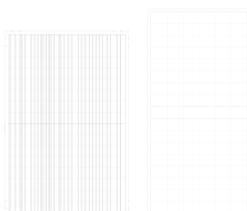


PV MODULES

FOR YOUR HOME AND OFFICE



MONOCRYSTALLINE HALF-CELL MONOFACIAL MODULE



**WE
CARE
ABOUT
AIR**

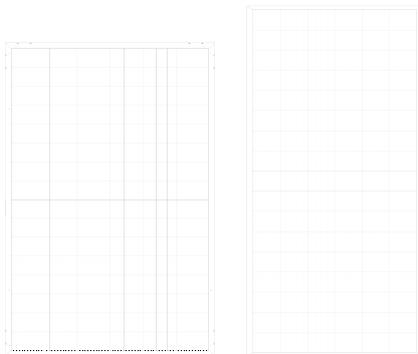


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Photovoltaic modules for your home and office

Kaisai units are high quality, environmental-friendly products, designed with the operation comfort in mind. Moreover, we offer them at reasonable prices.

The Kaisai brand debuted on the Polish market in 2011 and since then, year after year, it has been recording growing sales figures in Poland as well as on foreign markets. The latest technological solutions make Kaisai devices leaders in their class and meet high expectations in terms of ecology, safety, energy efficiency, quiet operation,

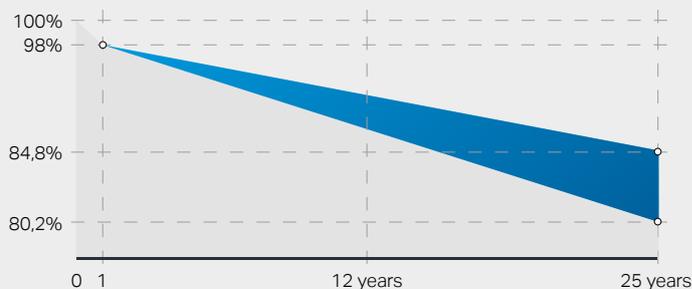
comfort of use and manufacturer's warranty. Through many years of investment in technology, the Kaisai units have been recognized as some of the most innovative air-conditioning solutions, successfully implemented in public facilities and residential buildings.

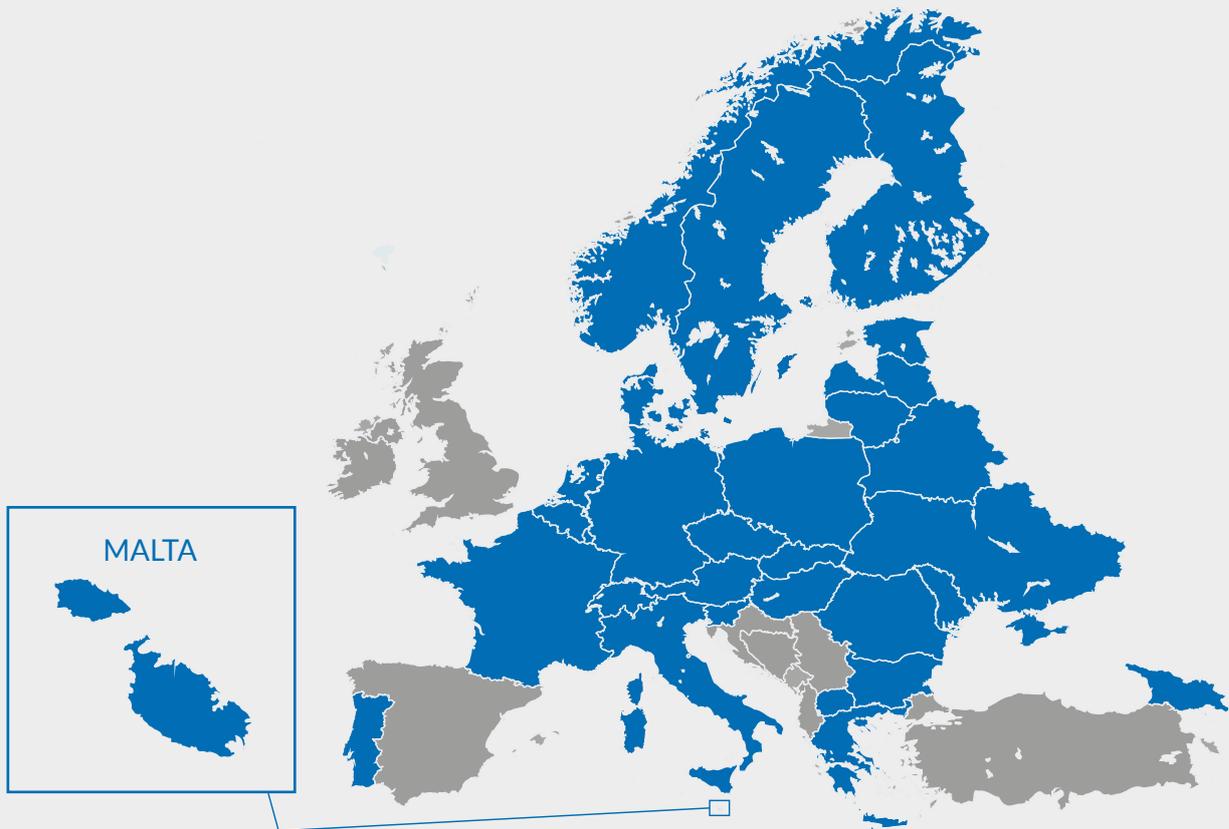


25 YEARS OF PERFORMANCE 12 years on the product

Guaranteed efficiency of 98% in the first year; from the second year to the twenty-fifth year 0.55% maximum decrease from the module nominal output per year. After 25 years, 84.8% cell efficiency from the warranty start date.

