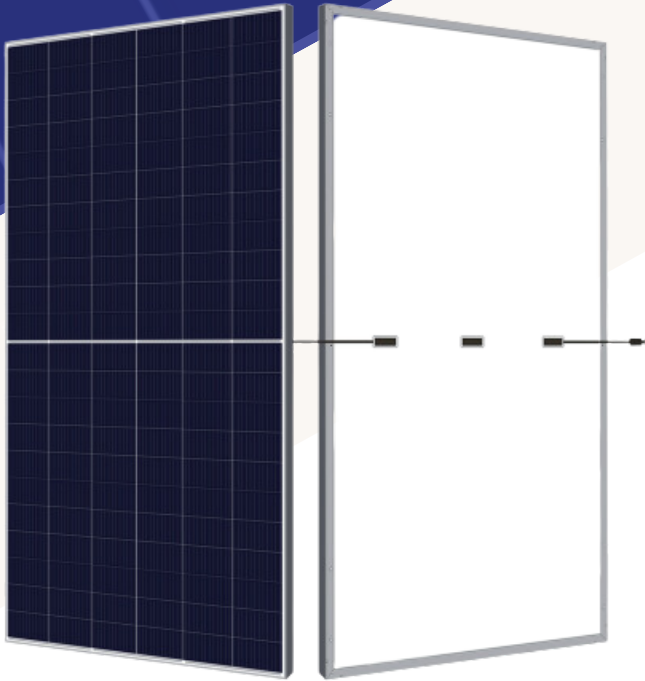


PERC**MAX**

HIGH PERFORMANCE
MONOCRYSTALLINE
P.E.R.C MODULE



144

TM - 455/475M-144HC









144 CELL
Mono PERC Module

455 - 475Wp
Power Output Range

1500VDC
Maximum System Voltage

21.90%
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

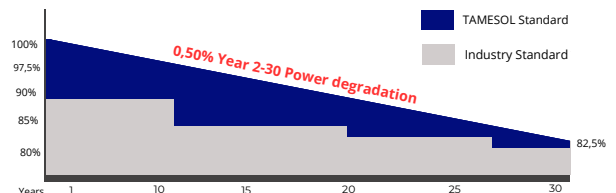
TAMESOL is a global provider of high-efficiency PV panels with a 10GW annual production capacity and a 100% automated production line, innovating state-of-the-art products for over 15 years. Our panels have been installed in more than 50 countries, with over 20 million panels already connected to the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

Tel : +34 872 222 388

E - mail: info@tamesol.com Website: www.tamesol.com

LINEAR PERFORMANCE WARRANTY

15 year Product Warranty / 30-Year Linear Power Warranty



TAMESOL **15**
YEARS

Since 2007, building a green future

21,90%
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

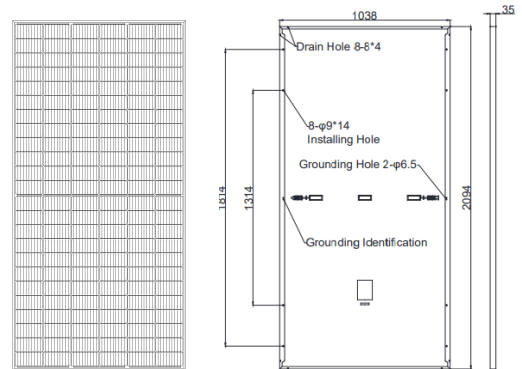
STC: AM1.5 1.000W/m² NOTC: AM1.5 800W/m² 20° 1 m/s Test uncertainty for Pmax 0 - +3%

Module type	TM - 455M-144HC		TM - 460M-144HC		TM - 465M-144HC		TM - 470M-144HC		TM - 475M-144HC	
	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC	STC	NOTC
Testing condition										
Maximum Power (Pmax/w)	455	332.4	460	336.2	465	340	470	343.9	475	347.7
Open Circuit Voltage (Voc/V)	50.10	46.08	50.39	46.60	50.68	46.86	50.96	47.12	51.25	47.38
Short Circuit Current (Isc/A)	11.37	9.19	11.40	9.22	11.43	9.25	11.47	9.27	11.47	9.30
Voltage at Maximum Power (Vmp/V)	42.41	38.71	42.76	39.00	43.10	39.29	43.44	39.58	43.78	39.87
Current at maximum Power (Imp/A)	10.73	8.59	10.76	8.62	10.79	8.65	10.82	8.69	10.85	8.72
Module Efficiency (%)	20,90%		21,20%		21,40%		21,60%		21,90%	

MECHANICAL PARAMETERS

Cell Orientation	single crystal PERC166x83/mm (144 pieces)
Junction Box	IP68, three diodes
Output Cable	4.0mm ² , 300mm
Glass	3.2mm tempered coated glass, low iron
Frame	Anodized aluminum alloy frame
Weight	23.3kg
Dimensión	2094*1038*30/35mm
Packaging	31/33/36 pcs*pallet / 682/ 726/ 792 *40HQ

PHYSICAL CHARACTERISTICS



OPERATING PARAMETERS

Operational Temperature	-40°C - +85°C
Power Output Tolerance	(0, +3%)
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	20 A
Nominal Operating Cell Temperature	45±2°C
Protection Glass	Class II
Fire Rating	Class C

MECHANICAL LOADING

Front Side Maximum Static Loading	5400 PA
Rear Side Maximum Static Loading	2400 PA

TEMPERATURA RATINGS (STC)

Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.28%/°C
Temperature Coefficient of Pmax	-0.36%/°C

PACKING MANNER

Container	40ft(HQ)
Number of modules per container	682/ 726/ 792
Number of modules per pallet	31/ 33/ 36
Number of pallets per container	22

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 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.