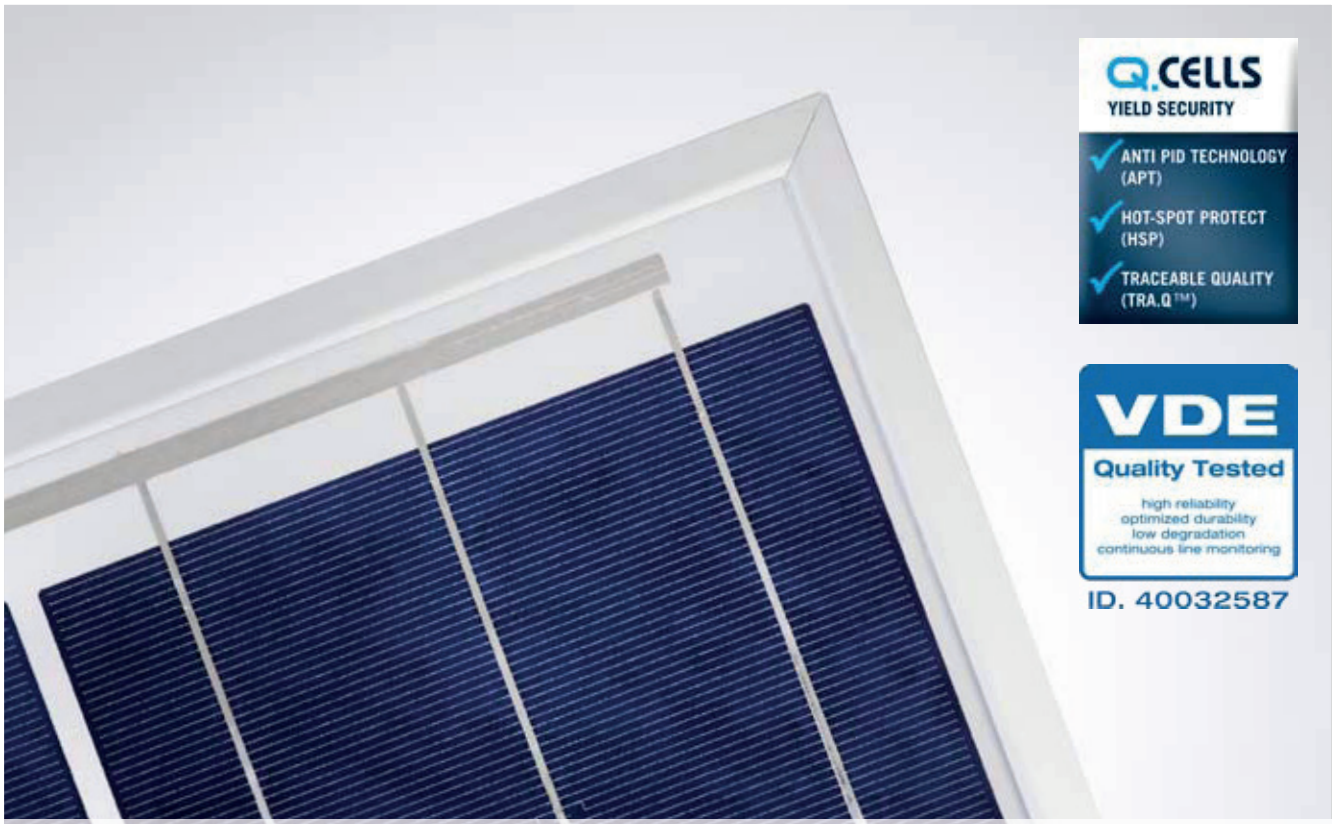


Q.CELLS
YIELD SECURITY
- ANTI PID TECHNOLOGY (APT)
- HOT-SPOT PROTECT (HSP)
- TRACEABLE QUALITY (TRA.Q™)

VDE
Quality Tested
high reliability
optimized durability
low degradation
continuous line monitoring
ID. 40032587

## MULTICRYSTALLINE SOLAR MODULE

# Q.PRO - G2 230-250

## Reliability and safety have a new name

The multicrystalline solar module **Q.PRO - G2** is our classic for residential rooftop installations. **Q.PRO - G2** is the safest and most reliable multicrystalline solar module because thanks to our new Q-Cells technologies, it is the worldwide first PID resistant[1] and Hot-Spot free solar module on the market. This makes **Q.PRO - G2** your safe choice for secure yields.

