Vertex S+

N-type i-TOPCon

MONOFACIAL DUAL GLASS MODULE

TSM-XXXNEG18R.28 **475-510W**

510W / MAXIMUM POWER OUTPUT

22.9% / MAXIMUM EFFICIENCY

High customer value

- Lower LCOE (levelized cost of energy), reduced BOS (balance of system) cost, shorter payback time
- Designed for compatibility with existing mainstream system components
- High module power, high string power and low voltage design
- Easy to handle and install on roofs with excellent size and light weight

High power up to 510W

- Up to 22.9% 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

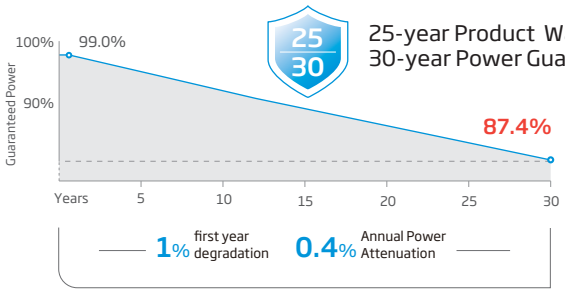
Dual-glass design, high reliability

- Less prone to micro-cracks and scratches on the back during installation
- Fire Safety class rating C , Safety Class II
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load
- NEG18R.28 - Black frame

High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C) and operating temperature

Performance Warranty



(*Please refer to Limited Warranty Supplement that applies to the TSM-***NEG18R.28. Products installed within Australia & New Zealand market.)

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_2024_C
Country of Origin: China

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N-type i-TOPCon MONOFACIAL DUAL GLASS MODULE

ELECTRICAL DATA (STC) TSM-XXXNEG18R.28 (XXX=475-510)

Peak Power Watts-PMAX(Wp)*	475	480	485	490	495	500	505	510
Power Selection-PMAX(Wp)**	0 ~ +5							
Maximum Power Voltage-VMPP (V)	32.3	32.5	32.7	32.9	33.1	33.3	33.5	33.7
Maximum Power Current-IMPP (A)	14.72	14.77	14.84	14.91	14.97	15.03	15.09	15.14
Open Circuit Voltage-VOC (V)	39.0	39.2	39.4	39.6	39.8	40.1	40.3	40.6
Short Circuit Current-ISC (A)	15.68	15.72	15.76	15.80	15.83	15.86	15.89	15.93
Module Efficiency η m (%)	21.4	21.6	21.8	22.0	22.3	22.5	22.7	22.9

STC: Irrdiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%. **Power selection up to: +3%.

ELECTRICAL DATA (NOCT)

Peak Power Watts-PMAX(Wp)*	363	367	371	375	378	382	386	390
Maximum Power Voltage-VMPP (V)	30.4	30.6	30.8	31.0	31.3	31.5	31.8	31.9
Maximum Power Current-IMPP (A)	11.94	11.98	12.02	12.06	12.08	12.11	12.15	12.21
Open Circuit Voltage-VOC (V)	36.9	37.2	37.4	37.6	37.7	38.0	38.3	38.5
Short Circuit Current-ISC (A)	12.64	12.67	12.70	12.74	12.76	12.78	12.81	12.84

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

TEMPERATURE RATINGS

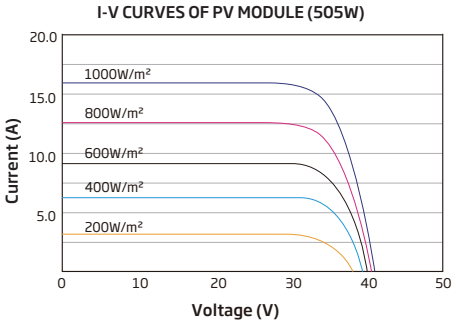
NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of PMAX	- 0.29% /°C
Temperature Coefficient of VOC	- 0.24% /°C
Temperature Coefficient of ISC	0.04% /°C

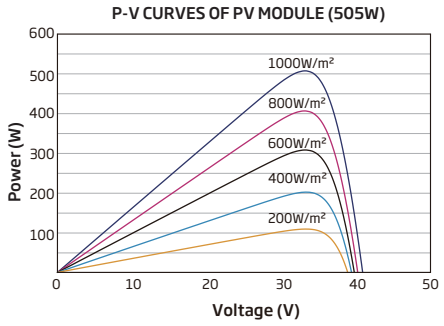
Due to different testing methods, the actual performances might differ from the declared specifications.

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	30A

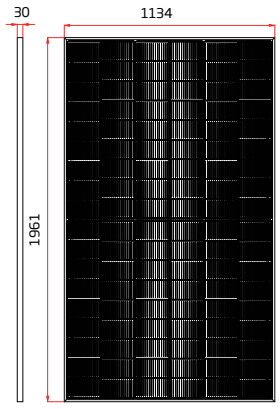
CURVES OF PV MODULE



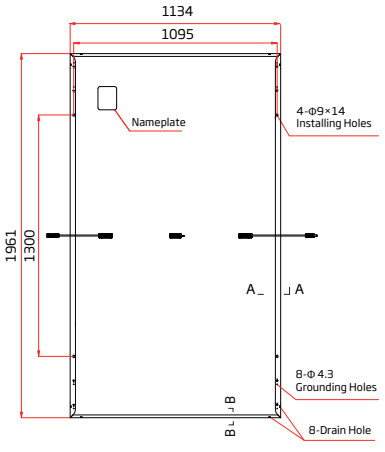


MECHANICAL DATA

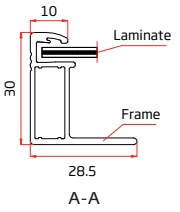
Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	108 cells
Module Dimensions	1961×1134×30 mm (77.20×44.65×1.18 inches)
Weight	23.5 kg (51.8 lb)
Front Glass	1.6mm (0.06inches) AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06 inches), Heat Strengthened Glass
Frame/Color	30mm(1.18 inches) Anodized Aluminium Alloy, (.28 black)
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Length: 1300/1300 mm(51.1/51.1 inches)
Connector	Stabuli MC4 EV02
Packaging	Modules per box: 36 pieces Modules per 40' container: 864 pieces

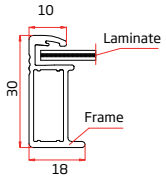


Front View



Back View





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