

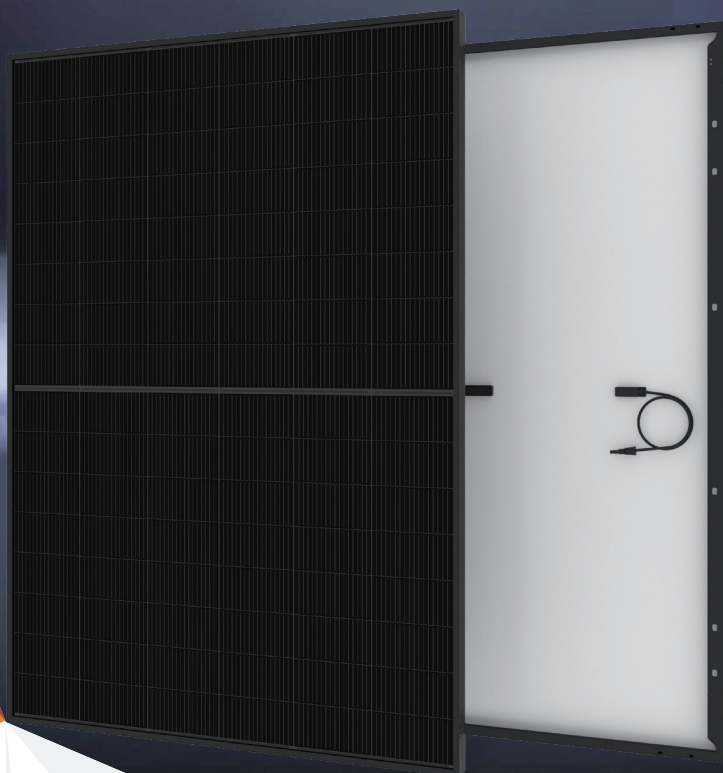
Talesun

BIPRO

TM3F48M **96-cell**

445 - 470W

16BB Half-cut N-type
Full Black

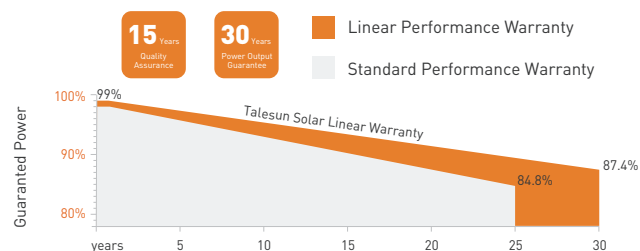


SYSTEM & PRODUCT CERTIFICATES

- IEC 61215 / IEC 61730 / UL 61730
- ISO 9001: 2015 Quality Management System
- ISO 14001: 2015 Environment Management System
- ISO 45001: 2018 Occupational Health and Safety Management Systems



PERFORMANCE WARRANTY



KEY FEATURES



16BB Half-cut Cell Technology

Lower LID/LeTID degradation and better low light performance
Attenuation $\leq 1\%$ (1st year) / $\leq 0.4\%$ (Linear)



Excellent Anti-PID Performance

192 hours Anti-PID test



Wider Application

No water-permeability and high wear-resistance,
can be widely used in high-humid, windy and dusty area



IP68 Junction Box

High waterproof level

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* GL-EN-Version 2026.04.22

ELECTRICAL CHARACTERISTICS

Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power (Pmax/W)	445	338	450	341	455	345	460	348	465	351	470	354
Operating Voltage (Vmpp/V)	29.79	28.00	30.09	28.20	30.34	28.40	30.59	28.60	30.84	28.80	31.09	29.00
Operating Current (Impp/A)	14.94	12.09	14.96	12.12	15.00	12.15	15.04	12.17	15.08	12.20	15.12	12.23
Open-Circuit Voltage (Voc/V)	35.42	33.60	35.64	33.80	35.85	34.00	36.06	34.20	36.27	34.40	36.48	34.60
Short-Circuit Current (Isc/A)	15.83	12.76	15.86	12.79	15.90	12.82	15.94	12.85	15.98	12.88	16.02	12.91
Module Efficiency (%)	22.27		22.52		22.77		23.02		23.27		23.52	