### THE NEW Q-CELLS GENERATION

- Anti PID Technology (APT)[1]: **No power loss caused by potential induced degradation.**
- Traceable Quality (Tra.Q™): **First traceable and forgery proof solar module on the market.**
- New cell concept with reduced serial resistance: **Increased power on module level.**
- VDE Quality Tested with continuous aging tests: **Long-term secure quality.**

### THE PROVEN Q-CELLS VALUES

- Hot-Spot Protect (HSP): **Increased fire and performance safety.**
- Positive sorting +5/-0 W: **Extra output.**
- Tested for wind/snow loads up to 5400 Pa: **Strong in every weather condition.**
- 25-year performance warranty, 10-year product warranty[2]: **Secure investment.**

**THE IDEAL SOLUTION FOR:**

ROOFTOP ARRAYS ON RESIDENTIAL BUILDINGS

[1] APT test conditions: Cells at -600 V against frame, wet module surface, 25 °C, 300 h

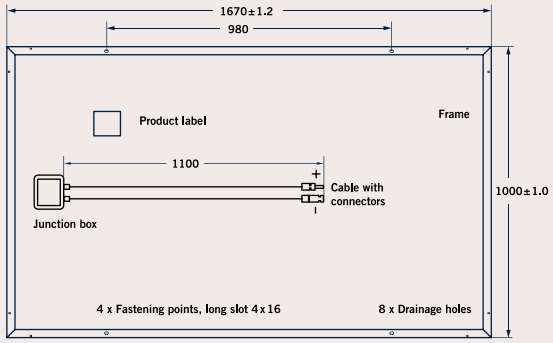
[2] Performance warranty: min. 97 % of nominal power in year 1; max. 0.6 % degradation per year from year 2; min. 83 % of nominal power after 25 years. Full product and performance warranties in accordance with the valid regional warranty terms.

Q.CELLS

## MECHANICAL SPECIFICATION

| | |
|---|---|
| **Format** | 1670 mm x 1000 mm x 50 mm (including frame) |
| **Weight** | 20 kg |
| **Front Cover** | 3.2 mm thermally pre-stressed solar glass |
| **Back Cover** | Composite film |
| **Frame** | Anodized aluminum |
| **Cell** | 6 x 10 multicrystalline solar cells |
| **Junction box** | 120 mm$^{\pm 5}$ x 170 mm$^{\pm 17}$ x 24 mm$^{\pm 4}$<br>Protection class IP 67, with 3 bypass diodes |
| **Cable** | 4 mm² Solar cable; (+) 1100 mm, (-) 1100 mm |
| **Connector** | Yamaichi Y-SOL4 (combinable with MC4), IP 68 |
| **Grounding points** | ø 4.5 mm |

## TECHNICAL DRAWING




## ELECTRICAL CHARACTERISTICS

### PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m², 25 °C, AM 1.5 SPECTRUM)[1]

| POWER CLASS | | | 230 | 235 | 240 | 245 | 250 |
|---|---|---|---|---|---|---|---|
| **Nominal Power (+5 / -0 W)** | $P_{MPP}$ | [W] | 230 | 235 | 240 | 245 | 250 |
| **Short Circuit Current** | $I_{SC}$ | [A] | 8.54 | 8.63 | 8.72 | 8.81 | 8.90 |
| **Open Circuit Voltage** | $V_{OC}$ | [V] | 36.84 | 37.05 | 37.27 | 37.48 | 37.70 |
| **Current at Maximum Power** | $I_{MPP}$ | [A] | 7.89 | 8.01 | 8.14 | 8.26 | 8.39 |
| **Voltage at Maximum Power** | $V_{MPP}$ | [V] | 29.15 | 29.32 | 29.49 | 29.65 | 29.81 |
| **Efficiency** | η | [%] | ≥13.8 | ≥14.1 | ≥14.4 | ≥14.7 | ≥15.0 |

