



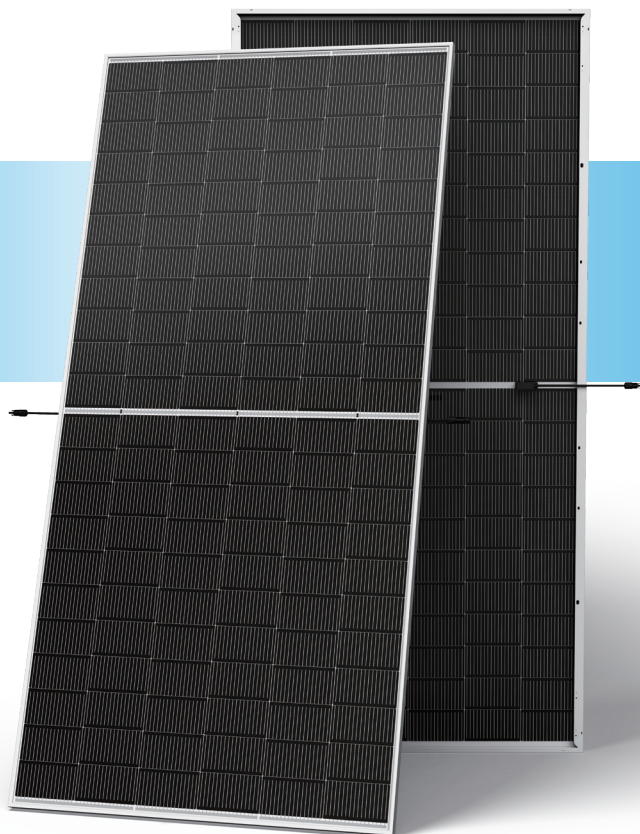
N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-XXXNEG19RC.20 585-605W

605_W / POWER OUTPUT

22.4% / 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 605W

- 22.4% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency upgrade, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

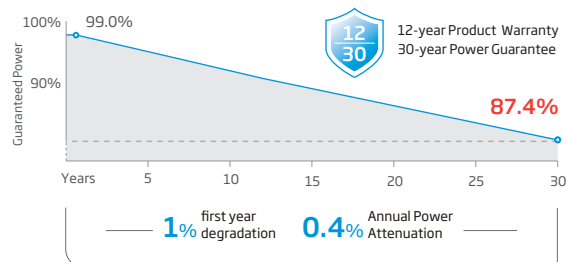
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Fire Class Rating C, Safety Class II



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



ELECTRICAL DATA (STC & NOCT & BNPI) TSM-XXXNEG19RC.20(XXX=585-605)

Testing Condition	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI
Peak Power Watts- $P_{MAX}(W_p)^*$	585	447	648	590	450	654	595	454	659	600	458	665	605	462	670
Power Selection (W)	0 ~ +5														
Maximum Power Voltage- V_{MPP} (V)	39.50	37.20	39.50	39.13	36.90	39.13	39.28	37.10	39.28	39.43	37.30	39.43	39.57	37.40	39.57
Maximum Power Current- I_{MPP} (A)	14.82	12.02	16.41	15.08	12.19	16.71	15.15	12.24	16.79	15.22	12.29	16.83	15.29	12.33	16.94
Open Circuit Voltage- V_{oc} (V)	47.50	45.10	47.50	47.29	44.90	47.29	47.49	45.10	47.49	47.69	45.30	47.69	47.89	45.50	47.89
Short Circuit Current- I_{sc} (A)	15.68	12.64	17.37	15.90	12.81	17.62	15.96	12.86	17.68	16.02	12.91	17.75	16.08	12.96	17.82
Module Efficiency η_m (%)	21.7			21.8			22.0			22.2			22.4		

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. BNPI: Irradiance: front 1000W/m², rear 135W/m², Temperature 25°C, Air Mass AM1.5
 *Measuring tolerance: $P_{max} \pm 3\%$, $V_{oc} \pm 3\%$ and $I_{sc} \pm 5\%$

