Vertex N

N-type i-TOPCon

BIFACIAL BUAL GLASS MONOCRYSTALLINE MODULE

TSM-XXXNEG20C.20 **630-655W**

655W / MAXIMUM POWER OUTPUT

23.1% / MAXIMUM EFFICIENCY

High customer value

- Low Voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 1%~5%
- Excellent compatibility with existing mainstream system components

High power up to 655W

- Up to 23.1% module efficiency, on 210 innovative platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment

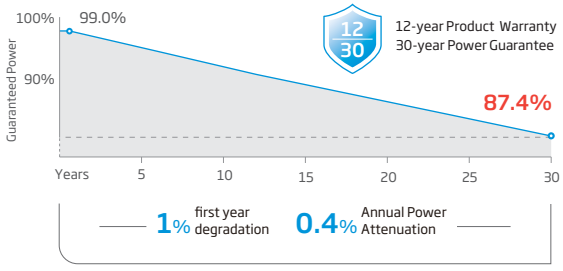
High reliability

- 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



* (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

Version number: TSM_AUS_EN_2025_B
Country of Origin: China

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N-type i-TOPCon Bifacial Dual Glass Monocrystalline Module

ELECTRICAL DATA (STC & NOCT & BNPI) TSM-XXXNEG20C.20 (XXX=630-655)

Testing Condition	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI
Peak Power Watts-PMAX(Wp)*	630	482	698	635	486	704	640	490	709	645	493	715	650	497	720	655	501	726
Power Selection (W)	0 ~ +5																	
Maximum Power Voltage-VMPP (V)	36.6	34.5	36.6	36.8	34.7	36.8	37.0	35.0	37.0	37.2	35.2	37.2	37.4	35.4	37.4	37.6	35.6	37.6
Maximum Power Current-IMPP (A)	17.22	13.96	19.07	17.26	13.98	19.12	17.30	14.00	19.17	17.34	14.03	19.22	17.38	14.05	19.26	17.43	14.06	19.30
Open Circuit Voltage-VOC (V)	43.9	41.6	43.9	44.2	41.9	44.2	44.5	42.2	44.5	44.8	42.5	44.8	45.1	42.8	45.1	45.4	43.1	45.4
Short Circuit Current-ISC (A)	18.24	14.70	20.21	18.27	14.73	20.24	18.30	14.75	20.28	18.33	14.77	20.31	18.36	14.80	20.34	18.39	14.82	20.38
Module Efficiency η m (%)	22.3			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. BNPI: Irradiance: front 1000W/m², rear 135W/m², Temperature25°C, Air Mass AM1.5
*Measuring tolerance: Pmax±3%, Voc±3% and Isc ±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%	5%	10%
Peak Power Watts-PMAX(Wp)	662	693	667	699	672	704	677	710	683	715	688	721
Maximum Power Voltage-VMPP (V)	36.6	36.6	36.8	36.8	37.0	37.0	37.2	37.2	37.4	37.4	37.6	37.6
Maximum Power Current-IMPP (A)	18.08	18.94	18.12	18.99	18.17	19.03	18.21	19.07	18.25	19.12	18.30	19.17
Open Circuit Voltage-VOC (V)	43.9	43.9	44.2	44.2	44.5	44.5	44.8	44.8	45.1	45.1	45.4	45.4
Short Circuit Current-ISC (A)	19.15	20.06	19.18	20.10	19.22	20.13	19.25	20.16	19.28	20.20	19.31	20.23

φPmax： 80%±7%； φVoc:100%±3%; φIsc:80%±7%

TEMPERATURE RATINGS

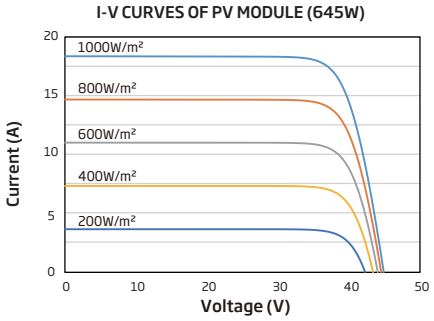
NOCT (Nominal Operating Cell Temperature)	43℃ (±2℃)
Temperature Coefficient of PMAX	- 0.29% /℃
Temperature Coefficient of VOC	- 0.24% /℃
Temperature Coefficient of ISC	0.04% /℃

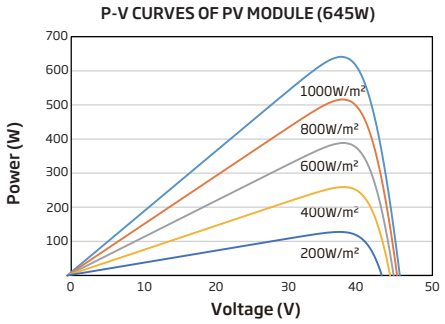
Due to different testing methods, the actual performances might differ from the declared specifications.

MAXIMUM RATINGS

Operational Temperature	-40~+70℃
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	35A

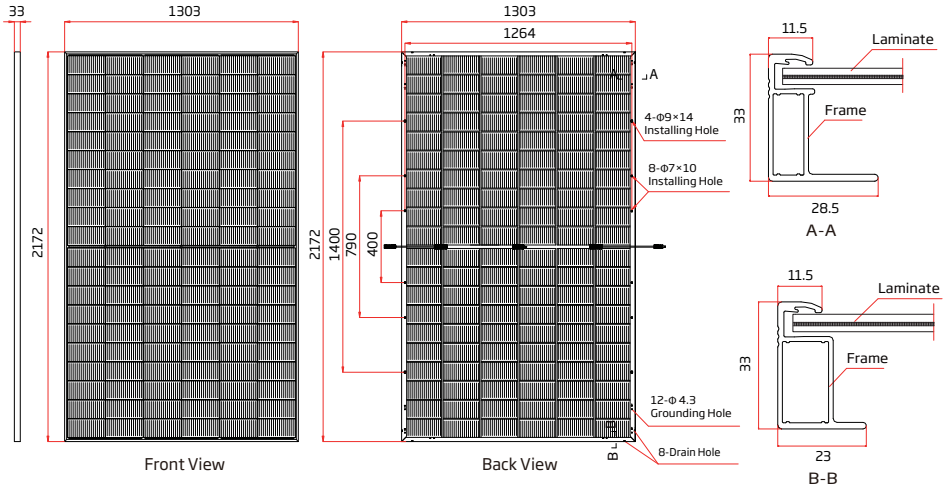
CURVES OF PV MODULE





MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	120 cells
Module Dimensions	2172×1303×33 mm (85.51×51.30×1.30 inches)
Weight	35.3 kg (77.8 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 (White Coating)
Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Portrait: 370/230 mm(14.57/9.06 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: 26/39 pieces Modules per 40' container: 234/351 pieces



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