STC: Irradiance 1000W/m², Spectra at AM1.5, Module Temperature 25℃. Power output tolerance: 0~+5W, Test uncertainty for Pmax: ±3%

NMOT: Irradiance 800W/m², Spectra at AM1.5, Ambient Temperature 20℃, Wind speed 1m/s

MECHANICAL CHARACTERISTICS

Cell Type	N-type Mono-Crystalline (16Busbar)
No. of Cells	96pcs in series (6*16)
Module Dimensions	1762*1134*30mm (69.37*44.65*1.18inches)
Weight	24.7kg (54.45lbs.)
Front Glass	2.0mm AR Coating Semi-tempered Glass
Back Glass	2.0mm Semi-tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68, 3 Bypass Diodes
Output Cables	4mm ² (IEC), 12AWG(UL) 350mm(+),250mm(-) or Customized Length
Connectors	MC4/MC4-EVO2A/Others

APPLICATION CONDITIONS

Maximum System Voltage	1500V/DC
Operating Temperature	-40℃~+85℃
Maximum Series Fuse	35A
Safety Protection Class	Class II
Mechanical Load*	Front side 5400Pa, Back side 2400Pa

*Refer to the installation manual for details

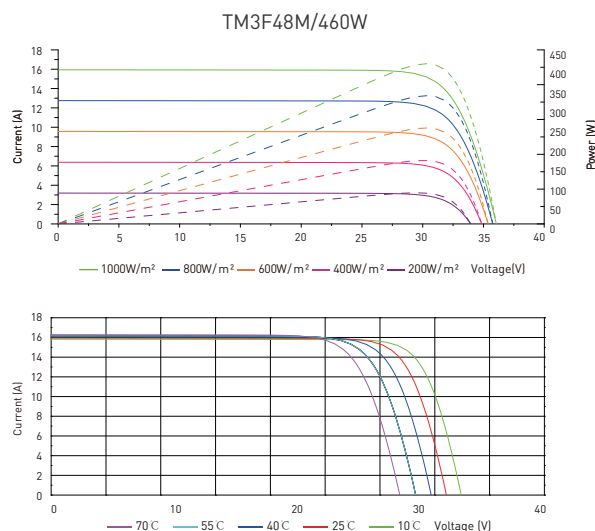
TEMPERATURE CHARACTERISTICS

Temperature Coefficient of Pmax	-0.29%/℃
Temperature Coefficient of Voc	-0.24%/℃
Temperature Coefficient of Isc	+0.043%/℃
Nominal Module Operating Temperature(NMOT)	43±2℃

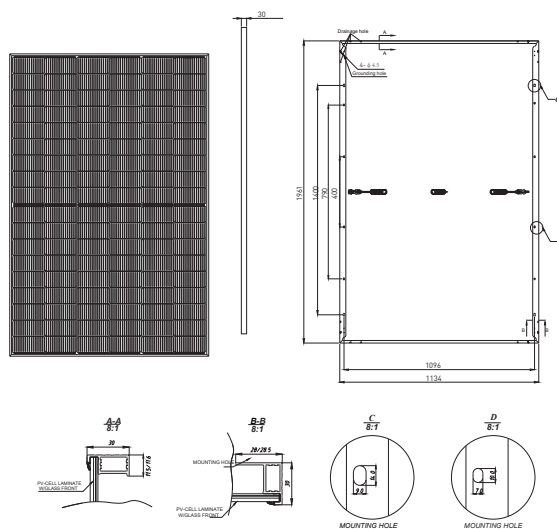
PACKING CONFIGURATION

Pieces Per Pallet	37	36(USA)
Pieces Per Container(40'HQ)	962	720

ELECTRICAL PERFORMANCE



TECHNICAL DRAWINGS



The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to ongoing innovation, R&D enhancement, Suzhou Talesun Solar Technologies Co., Ltd. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

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