

Q.TRON BLACK



435-445 Wp | 96 Cells
22.3% Maximum Module Efficiency

MODEL Q.TRON BLK S-G3R.12+ / BFG



High performance Qcells N-type solar cells

Q.ANTUM NEO solar cell technology with optimized module layout boosts module efficiency up to 22.3%.



A reliable investment

Double glass module design enables extended lifetime with 25-year product warranty and improved 30-year performance warranty¹.



Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology², Hot-Spot Protect.



Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (2400 Pa).



Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



Far beyond the standard

Qcells' comprehensive quality program ensures high long-term yields and the reliability of your solar system.

¹ See data sheet on rear for further information.

² APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)

The ideal solution for:



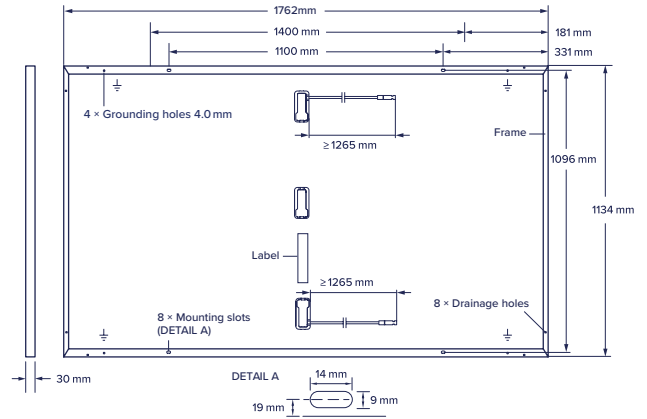
Rooftop arrays on residential buildings



Q.TRON BLACK

Mechanical Specification

Format	1762 mm × 1134 mm × 30 mm (including frame)
Weight	20.9 kg
Front Cover	1.6 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	1.6 mm semi-tempered glass
Frame	Black anodised aluminium
Cell	6 × 16 monocrystalline Q.ANTUM NEO solar half cells
Junction box	53-67 × 28 × 17 mm Protection class IP68, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥1265mm, (-) ≥1265 mm
Connector	Stäubli MC4-Evo2; IP68



Electrical Characteristics

POWER CLASS		435		440		445		
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0 W)								
			BSTC		BSTC		BSTC	
Minimum	Power at MPP ¹	P_{MPP} [W]	435	480.36	440	485.91	445	491.49
	Short Circuit Current ¹	I_{SC} [A]	15.90	17.55	15.95	17.61	16.00	17.66
	Open Circuit Voltage ¹	V_{OC} [V]	34.49	34.49	34.67	34.67	34.85	34.85
	Current at MPP	I_{MPP} [A]	14.73	16.26	14.81	16.35	14.89	16.44
	Voltage at MPP	V_{MPP} [V]	29.54	29.54	29.72	29.72	29.90	29.90
	Efficiency ¹	η [%]	≥21.8		≥22.0		≥22.3	

Bifaciality of P_{MPP} and I_{SC} 80% ±10% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

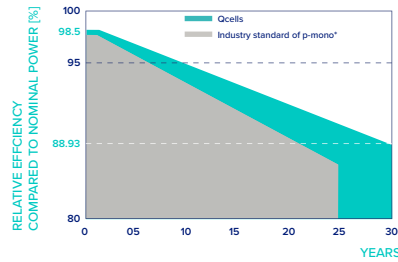
¹ Measurement tolerances P_{MPP} ±3%; I_{SC} , V_{OC} ±3% at STC: 1000 W/m²; at BSTC: 1000 W/m² + φ × 135 W/m², φ = 80% ±10%, 25 ±2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²

Minimum	Power at MPP	P_{MPP} [W]	327	331	335
	Short Circuit Current	I_{SC} [A]	12.84	12.88	12.92
	Open Circuit Voltage	V_{OC} [V]	32.59	32.94	33.11
	Current at MPP	I_{MPP} [A]	11.83	11.96	12.02
	Voltage at MPP	V_{MPP} [V]	27.31	27.68	27.88

² 800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

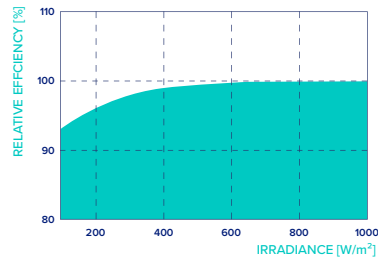


At least 98.5% of nominal power during first year. Thereafter max. 0.33% degradation per year. At least 95.53% of nominal power up to 10 years. At least 88.93% of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

^{*}Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α [%/K]	+0.04	Temperature Coefficient of V_{OC}	β [%/K]	-0.25
Temperature Coefficient of P_{MPP}	γ [%/K]	-0.30	Nominal Module Operating Temperature	NMOT [°C]	45 ± 2

Properties for System Design

Maximum System Voltage	V_{SYS} [V]	1500	PV module classification	Class II
Maximum Reverse Current	I_R [A]	30	Fire Rating based on ANSI/UL 61730	C
Max. Design Load, Push/Pull	[Pa]	3600/1600	Permitted Module Temperature on Continuous Duty	-40°C - +85°C
Max. Test Load, Push/Pull	[Pa]	5400/2400		

Qualifications and Certificates

TÜV NORD;
IEC 61215:2016;
IEC 61730:2016.
This data sheet complies
with DIN EN 50380.



Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS GmbH Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.qcells.com

qcells