

**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 free¹ 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 warranty²: **Secure investment.**



THE IDEAL
SOLUTION FOR:



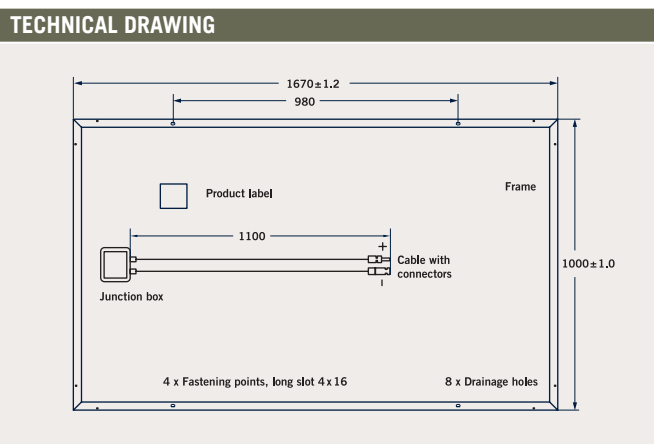
ROOFTOP ARRAYS ON
RESIDENTIAL BUILDINGS

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	Anodised aluminum
Cell	6 x 10 multicrystalline solar cells
Junction box	120 mm ^{±5} x 170 mm ^{±17} x 24 mm ^{±4} Protection class IP 67, with 3 bypass diodes
Cable	4 mm ² Solar cable; (+) 1100 mm, (-) 1100 mm
Connector	Yamaichi Y-SOL4 (combinable with MC4), IP 68
Grounding points	∅ 4.5 mm



ELECTRICAL CHARACTERISTICS

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

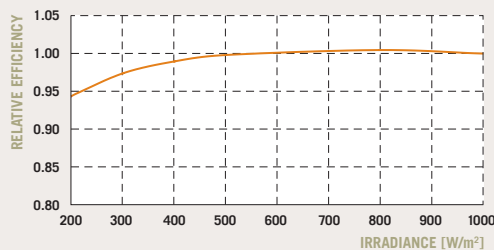
POWER CLASS			215	220	225	230	235	240	245	250
Nominal Power (+5 / -0 W)	P_{MPP}	[W]	215	220	225	230	235	240	245	250
Short Circuit Current	I_{SC}	[A]	8.39	8.47	8.55	8.63	8.71	8.79	8.87	8.95
Open Circuit Voltage	V_{OC}	[V]	36.08	36.32	36.55	36.79	37.02	37.26	37.50	37.73
Current at Maximum Power	I_{MPP}	[A]	7.79	7.88	7.96	8.04	8.13	8.21	8.29	8.38
Voltage at Maximum Power	V_{MPP}	[V]	28.48	28.68	28.87	29.07	29.26	29.46	29.65	29.85
Efficiency	η	[%]	≥12.9	≥13.2	≥13.5	≥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			215	220	225	230	235	240	245	250
Nominal Power (+5 / -0 W)	P_{MPP}	[W]	158.6	161.6	164.8	167.7	170.8	173.9	177.0	180.1
Short Circuit Current	I_{SC}	[A]	6.58	6.65	6.69	6.73	6.79	6.85	6.91	6.96
Open Circuit Voltage	V_{OC}	[V]	32.76	32.90	33.09	33.31	33.60	33.88	34.16	34.44
Current at Maximum Power	I_{MPP}	[A]	6.06	6.13	6.19	6.25	6.29	6.34	6.38	6.42
Voltage at Maximum Power	V_{MPP}	[V]	26.22	26.42	26.65	26.89	27.19	27.49	27.80	28.10

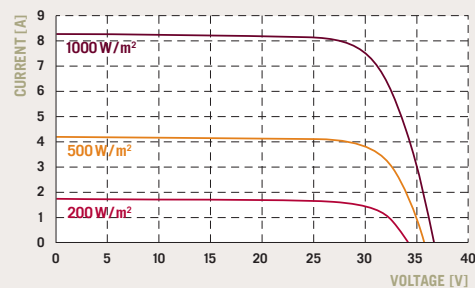
¹ Measurement tolerances STC: ± 3 % (P_{MPP}); ± 10 % (I_{SC}, V_{OC}, I_{MPP}, V_{MPP}) ² Measurement tolerances NOCT: ± 5 % (P_{MPP}); ± 10 % (I_{SC}, V_{OC}, I_{MPP}, V_{MPP}) * Core class

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 less than -6 % (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 continuous 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.