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- $P_{MAX}(W_p)$	614	644	620	649	625	655	630	660	635	666
Maximum Power Voltage- V_{MPP} (V)	39.50	39.50	39.13	39.13	39.28	39.28	39.43	39.43	39.57	39.57
Maximum Power Current- I_{MPP} (A)	15.56	16.30	15.83	16.59	15.91	16.67	15.98	16.74	16.05	16.82
Open Circuit Voltage- V_{oc} (V)	47.50	47.50	47.29	47.29	47.49	47.49	47.69	47.69	47.89	47.89
Short Circuit Current- I_{sc} (A)	16.46	17.25	16.70	17.49	16.76	17.56	16.82	17.62	16.88	17.69

ϕP_{max} : 80% \pm 5%; ϕV_{oc} : 100% \pm 3%; ϕI_{sc} : 80% \pm 5%

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature) 43°C ($\pm 2^\circ\text{C}$)

Temperature Coefficient of P_{MAX} -0.29% / $^\circ\text{C}$

Temperature Coefficient of V_{oc} -0.24% / $^\circ\text{C}$

Temperature Coefficient of I_{sc} 0.04% / $^\circ\text{C}$

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

APPLICATION CONDITIONS

Operating Temperature -40~+70°C

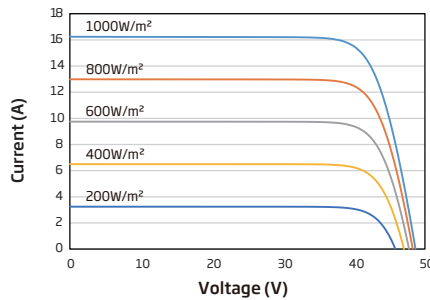
Maximum System Voltage 1500V DC (IEC)

1500V DC (UL)

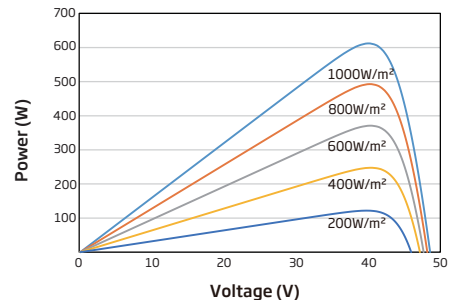
Max Series Fuse Rating 35A

CURVES OF PV MODULE (Cell Temperature (25 \pm 2) $^\circ\text{C}$)

I-V CURVES OF PV MODULE (605W)

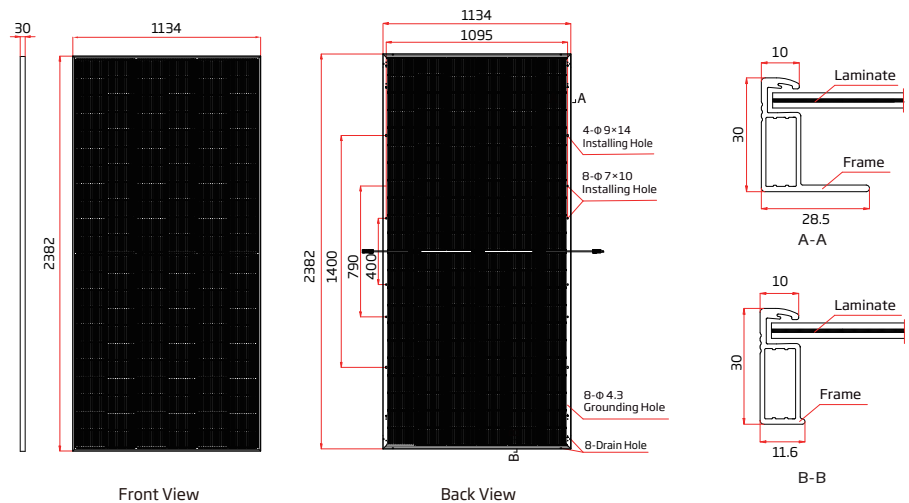


P-V CURVES OF PV MODULE (605W)



MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2382 \times 1134 \times 30 mm (93.78 \times 44.65 \times 1.18 inches)
Weight	33.0 kg (72.8 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
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: 200/320 mm (7.87/12.60 inches) Length can be customized
Connector	Stäubli Electrical Connectors AG PV-KST4-EVO2/xy_UR; PV-KBT4-EVO2/xy_UR PV-KST4-EVO2A/xy; PV-KBT4-EVO2A/xy
Packaging	Modules per box: 36 pieces Modules per 40' container: 720 pieces



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