








**MSMDxxxM12-66**  
**210 M12 cells half cut**

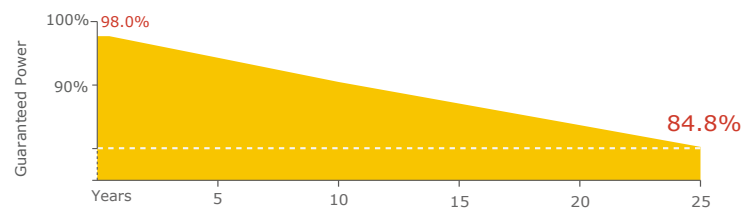
**650W-670W**



## KEY FEATURES

-  Class A fire resistant (possible on request)
-  Outstanding performance in low-light conditions
-  Low temperature coefficient (Pmax):-0.34%/°C
- +5W** 0~+5W positive tolerance- to assure high output
-  Lower internal current, lower hot spot temperature
-  Cell crack risk limited in small region, enhance the module reliability
- PID FREE** Excellent anti-PID module design, TÜV SÜD certified
-  Certified to withstand high wind loads (3600pa) and snow loads (8000pa) possible on request
-  Salt mist and ammonia corrosion resistant

## WARRANTY



**12**  
years

Enhanced product guarantee on product and workmanship

**25**  
years

Linear power output warranty

## PRODUCT CERTIFICATES



# MSMDxxxM12-66

## ELECTRICAL CHARACTERISTICS

STC	650	655	660	665	670
Maximum Power at STC (Pmax)	650W	655W	660W	665W	670W
Optimum Operating Voltage (Vmp)	37.4V	37.6V	37.8V	38.0V	38.2V
Optimum Operating Current (Imp)	17.39A	17.43A	17.47A	17.51A	17.55A
Open Circuit Voltage (Voc)	45.3V	45.5V	45.7V	45.9V	46.1V
Short Circuit Current (Isc)	18.44A	18.48A	18.53A	18.57A	18.62A
Module Efficiency	20.9%	21.1%	21.2%	21.4%	21.6%
Operating Module Temperature	-40°C to +85°C				
Maximum System Voltage	1500 V DC (IEC)				
Maximum Series Fuse Rating	30A				
Power Tolerance	0/+5W				

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%

NMOT	650	655	660	665	670
Maximum Power at NMOT (Pmax)	492W	496W	500W	504W	508W
Optimum Operating Voltage (Vmp)	34.9V	35.1V	35.3V	35.4V	35.6V
Optimum Operating Current (Imp)	14.09A	14.13A	14.17A	14.22A	14.26A
Open Circuit Voltage (Voc)	42.7V	42.9V	43.0V	43.2V	43.4V
Short Circuit Current (Isc)	14.86A	14.89A	14.93A	14.96A	15.01A

NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM=1.5, wind speed 1 m/s.

## TEMPERATURE CHARACTERISTICS

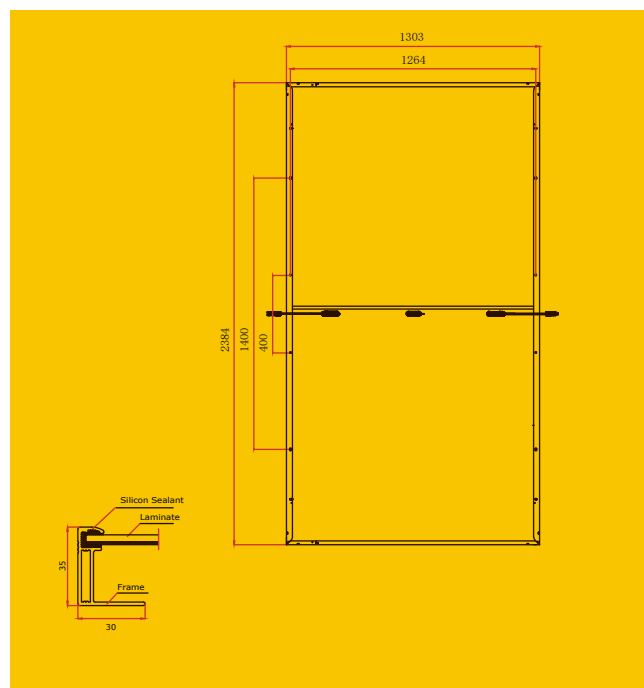
Nominal Module Operating Temperature (NMOT)	43±2°C
Temperature Coefficient of Pmax	-0.34 %/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	0.04 %/°C

## MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline silicon 210 mm
No. of Cells	132 (6 × 22)
Dimensions	2384 x 1303 x 35 mm
Weight	33.9kg
Front Glass	High Transmittance AR Coated Tempered Glass/3.2mm
Frame	Anodized aluminium alloy
Junction Box	IP68
Output Cables	4.0 mm <sup>2</sup> , cable length 350mm or customized length

## PACKING CONFIGURATION

Container	40' HC
Pieces per pallet	31
Pallets per container	18
Pieces per container	558



Current-Voltage & Power-Voltage Curve (595)

