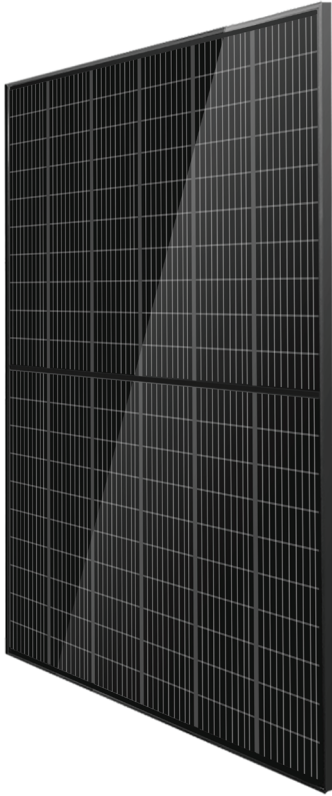


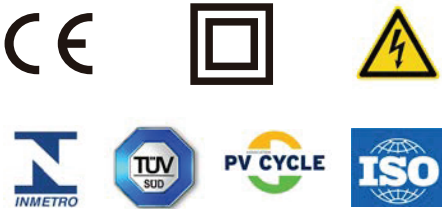
PERC Half Cut Mono Crystalline Solar Module QPM 445/450/455/460/465S Black



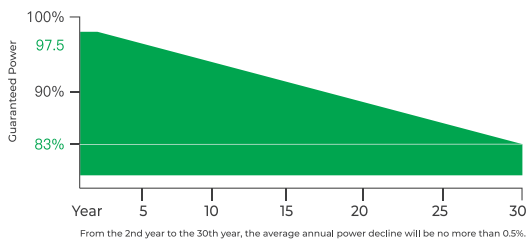
KEY FEATURES

-  Excellent module efficiency up to: 21.48%
-  IP68 junction box for long-term weather endurance
-  Heavy snow loading up to 5400 Pa, wind loading up to 2400 Pa
-  PID: selected material and stringent quality system ensure PID free
-  Applicable to harsh environment of deserts, farmlands and seashores
-  Much lower risk of Hot Spot



CERTIFICATE



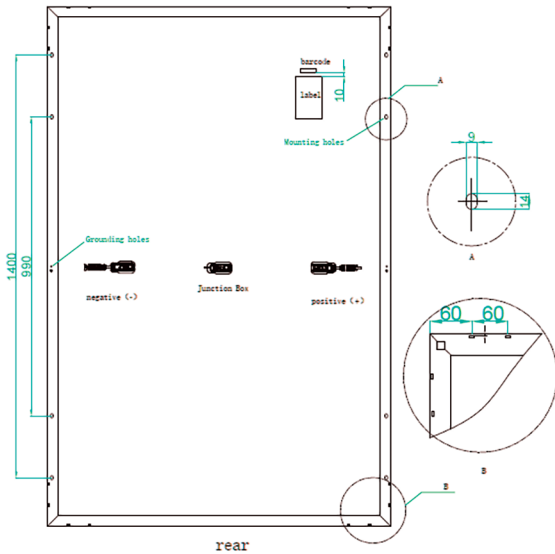
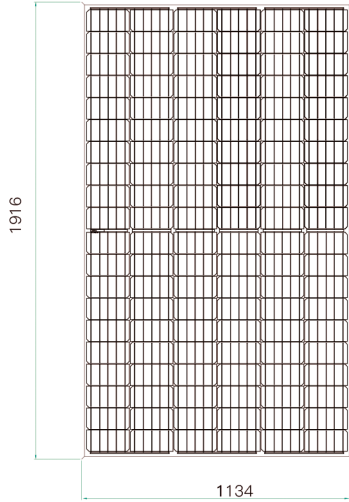
30 Years Power Output Warranty



