



# Monocrystalline PV module

## 72 cells (Black series)



### Electrical Characteristics

Model	UP-M165M	UP-M170M	UP-M175M	UP-M180M	UP-M185M	UP-M190M
Max Power Pm (W)	165	170	175	180	185	190
Max Power Voltage Vm (V)	35.6	35.8	36.0	36.2	36.4	36.6
Max Power Current Im (A)	4.65	4.76	4.86	4.97	5.08	5.19
Open-Circuit Voltage Voc (V)	44.3	44.4	44.6	44.8	45.0	45.3
Short-Circuit Current Isc (A)	4.98	5.05	5.15	5.22	5.30	5.40
Cell Efficiency	16.0%	16.5%	16.9%	17.4%	17.9%	18.3%
Module Efficiency	12.9%	13.3%	13.7%	14.1%	14.5%	14.9%
Maximum System Voltage (V)	1000 (TUV) / 600 (UL)					
Power Tolerance	± 3%					
Series Fuse Rating (A)	15					

### Components & Mechanical Data

Front Glass	High Transparency Tempered Glass, 3.2 mm - <b>Saint Gobain</b> (Albarino) // <b>Pilkington</b>
Junction Box	<b>Huber+Suhner</b> (IP 67) Radox RH3 // <b>Tyco</b> , 1740971-1
Bypass Diode	3 diodes - <b>ST</b> STPS1545CG // <b>Diotec</b> SL1515
Output Cables	Cable <b>Tyco</b> 1.1 m, ZHSCG (4 mm <sup>2</sup> et 12AWG), IEC and UL approved
Connectors	<b>MC4</b> // <b>Tyco</b> , IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA (0.50 ± 0.03 mm thickness)
Back Foil	Black TPT (0.32 ± 0.03 mm thickness)
Silicone Sealant	<b>Dow Corning</b>
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 535 g dropped from 1.3 m high

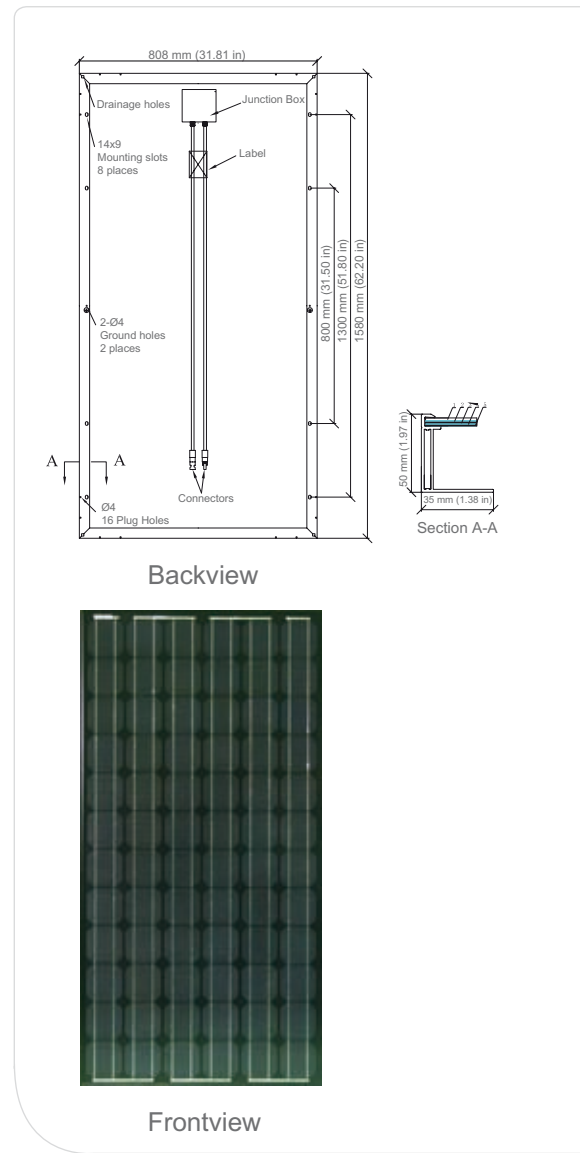
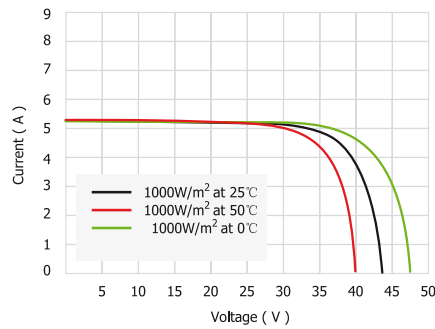
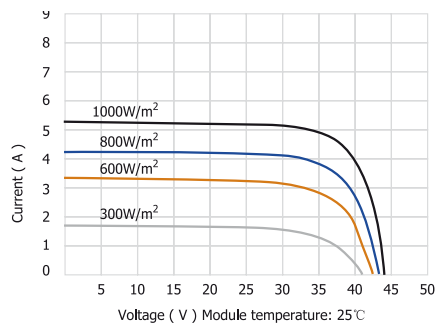
### Specifications

Cells	Monocrystalline silicon solar cells 125 mm x 125 mm
Number of cells	72 (6 x 12)
Dimensions (mm)	1580 x 808 x 40
Weight (kg)	15.4

## Temperature Coefficients

<b>NOCT (°C)</b>	45 ± 2
Temperature Coefficient of I <sub>sc</sub> (%/°C)	0.05 ± 0.01
Temperature Coefficient of V <sub>oc</sub> (%/°C)	-0.32 ± 0.02
Temperature Coefficient of I <sub>m</sub> (%/°C)	-0.02 ± 0.02
Temperature Coefficient of V <sub>m</sub> (%/°C)	-0.42 ± 0.03
Temperature Coefficient of P <sub>m</sub> (%/°C)	-0.43 ± 0.05

## IV Curves

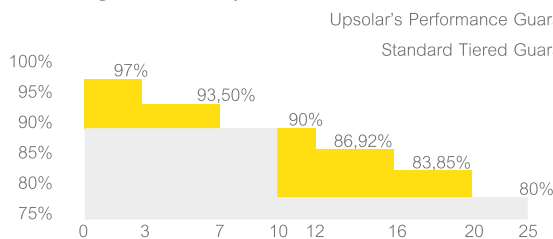


### NOTE:

- STC: Irradiance 1000 W/m<sup>2</sup>, Module temperature 25°C, AM = 1.5
- Nominal Operating Cell Temperature above data is only for reference
- Deviation of V<sub>m</sub>(V), I<sub>m</sub>(A), V<sub>oc</sub>(V) and I<sub>sc</sub>(A) of ±10%

### WARRANTIES:

Product guarantee: 5 years



### PowerGuard Warranty Summary

Upsolar's PowerClip warranty policy protects against design defects, delaminating modules, power output falling outside the established degradation curve and coverage begins immediately.

The Program guarantees the funding of valid claims filed by end-customers pursuant to Upsolar's module warranty; is worldwide and protects all modules sold by Upsolar Co., Ltd. and subsidiary companies.

The Program delivers non-cancelable, irrevocable coverage and is fully-paid for; meaning valid claims will be paid out regardless of the solvency or existence of Upsolar over the full 25-year term, by A.M. Best rated "A" (Excellent) or better internationally recognized insurance providers.

### Certifications:



AS/NZS 5033 Compliant PV Modules

### Laboratories:



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