



Picture shown may not reflect actual configuration

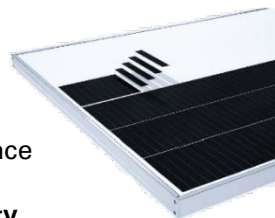
PVC415 MP02 Monocrystalline PERC Photovoltaic (PV) Module

The monocrystalline PERC (passivated emitter rear cell) photovoltaic modules provide excellent performance even under low temperature or low light environment. The modules provide high power output at high levels of reliability.

Features

Proven Energy Yield

- 20.1% efficiency
- -0/+5% positive power tolerance



Higher Efficiency and Reliability

The panel design minimizes white space between solar cells, eliminates reflective metal lines on the cells, and lowers electrical resistance between cells by using aerospace grade conductive adhesive and redundant cell to cell connections that increases efficiency compared to conventional commercial modules.

Anti-PID

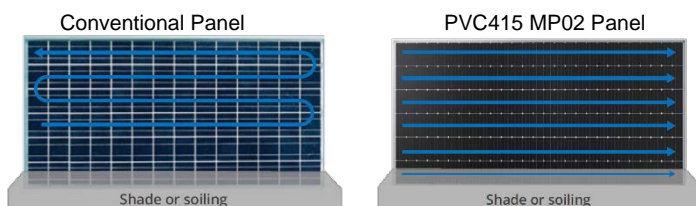
- Anti-PID (performance induced degradation) techniques for processing solar cells and encapsulation of modules applied.

Adaptability to Harsh Environments

- Excellent anti-salt mist and anti-ammonia capability; adaptable to harsh environments such as desert and coastal regions.

Increased Energy Production

- Unique parallel circuitry for linear shading response
- Minimized energy production losses due to row-to-row shading, or panel soiling.
- With single-axis tracking systems, linear shading response enables true-tracking. This generates more energy than conventional monocrystalline modules that require backtracking.
- Reduced panel temp. due to unique electrical bus.



Tests (pending)

- Standard Tests: IEC 61215, IEC 61730 Class C Type 2 fire rating to 1500V
- IEC62716 Ammonia Test
- MIL-STD-810G Desert Test
- IEC 61701 (maximum severity) Salt Spray Test
- LeTID Test¹ IEC 61215 (MQT 23.1 LeTID detection) draft standard
- Potential-induced degradation free: 1500V

Certifications (pending)

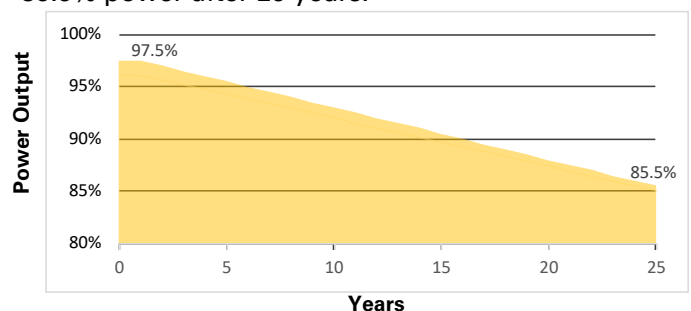
- Available listings: TUV Rheinland
- ISO 9001:2008: ISO Quality Management System
- ISO 14001:2004: ISO Environment Management System
- OHSAS 18001: 2007 Occupational Health and Safety

Worldwide Product Support

- Cat[®] dealers have over 1,800 dealer branch stores operating in over 200 countries
- Your local Cat dealer provides extensive pre-sale and post-sale support, including design consultation, service contracts, and all maintenance agreement.

Module Warranty

- 25-year warranty for materials and processing
- 25-year power assurance program for linear power output. Produces more than 97.5% power in the first year, then declining by 0.5% per year, ending at 85.5% power after 25 years.



Module Rating at Standard Test Conditions (STC)

1000W/m², AM 1.5, 25°C **PVC415 MP02**

Nominal Power (-0/+5%)	P _{MPP} (W)	415
Voltage at P _{MAX}	V _{MPP} (V)	45.0
Current at P _{MAX}	I _{MPP} (A)	9.22
Open Circuit Voltage	V _{OC} (V)	54.1
Short Circuit Current	I _{SC} (A)	9.90
Module Efficiency	%	20.1
Maximum System Voltage	V _{SYS} (V)	1500
Maximum Series Fuse	I _{CF} (A)	18

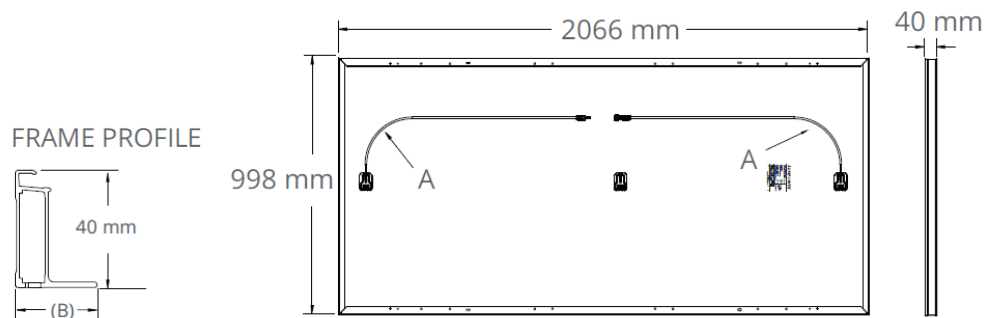
TEMPERATURE CHARACTERISTICS

Module Operating Temperature Range	(°C)	-40 to +85
Temperature Coefficient of P _{MPP}	T _K (P _{MPP})	-0.36%/°C
Temperature Coefficient of V _{OC}	T _K (V _{OC})	-0.29%/°C
Temperature Coefficient of I _{SC}	T _K (I _{SC})	+0.05%/°C

MECHANICAL DETAILS

Length	2066 mm (81.3 in)
Width	998 mm (39.3 in)
Thickness	40 mm (1.6 in)
Weight	22.3 kg (49.2 lbs.)
Area	2.06 m ²
Junction box	IP67, three diodes
Connectors	Stäubli MC4-Evo2
Cell Type	Monocrystalline PERC
Frame Material	Class 2 silver anodized
Tempered Glass	High-transmission tempered anti-reflective
Load Rating	2400 Pa wind load front & back 5400 Pa Snow load front
Hailstone Test	25mm hailstone at 23 m/s

¹ Fraunhofer CSP LID Sensitivity according to IEC 61215 (MQT 23.1 LeTID detection), <1% power loss.



- (A) Cable Length: 1200 mm ± 15 mm
- (B) Long Side: 32 mm
Short Side: 24 mm

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