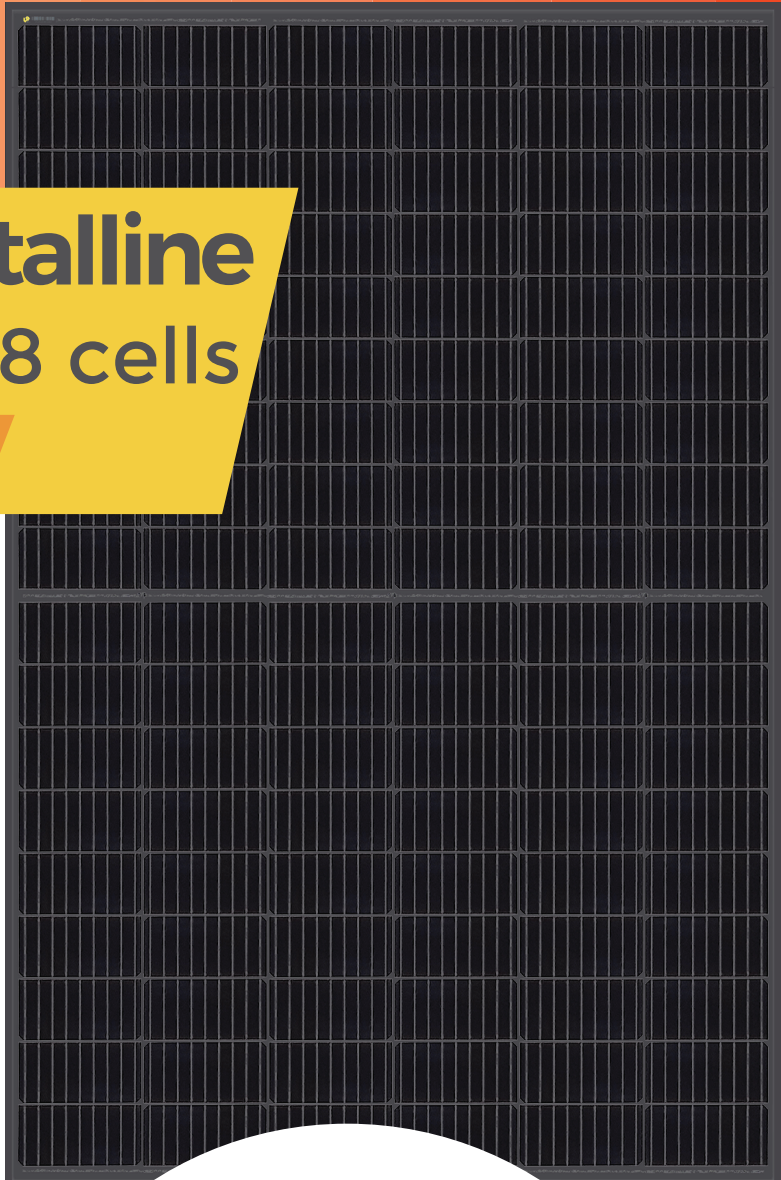




# M10 | Monocrystalline Half-cut 108 cells

Power Output: **415Watt**  
Max. Efficiency: **21.25%**



**High Mechanical Load**  
Certified to withstand high wind and snow loads up to 5400Pa



**Enhanced Performance**  
Half cut cell feature allows a power increase of at least 5Wp vs. standard modules



**Anti-reflective Surface**  
Increases the panel's exposure and efficiency of converting sunlight into energy



**Lower Hot Spots**  
Half cut design reduces energy loss caused by shading between modules



**Ideal for Large Scale Installations**  
Lower installations time and BOS (Balance of Systems) costs



**Salt Mist and Ammonia Resistant**  
Certified by Bureau Veritas to withstand usage near coastal environments



**PID free**  
Designed to minimise cell degradation in extreme environments

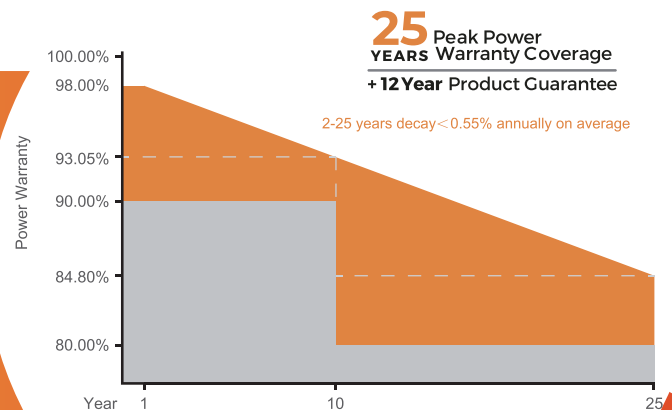


## Secure Investment

Upsolar provides exceptional product coverage for all modules to ensure our customers achieve superior long-term value from their solar installations. To further improve our product warranty, which covers unanticipated module damage, we've recently expanded our terms from a 10-year period to a 12-year period.

In addition, Upsolar offers a 25-year performance guarantee known as the Linear Module Warranty. Where as traditional policies feature a single trigger point leading to drastic coverage reductions after just 10 years, Upsolar's coverage more accurately corresponds to system performance, providing coverage for over 25 years.

Overall, our goal is to deliver not only top-notch modules, but also peace of mind, for decades to come.



