

BLACK HOLE SERIES

108 Half Cut Cells

- LIGHT WEIGHT AND COMPACT
- RESIDENTIAL APPLICATION

KOSOL ENERGIE

THE ENERGIE ENGINEERS

Electrical Data (STC)

Maximum Power (Pmax) (0 to 4.99Wp)	390	395	400	405	410	415
Maximum Power Voltage (Vmp)	30.82	31.00	31.17	31.36	31.61	31.96
Maximum Power Current (Imp)	12.66	12.75	12.84	12.92	12.95	13.14
Open-Circuit Voltage (Voc) (± 5%)	36.84	37.03	37.2	37.36	37.9	38.09
Short-Circuit Current (Isc) (± 5%)	13.5	13.59	13.68	13.78	13.64	13.89
Module Efficiency STC (%)	19.98	20.23	20.19	20.75	20.99	21.23

*Values without tolerance are typical numbers. Measurement tolerance: ±3%
Standard Test Condition (STC): Cell Temperature 25°C, Irradiance: 1000 W/m², AM : 1.5

Mechanical Data

Panel Type	Mono-Facial / Bi-Facial Panels
Dimensions (mm) (± 2)	1723 mm (L) x 1134 mm (W) x 30/35 mm (T)
Dimensions (inch) (± 0.079)	57.83 in (L) x 44.64 in(W) x 1.18/1.38 in (T)
Weight (kg)	21.7 kg ~
Weight (lbs)	41.84 lbs ~
Solar Cell	108 (12 x 9) nos. Half cut M10 cells
Frame	Anodized Aluminium Black/Silver
Junction Box	UL Certified - IP 68 with 3 diodes
Cable	1200mm / 300mm Length, 4 Sq. mm, 6.3mm diameter
Connector	MC4 Connector / Stabuli Connector (optional)

Operating Conditions

Mechanical Load (Wind/Snow)	2400 Pa Rear Load / 5400 Pa Front load
Hail Impact Resistance	35 mm dia. with 1 Inch at 51.6 mph
Maximum System Voltage	1500 V
Series Fuse Rating	25 A
Operating Temperature	-40 °C to +85 °C

Temperature Characteristics

Nominal Module Operating Temperature	45 °C ± 2 °C
Temperature Co-efficient of Isc	0.04 % / °C
Temperature Co-efficient of Voc	-0.259% / °C
Temperature Co-efficient of Pmax	-0.34% / °C

Shipping Specs

Modules / Pallet	31
Pallets / 40 ft HQ container	26

Warranty

Product Warranty	10 years
Performance Warranty	25 years
Linear Power	≥ 98.00% end 1 st Year
Performance	≥ 92.33% end 10 th Year
Warranty	≥ 82.88% end 25 th Year

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CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT. Specifications included in this datasheet are subject to change without notice. Please confirm your exact requirements with the company representative before placing the order and finalizing the confirmation.

Certifications

UL - 61730 - 1 & 2 (CAN/CSA),
CEC

UL Fire Class - 1
Application Class - A
Electrical safety Class - II

IEC 61215 : 2021
IEC 61730-1 & 2 : 2023

IEC 62716 : 2013
IEC 61701 : 2020
IEC TS 62804 - 1 - 1 : 2020
IEC TS 63342 : 2022

IEC 61853 -1 (PAN File "[Download](#)")

Engineering Drawing

