



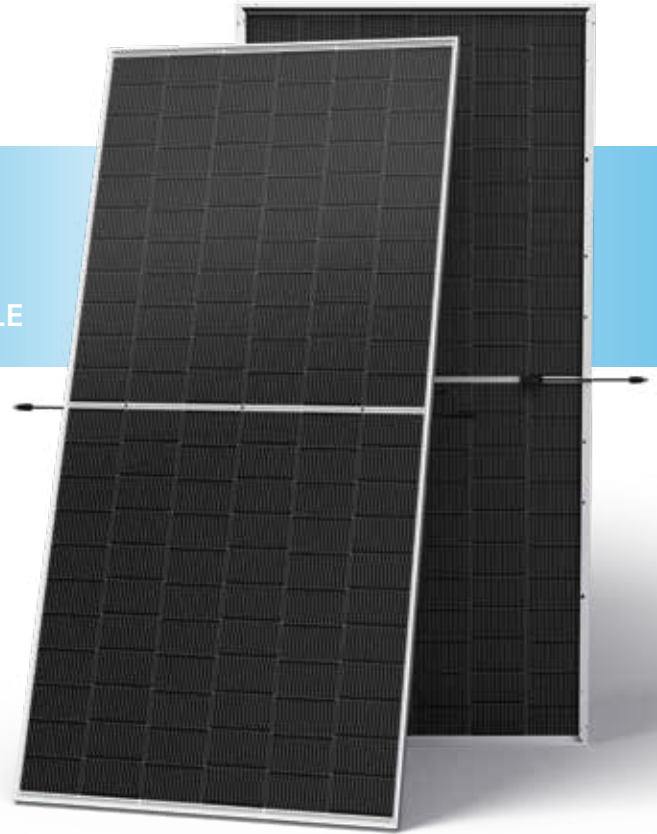
N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-XXXNEG19RC.20 600-625W

625W / MAXIMUM POWER OUTPUT

23.1% / MAXIMUM EFFICIENCY



High customer value

- Best partner of 1P tracker, with highest utilization of tracker length
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 1%~5%
- Standardized module size with higher container space utilization effectively reduces the freight cost
- Excellent compatibility with existing mainstream system components
- Certified Low-Carbon Footprint



High power up to 625W

- Up to 23.1% module efficiency, on T10 innovation platform
- Patented i-TOPCon technology with continuous efficiency upgrade, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

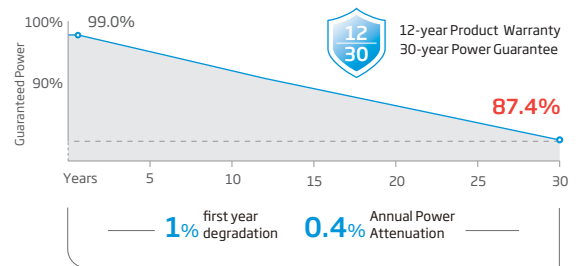
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Fire class rating C



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Performance Warranty



* Please refer to product warranty for details
(Power degradation values above apply to frontside, refer to product warranty for power degradation for backside and other details)

Comprehensive Products and System Certificates

IEC61215/IEC61730

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System

ISO14067: Product Carbon Footprint Limited Assurance



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

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Version number: TSM_EN_2024_Aus_B
Country of Origin: China



ELECTRICAL DATA (STC & NOCT & BNPI) TSM-XXXNEG19RC.20(XXX=600-625)

