



N-type i-TOPCon

MONOFACIAL DUAL GLASS MODULE

TSM-XXXNEG18R.25 490-515W

515W / MAXIMUM POWER OUTPUT

23.2% / 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 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

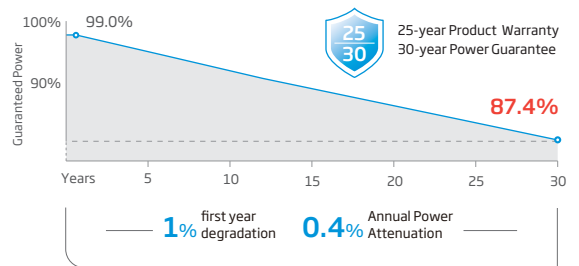
- Less prone to micro-cracks and scratches on the back during installation
- Fire class rating C, Safety Class II
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

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

Performance Warranty



(*Please refer to Limited Warranty Supplement that applies to the TSM-***NEG18R.25. 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



ELECTRICAL DATA (STC) TSM-XXXNEG18R.25 (XXX = 490-515)

| | | | | | | |
|-------------------------------------|--------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}(Wp)^*$ | 490 | 495 | 500 | 505 | 510 | 515 |
| Power Selection (W) | 0 ~ +5 | | | | | |
| Maximum Power Voltage- $V_{MPP}(V)$ | 32.9 | 33.1 | 33.3 | 33.5 | 33.7 | 33.9 |
| Maximum Power Current- $I_{MPP}(A)$ | 14.91 | 14.97 | 15.03 | 15.09 | 15.14 | 15.20 |
| Open Circuit Voltage- $V_{oc}(V)$ | 39.6 | 39.8 | 40.1 | 40.3 | 40.6 | 40.9 |
| Short Circuit Current- $I_{sc}(A)$ | 15.80 | 15.83 | 15.86 | 15.89 | 15.93 | 15.96 |
| Module Efficiency $\eta_m(\%)$ | 22.0 | 22.3 | 22.5 | 22.7 | 22.9 | 23.2 |

 STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: $P_{max} \pm 3\%$, $V_{oc} \pm 3\%$ and $I_{sc} \pm 4\%$
ELECTRICAL DATA (NOCT)

| | | | | | | |
|-------------------------------------|-------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}(Wp)$ | 375 | 378 | 382 | 386 | 390 | 394 |
| Maximum Power Voltage- $V_{MPP}(V)$ | 31.0 | 31.3 | 31.5 | 31.8 | 31.9 | 32.2 |
| Maximum Power Current- $I_{MPP}(A)$ | 12.06 | 12.08 | 12.11 | 12.15 | 12.21 | 12.23 |
| Open Circuit Voltage- $V_{oc}(V)$ | 37.6 | 37.7 | 38.0 | 38.3 | 38.5 | 38.8 |
| Short Circuit Current- $I_{sc}(A)$ | 12.74 | 12.76 | 12.78 | 12.81 | 12.84 | 12.86 |

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

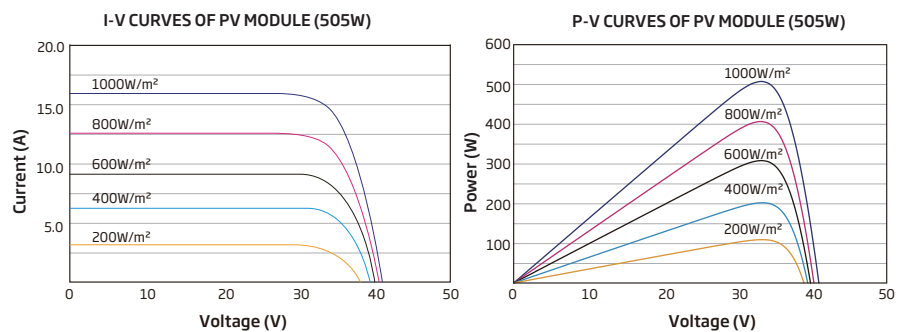
TEMPERATURE RATINGS

| | |
|---|--------------------------------|
| NOCT (Nominal Operating Cell Temperature) | 43°C ($\pm 2^\circ\text{C}$) |
| Temperature Coefficient of P_{MAX} | -0.29% /°C |
| Temperature Coefficient of V_{oc} | -0.24% /°C |
| Temperature Coefficient of I_{sc} | 0.04% /°C |

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

MAXIMUM RATINGS

| | |
|-------------------------|----------------|
| Operational 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 (0.06inches), Heat Strengthened Glass |
| Frame | 30mm (1.18inches) Anodized Aluminium Alloy, Black |
| J-Box | IP 68 rated |
| Cables | Photovoltaic Technology Cable 4.0mm ² (0.006inches ²) Portrait: 350/280 mm (13.78/11.02 inches) Length can be customized |
| Connector | Stabuli 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: 864 pieces |

