

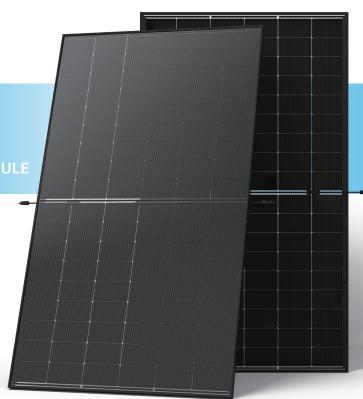
N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG18RC.27 **490-515W**

515w / MAXIMUM POWER OUTPUT

23.2%





High customer value

- Clear black, designed with aesthetics in mind, suitable for residential and C&I rooftop
- Lower LCOE (levelized cost of energy), reduced BOS (balance of system) cost, shorter payback time
- Designed for compatibility with existing mainstream system
- Easy to handle and install on roofs with excellent size and light weight



High power up to 515W

- Up to 23.2% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



Dual-glass design, high reliability

- Less prone to micro-cracks and scratches on the back during installation
- Excellent fire rating and weather resistance, proven durability in salt, sand, and ammonia environments.
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C) and operating temperature
- Higher bifaciality, with up to 10%~20% 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

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& 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)*	490 375 542	495 378 548	500 382 554 505	386 559	510 390 565	515 394 570
Power Selection (W)**			0 ~ +5			
Maximum Power Voltage-VMPP (V)	32.90 31.00 32.90	33.10 31.30 33.10	33.30 31.50 33.30 33.50	31.80 33.50	33.70 31.90 33.70	33.90 32.20 33.90
Maximum Power Current-IMPP (A)	14.91 12.06 16.47	14.97 12.08 16.55	15.03 12.11 16.63 15.09	12.15 16.68	15.14 12.21 16.77	15.20 12.23 16.83
Open Circuit Voltage-Voc (V)	39.60 37.60 39.60	39.80 37.70 39.80	40.10 38.00 40.10 40.30	38.30 40.30	40.60 38.50 40.60	40.90 38.80 40.90
Short Circuit Current-Isc (A)	15.80 12.74 17.51	15.83 12.76 17.57	15.86 12.78 17.61 15.89	9 12.81 17.65	15.93 12.84 17.68	15.96 12.86 17.68
Module Efficiency η m (%)	22.0	22.3	22.5	22.7	22.9	23.2

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

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%	5% 10%
Peak Power Watts-PMAX(Wp)	515 539	520 545	525 550	530 556	536 561	541 567
Maximum Power Voltage-VMPP (V)	32.90 32.90	33.10 33.10	33.30 33.30	33.50 33.50	33.70 33.70	33.90 33.90
Maximum Power Current-IMPP (A)	15.66 16.40	15.72 16.47	15.78 16.53	15.84 16.60	15.90 16.65	15.96 16.72
Open Circuit Voltage-Voc (V)	39.60 39.60	39.80 39.80	40.10 40.10	40.30 40.30	40.60 40.60	40.90 40.90
Short Circuit Current-Isc (A)	16.59 17.38	16.62 17.41	16.65 17.45	16.68 17.48	16.73 17.52	16.76 17.56

Power Bifaciality:80±5%.

TEMPERATURE RATINGS

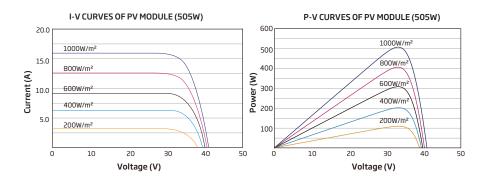
$NOCT \hbox{(Nominal Operating Cell Temperature)}$	43°C (±2°C)
Temperature Coefficient of PMAX	- 0.29% /°C
Temperature Coefficient of Voc	- 0.24% /°C
Temperature Coefficient of Isc	0.04% /℃
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Due to different testing methods, the actual performances might differ from the declared specifications.

APPLICATION CONDITIONS

Operating Temperature	-40~+70°C		
Maximum System Voltage	1500V DC (IEC)		
Max Series Fuse Rating	30A		

CURVES OF PV MODULE



── MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	108 cells
Module Dimensions	1961×1134×30 mm (77.20×44.65×1.18 inches)
Weight	23.5 kg (51.8 lb)
Front Glass	1.6mm (0.06inches), AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06 inches), Heat Strengthened Glass
Frame	30mm _(1.18 inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Portrait: 200/320 mm(7.87/12.60 inches) Length can be customized
Connector	TS4 Plus / TS4 / MC4 EVO2*
Packaging	Modules per box: 36 pieces Modules per 40' container: 864 pieces

^{*}The connector names listed are general names; specific types are subject to the certification documents.

