tc of Open Circuit Voltage (β)	- 0.28%/°C
Tc of Short Circuit Current (α)	0.057%/°C
Tc of Power (γ)	-0.39%/°C
Maximum System Voltage	1000 V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

Mechanical Data

Length × Width × Height	1986 × 991 × 35.3mm (78.18 × 39.01 × 1.38 inches)
Weight	22.1 kg (48.72 lbs)
Junction Box	IP68/IP67, 3 Bypass diode
Cable & Connectors	1200 mm (47.24 inches) length cables, MC4 Compatible/MC4 Connectors
Application Class	Class A (Safety class II)
Superstrate	3.2 mm (0.13 inches) high transmission low iron tempered glass, AR coated
Cells	72 Monocrystalline (144 half-cells), 5BB solar cells
Cell Encapsulant	EVA (Ethylene Vinyl Acetate)
Back Sheet	Composite film
Frame	Anodized aluminium frame with twin wall profile
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Maximum Series Fuse Rating	15 A

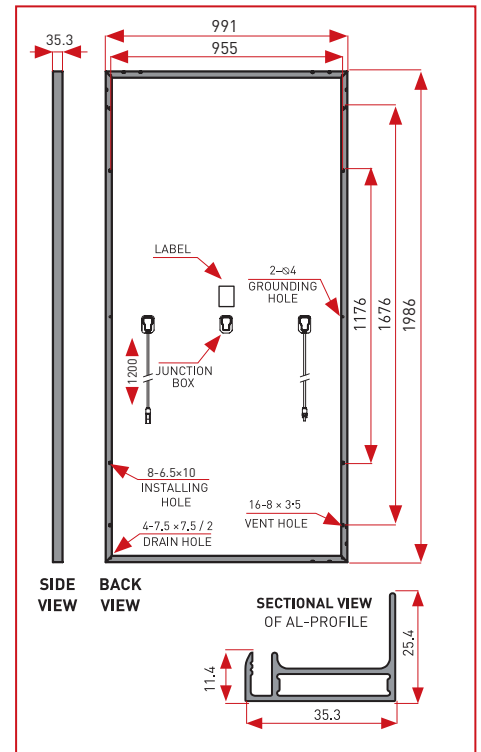
Warranty and Certifications

Product Warranty**	10 years
Performance Warranty**	Linear Power Warranty for 27 years with 3% for 1st year degradation and 0.65% from year 2 to year 27
Approvals and Certificates	IEC 61215 Ed2, IEC 61730, IEC 61701*, IEC 62716*, IEC 60068-2-68*, IEC 62804, CE

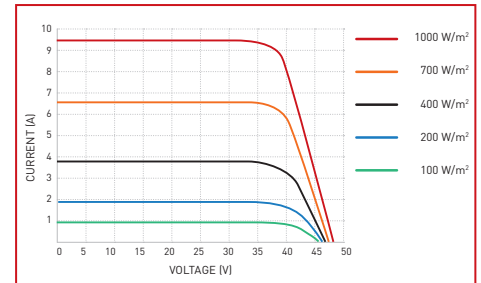
Packaging Information

Quantity /Pallet: 28	Pallets/Container (40'HC): 22	Quantity/Container (40'HC): 616
----------------------	-------------------------------	---------------------------------

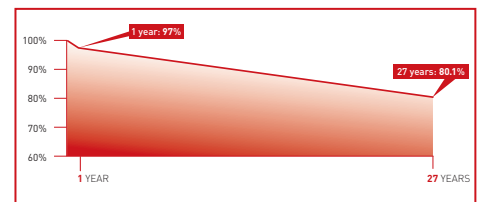
Dimensions in mm



Typical I-V Curves



Performance Warranty



* All (*) certifications under progress.

** Refer to Vikram Solar's warranty document for terms and conditions.

CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.
Specifications included in this datasheet are subject to change without notice. Electrical data without guarantee. Please confirm your exact requirement with the company representative while placing your order.