

# N-type i-TOPCon

**BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE** 

TSM-NEG19RC.20 **605-630W** 

630W/ MAXIMUM POWER OUTPUT

23.3%





## **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 630W

- Up to 23.3% 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**

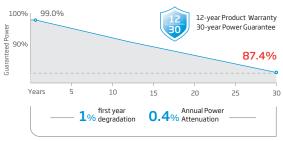
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



#### 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**



<sup>\*</sup> 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

ISO14067: Product Carbon Footprint Limited Assurance ISO14025: Environmental Product Declaration























<b>≅</b> ELECTRICAL DATA	(STC & N	IOCT &	BNPI)															
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)*	605	462	670	610	466	676	615	470	681	620	474	687	625	478	692	630	482	698
Power Selection (W)**									0 ~	+5								
Maximum Power Voltage-VMPP (V)	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	42.0	39.4	42.0
Maximum Power Current-IMPP (A)	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	15.01	12.22	16.62
Open Circuit Voltage-Voc (V)	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	50.2	47.7	50.2
Short Circuit Current-Isc (A)	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	15.93	12.84	17.65
Module Efficiency η m (%)		22.4			22.6			22.8			23.0			23.1			23.3	

 $STC: Irradiance\ 1000W/m2, Cell Temperature\ 25^{\circ}C, Air\ Mass\ AM1.5. \quad NoCT: Irradiance\ at\ 800W/m^2, Ambient\ Temperature\ 20^{\circ}C, Wind\ Speed\ 1m/s. \quad BNPI: Irradiance: front\ 1000W/m^2, rear\ 135W/m^2, Temperature\ 25^{\circ}C, Air\ Mass\ AM1.5. \\ *Measuring\ tolerance: \pm 3\%. \quad **Power\ selection\ up\ to: +3\%.$ 

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)												
Backside Power Gain	5%	10%	5%	10%	5%	10%	5% 1	0%	5%	10%	5%	10%
Peak Power Watts-PMAX(Wp)	635	666	641	671	646	677	651 6	582	656	688	662	693
Maximum Power Voltage-VMPP (V)	40.5	40.5	40.8	40.8	41.1	41.1	41.4	1.4	41.7	41.7	42.0	42.0
Maximum Power Current-IMPP (A)	15.69	16.43	15.71	16.46	15.73	16.48	15.74 1	5.49	15.75	16.50	15.76	16.51
Open Circuit Voltage-Voc (V)	48.7	48.7	49.0	49.0	49.3	49.3	49.6	19.6	49.9	49.9	50.2	50.2
Short Circuit Current-Isc (A)	16.62	17.41	16.65	17.45	16.68	17.48	16.71 1	7.50	16.72	17.51	16.73	17.52

Power Bifaciality:80±5%.

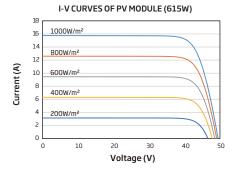
## °C≣ TEMPERATURE RATINGS

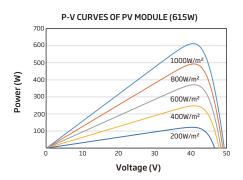
NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)					
Temperature Coefficient of PMAX	- 0.29% /℃					
Temperature Coefficient of Voc	- 0.24% /°C					
Temperature Coefficient of Isc	0.04%/°C					
Due to different testing methods, the actual performances migh						

#### **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**

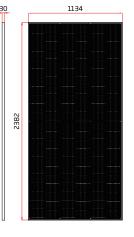


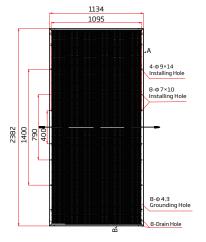


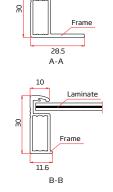
# **MECHANICAL DATA**

Solar Cells	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 Coating 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 4.0mm² (0.006 inches²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 Plus / TS4*
Packaging	Modules per box: 36 pieces Modules per 40' container: 720 pieces

 $<sup>{}^{\</sup>star}\mathsf{Please}\,\mathsf{refer}\,\mathsf{to}\,\mathsf{regional}\,\mathsf{data}\mathsf{sheet}\,\mathsf{for}\,\mathsf{specified}\,\mathsf{connector}.$ 







Laminate

Front View

Back View



