

Q-SUN solar

Onyx Series

Full Black Mono-Crystalline
440~460W

0~+5W POWER TOLERANCE

- High efficiency N - type Double glass black grid solar module
- Stronger properties, PID resistance, reduced hot spot loss
- Better temperature coefficient
- Harsh environmental adaptation
- Full black module, aesthetic appearance
- Bifacial module, more power generation

25 years material warranty **25**

30 years power linear warranty **30**

96

HALF-CUT
CELLS

182
x**210**
mm

RECTANGULAR
CELLS



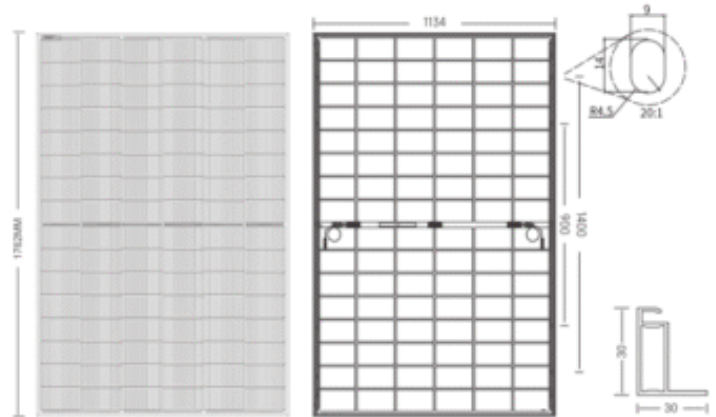
*Subject to the terms and conditions contained in the applicable Q-SUN solar Limited Warranty Statement.
25-year limited product warranty is available only for products installed and operating on rooftops in certain regions.

23.0% MAXIMUM CONVERSION	0~+5W POWER TOLERANCE	0.4% 0.4% PER YEAR OVER 30 YEARS	Half-Cut Module LOWER TEMPERATURE COEFFICIENT
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Specification

Cell Type	Mono Crystalline 16BB
No. of Cells	96 [2x(6x8)] pcs
Dimension	1762x1134x30mm
Weight	25kg±3%
Front Glass	2.0mm
Back Glass	2.0mm
Frame	Black Anodized Aluminum Alloy
Junction Box	IP68
Cable Length	300mm,1200mm(can be customized)

Mechanical Diagrams



Length: ±2mm Width: ±2mm Thickness: ±1mm Hole pitch: ±2mm

Packing Standard

37pcs/pallet

40HQ: 26 pallets/container, 962pcs/container

Electrical Parameters

Module Type	QN-440HT-02		QN-445HT-02		QN-450HT-02		QN-455HT-02		QN-460HT-02	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power-Pmax (W)	440	333	445	336	450	340	455	344	460	348
Open Circuit Voltage-Voc (V)	35.47	33.70	35.75	33.96	36.02	34.22	36.29	34.48	36.56	34.74
Short Circuit Current-Isc (A)	15.70	12.56	15.76	12.61	15.82	12.65	15.88	12.69	15.94	12.73
Maximum Power Voltage-Vmp(V)	29.31	27.70	29.55	27.92	29.78	28.14	30.04	28.36	29.78	28.58
Maximum Power Current-mp(A)	15.01	12.01	15.06	12.05	15.11	12.09	15.15	12.13	15.21	12.17
Module Efficiency - nm(%)	22.0		22.3		22.5		22.8		23.0	

Electrical Parameters At BNPI

Parameter	440	445	450	455	460
Maximum Power-Pmax(W)	474	480	485	491	496
Open Circuit Voltage-Voc (V)	34.93	35.20	35.47	35.75	36.02
Short Circuit Current-Isc135 (A)	17.18	17.25	17.31	17.38	17.44
Short Circuit Current-Isc300 (A)	19.14	19.21	19.28	19.35	19.42
Maximum Power Voltage-Vmp (V)	28.84	29.08	29.31	29.55	29.78
Maximum Power Current-Imp (A)	16.44	16.49	16.55	16.61	16.66

Operating Parameters

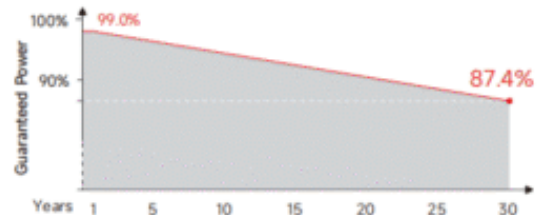
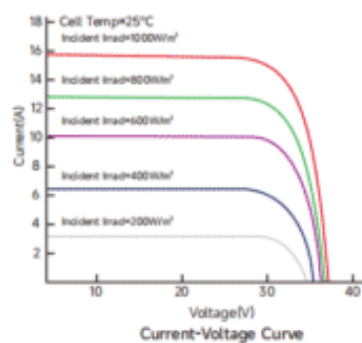
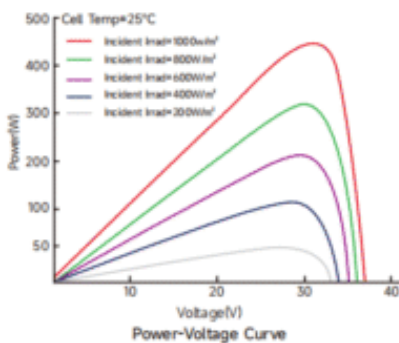
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25A
Nominal Operating Cell Temperature	42±2°C
Operational Temperature	-45°C~+85°C
Safety Class	Class II
Refer.Bifacial Factor	80%+10%

Temperature Coefficient (STC Test)

Temperature Coefficient of Isc	+0.04%/°C
Temperature Coefficient of Voc	-0.26%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Load Capacity

Max Load Front	5400Pa
Max Load Back	2400Pa
Through Hail Testing	25mm Diameter, Impact Speed 23m/s



STC: Irradiance:1000W/m² | Battery temperature: 25°C | Atmospheric=1.5
 NOCT: Irradiance:800W/m² | Ambient temperature: 20°C | Atmospheric=1.5 | Wind speed 1m/s
 BNPI: Rear Irradiance 135W/m² | Bifaciality coefficient 80%±5%

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