

PERC**MAX**

# BIFACIAL

HIGH PERFORMANCE  
BIFACIAL MONOCRYSTALLINE  
P.E.R.C MODULE

132

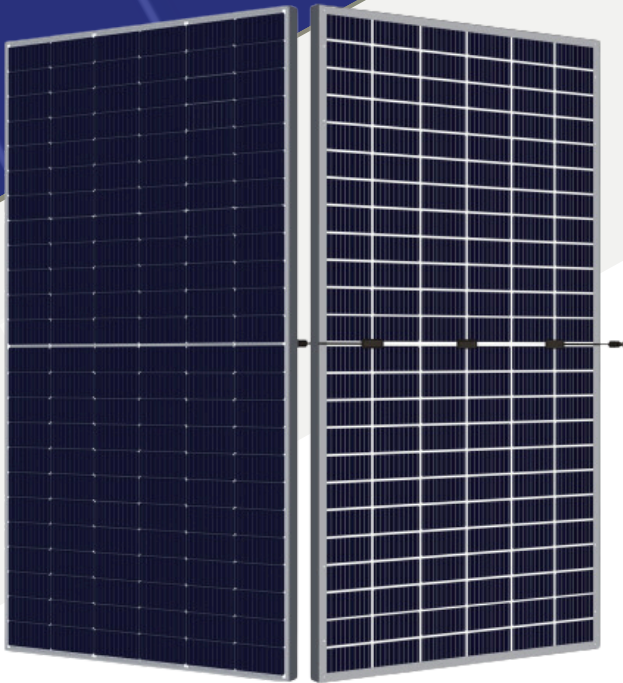
## TM - 650/670M-132BI

**132 CELL**  
Mono PERC Module









**650 - 670Wp**  
Power Output Range

**1500VDC**  
Maximum System Voltage

**21.60%**  
Maximum Efficiency



### KEY SALIENT FEATURES

-  Industry leading lowest thermal co-efficient of power
-  Industry leading 15 years product warranty
-  Excellent low irradiance performance
-  Excellent PID resistance
-  Positive power tolerance of 0~+3%
-  Fully automated production at all stages
-  Fully Reduced power loss by minimizing the effect of shadow shading ( 9 - 18 Busbar)
-  European Warranty & After - Sales Service



### TAMESOL BUILDING A GREEN FUTURE S.L

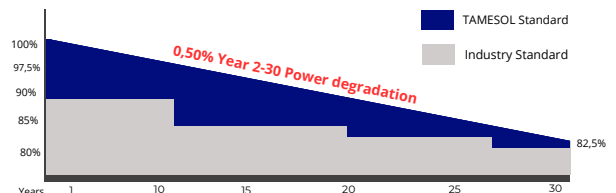
TAMESOL is a global provider of high-efficiency PV panels with a 10GW annual production capacity and a 100% automated production line, innovating state-of-the-art products for over 15 years. Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the grid.

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### LINEAR PERFORMANCE WARRANTY

15 year Product Warranty / 30-Year Linear Power Warranty



**TAMESOL** 15  
YEARS

*Since 2007, building a green future*

**21,60%**  
MAX MODULE  
EFFICIENCY

**0 - 3%**  
POWER  
TOLERANCE

**2,0%**  
FIRST YEAR POWER  
DEGRADATION

**0,50%**  
YEAR 2-30  
POWER DEGRADATION

**PERC CELL**  
Lower operating temperature

**ELECTRICAL CHARACTERISTICS**

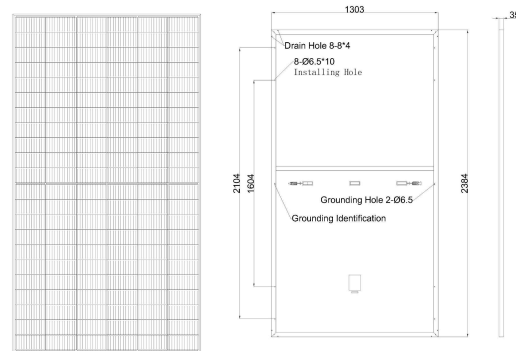
STC: AM1.5 1.000W/m2 NOTC: AM1.5 800W/m2 20° 1 m/s Test uncertainty for Pmax +3%

Module type	TM - 650M-132BI		TM - 655M-132BI		TM - 660M-132BI		TM - 665M-132BI		TM - 670M-132BI	
	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC
Maximum Power (Pmax/w)	650	484	655	487	660	491	665	495	670	498
Open Circuit Voltage (Voc/V)	45,0	42,6	45,2	42,8	45,4	43,0	45,6	43,1	45,8	43,3
Short Circuit Current (Isc/A)	18,39	14,41	18,43	14,43	18,47	14,48	18,51	14,57	18,55	14,58
Voltage at Maximum Power (Vmp/V)	37,6	35,7	37,8	35,9	38,0	36,05	38,2	36,1	38,4	36,3
Current at maximum Power (Imp/A)	17,29	13,56	17,33	13,57	17,37	13,62	17,41	13,71	17,45	13,72
Module Efficiency (%)	20,90%		21,10%		21,30%		21,40%		21,60%	

**MECHANICAL PARAMETERS**

Cell Orientation	single crystal PERC 210x105mm (132 pieces)
Junction Box	IP68, three diodes
Output Cable	4.0mm² 300mm(+) / 300mm(-) or customized
Glass	3.2mm tempered coated glass, low iron
Frame	Anodized aluminum alloy frame
Weight	32 kg
Dimensión	2384*1303*35mm
Packaging	31 pcs*pallet / 558pcs*40HQ

**PHYSICAL CHARACTERISTICS**



**OPERATING PARAMETERS**

Operational Temperature	-40°C - +85°C
Power Output Tolerance	(0, +3%)
Voc and Isc Tolerance	±3%
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30 A
Nominal Operating Cell Temperature	45±2°C
Protection Glass	Class II
Fire Rating	Class C
Bifacial- Factor	70%±10%

**MECHANICAL LOADING**

Front Side Maximum Static Loading	5400 PA
Rear Side Maximum Static Loading	2400 PA
Hailstone Test	Diameter 25mm, impact speed 23m/s

**TEMPERATURA RATINGS (STC)**

Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.27%/°C
Temperature Coefficient of Pmax	-0.35%/°C

**PACKING MANNER**

Container	40ft(HQ)
Number of modules per container	558
Number of modules per pallet	31
Number of pallets per container	18

TAMESOL Authorized Solar Dealer

**Note:** The specifications are obtained under the Standard Test Conditions (STCs): 1000 W/m2 solar irradiance, 1.5 Air Mass, and cell temperature of 25°C. The NOCT is obtained under the Test Conditions: 800 W/m2, 20°C ambient temperature, 1m/s wind speed, AM 1.5 spectrum. Please contact [info@tamesol.com](mailto:info@tamesol.com) for technical support. The actual transactions will be subject to the contracts. This parameter is for reference only and it is not a part of the contracts. The specifications are subject to change without prior notice.