



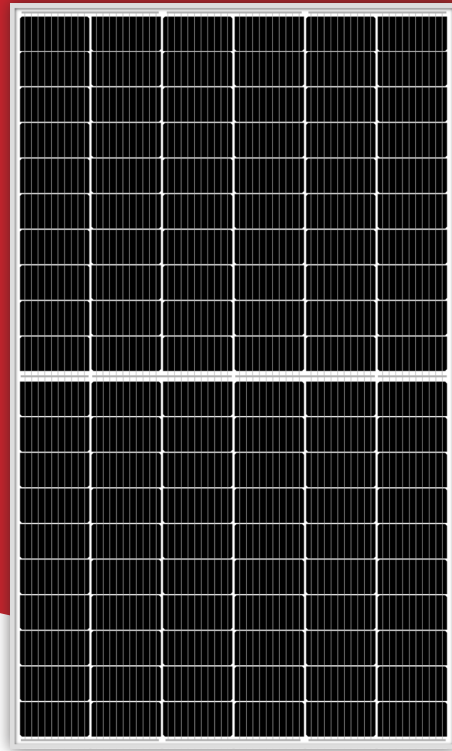
# SUNOVA SOLAR

Leading one-stop PV Supplier

## HI-KILO

# 445-460W

### High Efficiency Half-Cell Mono PERC Module



Excellent low irradiance performance.



Better light trapping and current collection to improve module power output and reliability.



Industry leading lowest thermal co-efficient of power.



Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.

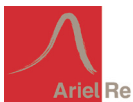


Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa).



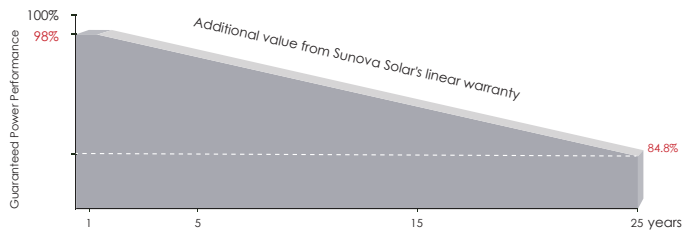
100% triple EL test enabling remarkable reduction of hidden crack rate of modules

## PERFORMANCE INSURANCE



\* Optional performance warranty insurance. Please contact our local sales staff for more information.

## LINEAR PERFORMANCE WARRANTY



**15** years

Product quality & process guarantee

**25** years

Linear power guarantee

**0.55** %

Annual Degradation Over 25 years

## COMPREHENSIVE CERTIFICATES



ISO 9001: Quality Management System

ISO 14001: Environmental Management System Standard

ISO 45001: International Occupational Health and Safety Assessment System Standard

SA 8000: 2014 Social Accountability Management System



\* Different markets have different certification requirements. Also, the products are under rapid innovation. Please confirm the certification status with regional sales representatives.

## ELECTRIC CHARACTERISTICS

Model of modules	SS-445-60MDH		SS-450-60MDH		SS-455-60MDH		SS-460-60MDH	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum power — $P_{mp}$ (W)	445	332	450	335	455	339	460	343
Open-circuit voltage — $V_{oc}$ (V)	41.27	38.79	41.46	38.97	41.65	39.15	41.78	39.29
Short-circuit current — $I_{sc}$ (A)	13.42	10.88	13.47	10.91	13.54	10.97	13.63	11.04
Maximum power voltage — $V_{mp}$ (V)	34.46	32.05	34.62	32.19	34.78	32.35	34.89	32.46
Maximum power current — $I_{mp}$ (A)	12.92	10.36	13.01	10.41	13.09	10.48	13.19	10.57
Module efficiency — $\eta_m$ (%)	20.6%		20.9%		21.1%		21.3%	
Power tolerance (W)	(0,+5)							
Maximum system voltage (V)	1500							
Maximum rated fuse current (A)	25							
Current operating temperature (°C)	-40~+85°C							

**STC** (Standard Testing Conditions): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25 °C, Spectra at AM1.5

**NOCT** (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/s

## STRUCTURAL CHARACTERISTICS

Module dimensions (L*W*H)	1903 x 1134 x 30 mm
Weight	24 kg
Number of cells	120 cells
Cell	PERC Monocrystalline 182x91 mm
Glass	Tempered, 3.2 mm AR, High transmittance, Low iron
Frame	Anodized aluminum alloy
Junction box	IP68
Output wire	4.0 mm <sup>2</sup> , wire length: 300mm/customized
Connector	MC4 Compatible
Mechanical load	Snow load: 5400 Pa / Wind load: 2400 Pa

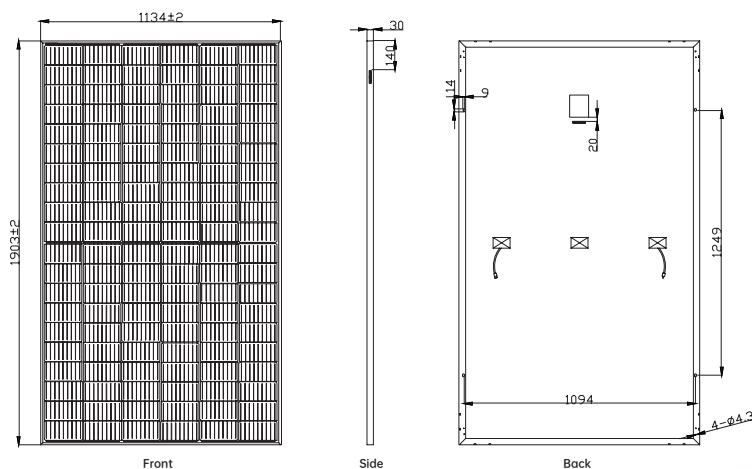
## TEMPERATURE RATINGS

Temperature coefficient ( $P_{max}$ )	-0.35 %/°C
Temperature coefficient ( $V_{oc}$ )	-0.28 %/°C
Temperature coefficient ( $I_{sc}$ )	+0.045 %/°C
Nominal operating cell temperature	43±2 °C

## PACKAGING CONFIGURATION

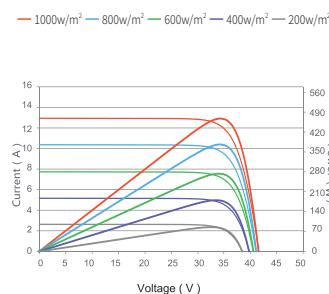
Container	40HQ
Quantity/pallet	36
Pallets/container	24
Quantity/container	864

## MODULE DIMENSIONS (MM)

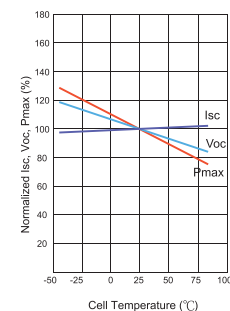


\* The unmarked tolerance is ±1 mm  
Length shown in mm

Current-Voltage & Power-Voltage Curves (460W)



Temperature Dependence of  $I_{sc}$ ,  $V_{oc}$ ,  $P_{max}$



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