\*Upsolar has expanded its manufacturing operations in Asia, Europe and North America, keeping its modules duty-free in the event of new CVD or AD policies. Please ask about pricing, payment terms and conditions to meet your needs.

# Mono182 | Half-cut 108 cells

## Electrical Characteristics

MODEL	9952594 UP-M415MH (54M10)
Max Power Pm (Wp)	415
Max Power Voltage Vm (V)	31.20
Max Power Current Im (A)	13.30
Open-Circuit Voltage Voc (V)	37.35
Short-Circuit Current Isc (A)	14.28
Module Efficiency	21.25%
Maximum System Voltage (V)	1000(IEC)/1000(UL) or 1500(IEC)/1500(UL)
Power Tolerance	0/+3%
Series Fuse Rating (A)	25A

STC: Irradiance 1000 W/m<sup>2</sup>, Module temperature 25°C, AM=1.5

## Components & Mechanical Data

Front Glass	High Transparency Tempered Glass 0.125" // 3.2 mm
Junction Box	IP 68
Bypass Diode	3 diodes
Output Cables	IEC, UL approved (4 mm <sup>2</sup> , 12AWG) (PV Wire Type)
Connectors	MC4 compatible (IP67, IEC and UL approved)
Frame	Anodized aluminium alloy type 6063-T5
Encapsulation Material	EVA
Back Sheet	White multilayer polymer film
Temperature Range	-40°F to +194°F // -40°C to +90°C
Max Load	75 lbs / ft <sup>2</sup> (UL Standard) // 5400 Pa (IEC Standards)
Impact Resistance	Steel ball - 1.18 lbs // 535 g dropped from 51" // 1.3 m high

## Specifications

Cells	Mono PERC 182 x 91
Number of Cells	108 (6 x 18)
Dimensions (in // mm)	67.80 x 44.65 x 1.18 // 1722 x 1134 x 30
Weight (lb // kg)	47.4 // 21.5

## Temperature Coefficients

NMOT (°C)	45 ± 2
Temperature Coefficients of Isc (% / °C)	0.048 ± 0.01
Temperature Coefficients of Voc (% / °C)	-0.27 ± 0.02
Temperature Coefficients of Im (% / °C)	-0.048 ± 0.02
Temperature Coefficients of Vm (% / °C)	-0.40 ± 0.02
Temperature Coefficients of Pm (% / °C)	-0.35 ± 0.05

## IV Curves