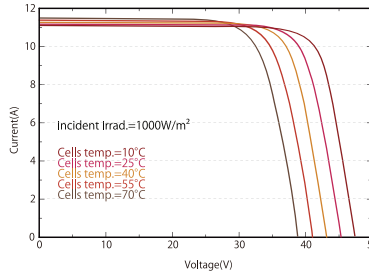
WARRANTY

-  Linear power output warranty
 - 12 years minimum 92% power output
 - 30 years minimum 83% power output
-  Product warranty on materials and workmanship According to the applicable QPower Limited Warranty Statement

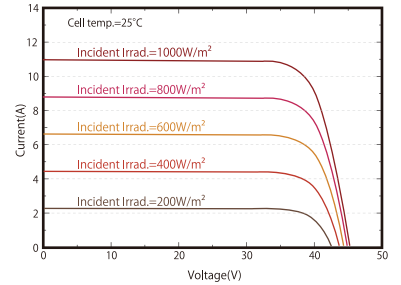
DIMENSIONS OF PV MODULE (unit:mm)



I-V Curve at Different Temperature



I-V/P-V Curve at Different Irradiation



ELECTRICAL SPECIFICATION	Unit	QPM-445S	QPM-450S	QPM-455S	QPM-460S	QPM-465S
Maximum Power (Pmax)	W	445	450	455	460	465
Module Efficiency	%	20.56	20.79	21.02	21.25	21.48
Open Circuit Voltage (Voc)	V	41.2	41.4	41.60	41.8	42.00
Short Circuit Current (Isc)	A	13.63	13.68	13.73	13.78	13.83
Maximum Power Voltage (Vmp)	V	34.4	34.6	34.8	35.0	35.4
Maximum Power Current (Imp)	A	12.90	12.96	13.02	13.08	13.14
Maximum System Voltage	V	ICE 1500VDC				

STC: Irradiance: 1000W/m², Module Temperature: 25°, Air Mass: 1.5

ELECTRICAL DATA@NOCT	QPM-445S	QPM-450S	QPM-455S	QPM-460S	QPM-465S
Pmax [W]	328	331	335	339	343
Vmp [V]	32.14	32.34	32.5	32.74	32.94
Imp [A]	10.21	10.24	10.30	10.35	10.40
Pmax [V]	38.48	38.68	38.88	39.08	39.28
Isc [A]	10.73	10.78	10.83	10.88	10.93

NOCT: Irradiance: 800W/m², Ambient Temperature: 20°, Air Mass: 1.5, Wind Speed: 1 m/s

MECHANICAL SPECIFICATIONS	
Solar Cell Type	Half Cut Mono Crystalline 182*91 mm
Number of Cells	120 pcs (20x6)
Module Size	1916x1134x30 mm
Weight	23 kg
Glass	3.2 mm tempered glass
Back Sheet	Black
Frame	Anodized Aluminium alloy, black
Junction Box	IP68
Quantity of Diodes	3 pcs
Cable	4.0 mm² 1100 mm
Connector	MC4 Compatible
Wind/Snow Load	2400pa/5400pa

TEMPERATURE CHARACTERISTIC	
NMOT (Nominal Module Operating Temperature)	45°C (±2°C)
Temperature Coefficient of P _{max}	-0.36%/°C
Temperature Coefficient of U _{oc}	-0.26%/°C
Temperature Coefficient of I _{sc}	0.04%/°C

MAXIMUM RATINGS	
Operational Temperature	-40 to +85°C
Maximum System Voltage	1500VDC(IEC)
Max Series Fuse Rating	20A
Protection Class	Class II
Snow Loading	5400 Pa
Wind Loading	2400 Pa
Hailstone Test	25 mm hailstone at the speed of 23 m/s

PACKAGING CONFIGURATION	
Modules per box:	36 pieces
Modules per 20GP:	432 pieces
Modules per 40' HQ:	792 pieces

*design load with safety factor 1.5
(DO NOT connect Fuse in Combiner Box with two or more strings in parallel connection)