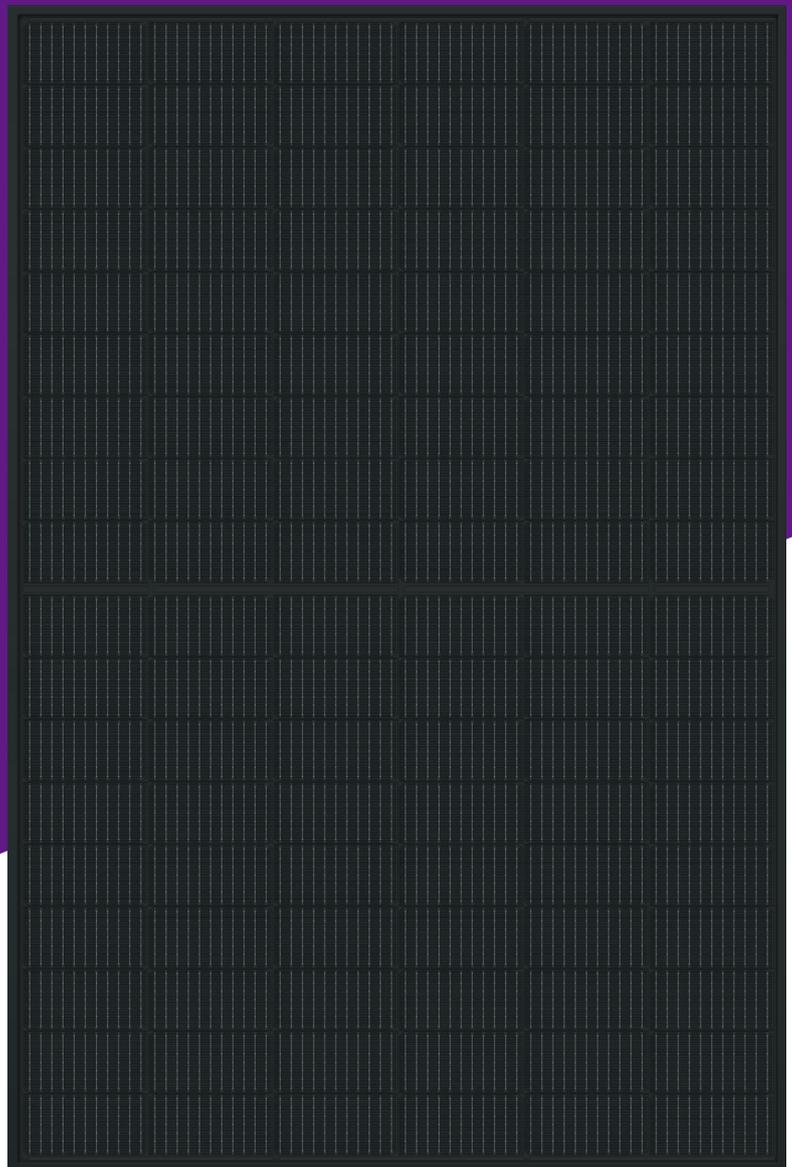


**1 KOM
MA5°**

1KOMMA5° Full Black Module

- **Highest Power:**
415 – 425 W
- **Longest Warranty:**
25 years product warranty &
30 performance warranty
- **Highest Efficiency:**
TOPCon technology
- **Regional Resources:**
N-Type Poly-Si from Germany
- **Without compromise:**
Sustainable & ethical
supply chain



Designed in/
with raw materials from



415 ~ 425 W
POWER RANGE

0~+5W
POWER SORTING

21.8%
MAX MODULE
EFFICIENCY

≤1.0%
ANNUAL POWER
DEGRADATION 1ST YEAR

≤0.4%
ANNUAL POWER
DEGRADATION YEAR 2-30

Full Black Module

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DEGRADATION YEAR 2-30

Electrical Specifications

STC Irradiance 1,000W/m², Cell Temperature 25° C, AM = 1.5

Rated output (Pmpp / Wp)	415	420	425
Rated voltage (Vmpp / V)	31.76	31.93	32.10
Rated current (Impp / A)	13.06	13.15	13.24
Open circuit voltage (Voc / V)	37.80	38.00	38.20
Short circuit current (Isc / A)	13.76	13.87	13.98
Module efficiency	21.3%	21.5%	21.8%

