



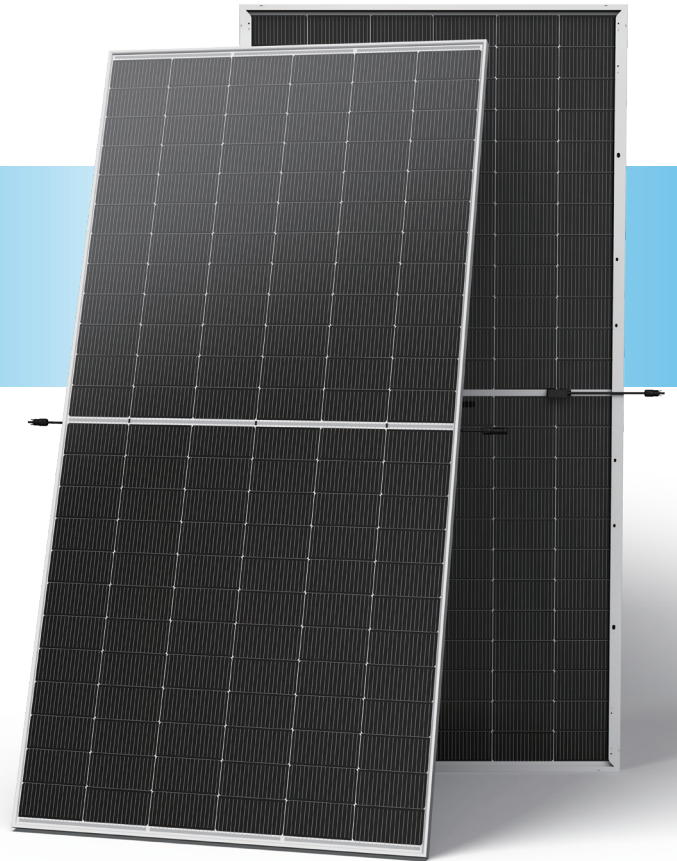
P-type PERC

Bifacial Dual Glass Monocrystalline Module

TSM-DEG21C.20 650-670W

670_W / MAXIMUM
POWER OUTPUT

21.6% / MAXIMUM
EFFICIENCY



High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance Of System) cost, shorter payback time
- Lowest guaranteed first year and annual degradation
- Designed for compatibility with existing mainstream system components



High power up to 670W

- Up to 21.6% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



High reliability

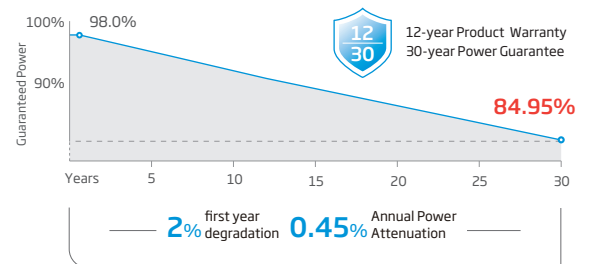
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.34%) and operating temperature
- Up to 25% additional power gain from back side depending on albedo

Performance Warranty



* Please refer to product warranty for details

Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716/UL61730

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System



ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts- $P_{MAX}(W_p)^*$	650	492	655	495	660	499	665	504	670	508
Power Selection (W)**	0 ~ +5									
Maximum Power Voltage- V_{MPP} (V)	37.7	35.1	37.9	35.2	38.1	35.4	38.3	35.6	38.5	35.7
Maximum Power Current- I_{MPP} (A)	17.27	14.01	17.31	14.05	17.35	14.10	17.39	14.16	17.43	14.20
Open Circuit Voltage- V_{oc} (V)	45.5	42.9	45.7	43.0	45.9	43.2	46.1	43.4	46.3	43.6
Short Circuit Current- I_{sc} (A)	18.35	14.79	18.40	14.83	18.45	14.87	18.50	14.91	18.55	14.95
Module Efficiency η_m (%)	20.9		21.1		21.2		21.4		21.6	