Testing Condition	STC			NOCT			BNPI			STC			NOCT			BNPI			STC			NOCT			BNPI		
Peak Power Watts- $P_{MAX}(W_p)^*$	600	459	665	605	462	670	610	466	676	615	470	681	620	474	687	625	478	692									
Binning Tolerance- $P_{MAX}(W_p)$	0 ~ +5																										
Maximum Power Voltage- $V_{MPP}(V)$	40.3	37.9	40.3	40.5	38.1	40.5	40.8	38.3	40.8	41.1	38.6	41.1	41.4	38.8	41.4	41.7	39.1	41.7									
Maximum Power Current- $I_{MPP}(A)$	14.91	12.11	16.50	14.94	12.13	16.55	14.96	12.16	16.57	14.98	12.19	16.58	14.99	12.20	16.59	15.00	12.21	16.59									
Open Circuit Voltage- $V_{oc}(V)$	48.4	46.0	48.4	48.7	46.2	48.7	49.0	46.5	49.0	49.3	46.8	49.3	49.6	47.1	49.6	49.9	47.3	49.9									
Short Circuit Current- $I_{sc}(A)$	15.80	12.73	17.51	15.83	12.75	17.54	15.86	12.78	17.57	15.89	12.80	17.61	15.91	12.82	17.63	15.92	12.83	17.64									
Module Efficiency η_m (%)	22.2			22.4			22.6			22.8			23.0			23.1											

 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%.

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- $P_{MAX}(W_p)$	630	660	635	666	641	671	646	677	651	682	656	688	661	693	666	698	671	703	676	708
Maximum Power Voltage- $V_{MPP}(V)$	40.3	40.3	40.5	40.5	40.8	40.8	41.1	41.1	41.4	41.4	41.7	41.7	42.0	42.0	42.3	42.3	42.6	42.6	42.9	42.9
Maximum Power Current- $I_{MPP}(A)$	15.66	16.40	15.69	16.43	15.71	16.46	15.73	16.48	15.74	16.49	15.75	16.50	15.76	16.51	15.77	16.52	15.78	16.53	15.79	16.54
Open Circuit Voltage- $V_{oc}(V)$	48.4	48.4	48.7	48.7	49.0	49.0	49.3	49.3	49.6	49.6	49.9	49.9	50.2	50.2	50.5	50.5	50.8	50.8	51.1	51.1
Short Circuit Current- $I_{sc}(A)$	16.59	17.38	16.62	17.41	16.65	17.45	16.68	17.48	16.71	17.50	16.72	17.51	16.73	17.52	16.74	17.53	16.75	17.54	16.76	17.55

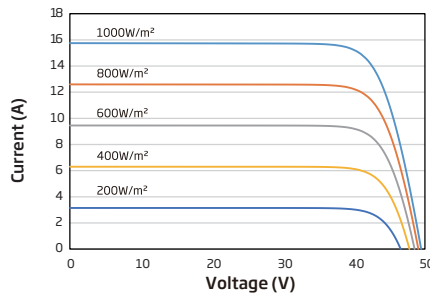
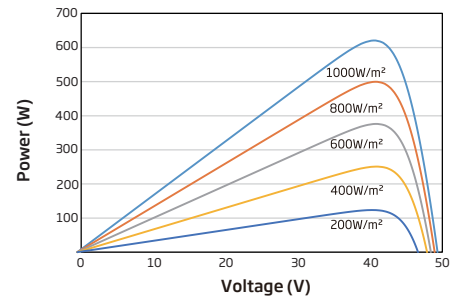
 Power Bifaciality: 80±7%. ϕ_{Pmax} : 80%±7%; ϕ_{Voc} : 100%±3%; ϕ_{Isc} : 80%±7%

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P_{MAX}	-0.29%/°C
Temperature Coefficient of V_{oc}	-0.24%/°C
Temperature Coefficient of I_{sc}	0.04%/°C

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
I-V CURVES OF PV MODULE (610W)

P-V CURVES OF PV MODULE (610W)

MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2382×1134×30 mm (93.78×44.65×1.18 inches)
Weight	33.0 kg (72.8 lb)
Front Glass	2.0 mm (0.08 inches), AR Coated Heat Strengthened Glass
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Coating)
Frame	30mm (1.18 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) Length can be customized
Connector	Stäubli MC4 EVO2
Packaging	Modules per box: 36 pieces Modules per 40' container: 720 pieces