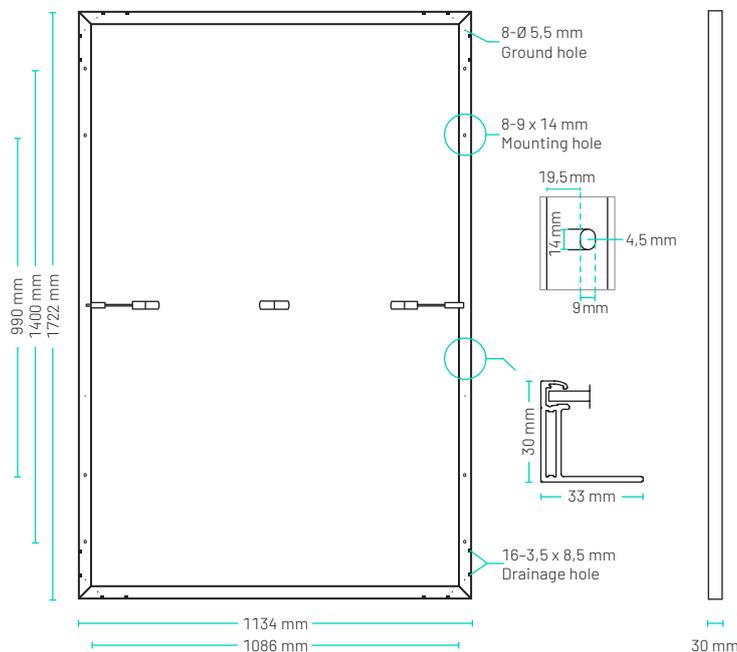
STC Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp / Wp)	312.1	315.8	319.6
Rated voltage (Vmpp / V)	29.90	30.06	30.21
Rated current (Impp / A)	10.44	10.51	10.58
Open circuit voltage (Voc / V)	35.91	36.10	36.29
Short circuit current (Isc / A)	11.11	11.20	11.28

Temperature Ratings (STC) and Operating Parameters

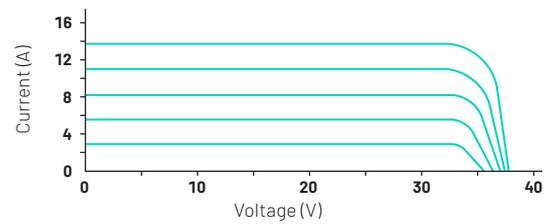
Temperature coefficient (Pmpp)	-0.43%/°C	No. of diodes	3
Temperature coefficient (Isc)	+0.043%/°C	Junction box IP rating	IP 68
Temperature coefficient (Voc)	-0.24%/°C	Max. series fuse rating	25 A
Nominal module operating temperature (NMOT)	41±2°C	Max. system voltage (IEC/UL)	1,000V _{DC} or 1,500V _{DC}

Mechanical Specifications

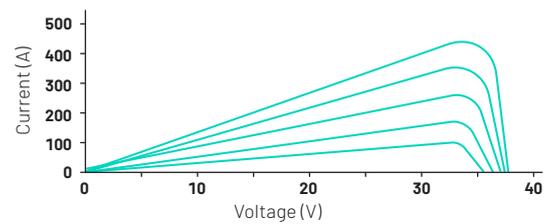


Curve

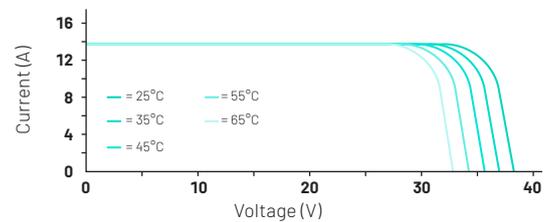
Current-Voltage (415W)



Current-Voltage (415 W)



Current-Voltage (415 W)



Outer dimensions (L x W x H)	1,722 x 1,134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, black anodized
Front glass thickness	3.2 mm
Cable length (Including connector)	1,200 mm
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
Maximum mechanical test load	5,400 Pa (front) / 2,400 Pa (back)
Connector type (IEC/UL)	MC4/ MC4-EV02A
Module weight	21.3 kg