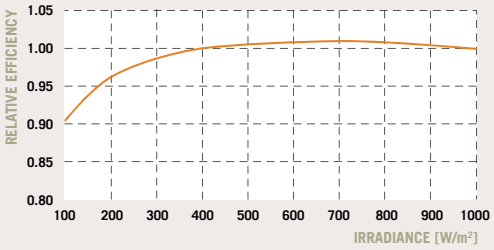
### PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800 W/m², 47 ±3 °C. AM 1.5 SPECTRUM)[2]

| POWER CLASS | | | 230 | 235 | 240 | 245 | 250 |
|---|---|---|---|---|---|---|---|
| **Nominal Power (+5 / -0 W)** | $P_{MPP}$ | [W] | 165.4 | 169.0 | 172.7 | 176.4 | 180.0 |
| **Short Circuit Current** | $I_{SC}$ | [A] | 6.67 | 6.74 | 6.80 | 6.86 | 6.93 |
| **Open Circuit Voltage** | $V_{OC}$ | [V] | 33.39 | 33.65 | 33.90 | 34.15 | 34.41 |
| **Current at Maximum Power** | $I_{MPP}$ | [A] | 6.17 | 6.23 | 6.29 | 6.36 | 6.42 |
| **Voltage at Maximum Power** | $V_{MPP}$ | [V] | 26.82 | 27.13 | 27.44 | 27.74 | 28.03 |

[1] Measurement tolerances STC: ±3 % ($P_{mpp}$); ±10 % ($I_{SC}$, $V_{OC}$, $I_{MPP}$, $V_{MPP}$)

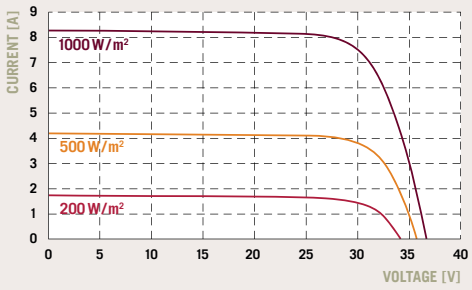
[2] Measurement tolerances NOCT: ±5 % ($P_{mpp}$); ±10 % ($I_{SC}$, $V_{OC}$, $I_{MPP}$, $V_{MPP}$)

### PERFORMANCE AT LOW IRRADIANCE




The typical change in module efficiency at an irradiance of 200 W/m² in relation to 1000 W/m² (both at 25 °C and AM 1.5 spectrum) is -4 % (relative).

### TYPICAL CHARACTERISTICS AT DIFFERENT IRRADIANCES




### TEMPERATURE COEFFICIENTS (AT 1000 W/m², 25 °C, AM 1.5 SPECTRUM)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Temperature Coefficient of $I_{SC}$** | α | [%/K] | +0.04 | **Temperature Coefficient of $V_{OC}$** | β | [%/K] | −0.32 |
| **Temperature Coefficient of $P_{MPP}$** | γ | [%/K] | −0.45 | | | | |

## PROPERTIES FOR SYSTEM DESIGN

| | | | | |
|---|---|---|---|---|
| **Maximum System Voltage $V_{SYS}$** | [V] | 1000 | **Safety Class** | II |
| **Maximum Reverse Current $I_R$** | [A] | 20 | **Fire Rating** | C |
| **Wind/Snow Load** | [Pa] | 5400 | **Permitted module temperature on continous duty** | -40 °C up to +85 °C |

## QUALIFICATIONS AND CERTIFICATES

IEC 61215 (Ed.2); IEC 61730 (Ed.1), Application class A
This data sheet complies with DIN EN 50380.

## PARTNER



**NOTE**: Installation instructions must be followed. See the installation and operating manual or contact the technical service for further information on approved installation and use of this product.