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%. **Power selection up to: +3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Peak Power Watts- $P_{MAX}(W_p)$	683	715	688	721	693	726	698	732	704	737
Maximum Power Voltage- V_{MPP} (V)	37.7	37.7	37.9	37.9	38.1	38.1	38.3	38.3	38.5	38.5
Maximum Power Current- I_{MPP} (A)	18.13	19.00	18.18	19.04	18.22	19.09	18.26	19.13	18.30	19.17
Open Circuit Voltage- V_{oc} (V)	45.5	45.5	45.7	45.7	45.9	45.9	46.1	46.1	46.3	46.3
Short Circuit Current- I_{sc} (A)	19.27	20.19	19.32	20.24	19.37	20.30	19.43	20.35	19.48	20.41

Power Bifaciality: 70±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature) 43°C (±2°C)

Temperature Coefficient of P_{MAX} - 0.34% /°C

Temperature Coefficient of V_{oc} - 0.25% /°C

Temperature Coefficient of I_{sc} 0.04% /°C

Due to different testing methods, the actual performances might differ from the declared specifications.

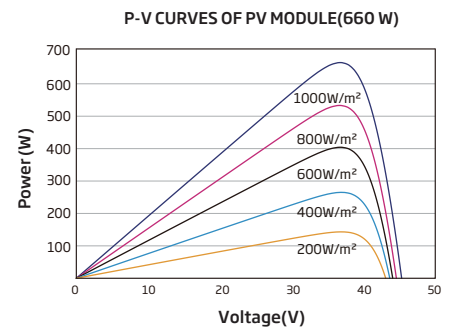
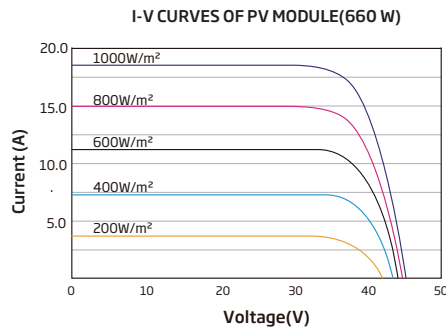
MAXIMUM RATINGS

Operational Temperature -40~+85°C

Maximum System Voltage 1500V DC (IEC)
1500V DC (UL)

Max Series Fuse Rating 35A

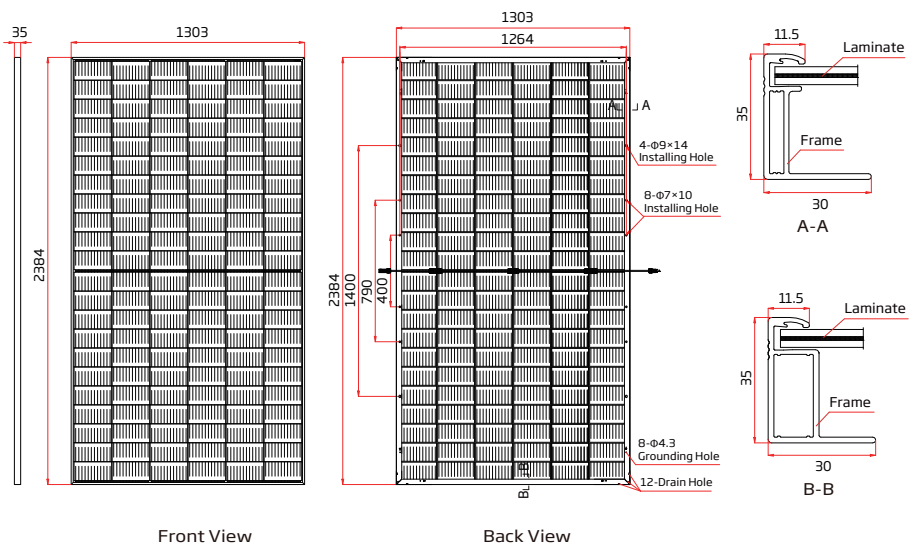
CURVES OF PV MODULE



MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×35 mm (93.86×51.30×1.38 inches)
Weight	38.7 kg (85.3 lb)
Front Glass	2.0 mm (0.08 inches), AR Coating Heat Strengthened Glass
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Coating)
Frame	35mm (1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²) Portrait: 350/280 mm (13.78/11.02 inches) Landscape: 1400/1400 mm (55.1/55.1 in)*
Connector	MC4 EV02 / TS4 Plus / TS4**
Fire Type	Type 29 or Class C
Packaging	Modules per box: 31 pieces Modules per 40' container: 465 pieces Modules per 53' container: 496 pieces

* Lengths can be customized ** Available in either option



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CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
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