The graph shows the difference between the competitor's averaged proposal and Kaisai's guarantee





Within the business platform of Kaisai International Corporation, following the principle of Think globally - work locally, the Kaisai brand is present in the following countries:

Austria, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Georgia, Iceland, Italy, Latvia, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine.

**WE
CARE
ABOUT
AIR**

The motto "We Care about Air" derives from passion and understanding of human needs and is a declaration of responsibility for people and the environment. Our focus is on the quality and comfort of air – in the office, at home and in all rooms where people are present. Our values: respect for the environment, partnership with the Client, responsibility for the Employee, taking care of the business environment.

WHY BET ON RENEWABLE ENERGY SOURCES?

Renewable energy sources (RES) **are based on natural resources**, the acquisition of which provides not only emission-free energy production, but also a whole range of possibilities for its use. Due to relatively easy access to technology and the possibility of using it by both companies and individual households, **the most popular is the energy obtained from the air and the sun.**



RESISTANCE to wind and snow load

Certified to withstand maximum static front (5400 Pascal) and back (2400 Pascal) test loads.



RESISTANCE to harsh conditions

High quality materials ensure optimum operating conditions for the modules, even in more demanding constructions such as large photovoltaic farms.



EFFICIENCY under weak sunlight conditions

Higher power output in low sunlight conditions such as overcast or foggy weather.



REDUCTION of power losses

Optimizes system output power up to 2% through „intensity sorting“ technology, considering variations of this parameter on individual system modules.





HIGH output power

Compared to a standard module size 1587,5 mm, the output power increases by 30-40 W.



RESISTANCE to PID degradation

Advanced cell technology and materials of the best quality ensure high resistance to PID.



UNIQUE cell design

The special cell design allows lower electrode resistance and lower current, improving efficiency. This reduces losses due to partial shading and cell wear, while increasing solar energy conversion capacity.



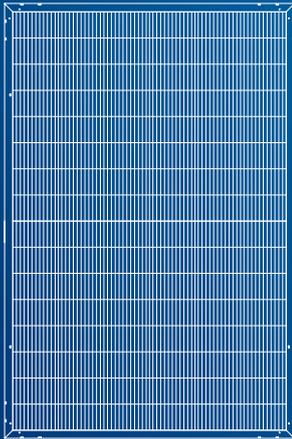
HIGHEST CLASS waterproof junction box

IP68 protection present in the module provides the highest resistance to weather conditions. Allows panels to be installed in all orientations and reduces stress on the cables. Low resistance high reliability connectors ensure maximum efficiency with highest energy production.



CHSM54M-HC

PV module 405W



KEY FEATURES

PV modules CHSM54M-HC

Special design of the cell makes it possible to lower resistance of electrodes and obtain lower current, thus improving its efficiency. This reduces losses caused by partial shading and cell wear, while increasing the solar energy conversion capacity.

Modules with above-average energy efficiency
for larger installations and photovoltaic farms

Fully certified by the accredited independent VDE Institute guaranteeing compliance with international quality standards (ISO 9001, ISO 14001, ISO 17025)

High performance of modules in difficult conditions confirmed by tests for resistance to salt, sand, and ammonium corrosion

Module properties adjusted **to European climate conditions and legal regulations**

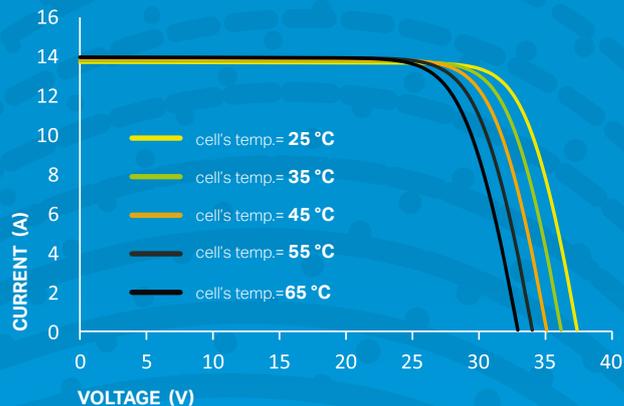
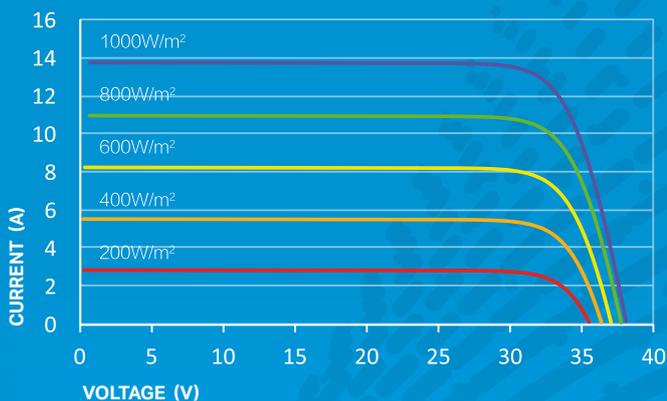
Lightweight and durable construction, easy and versatile installation both on the roof and on the ground

25-year performance guarantee



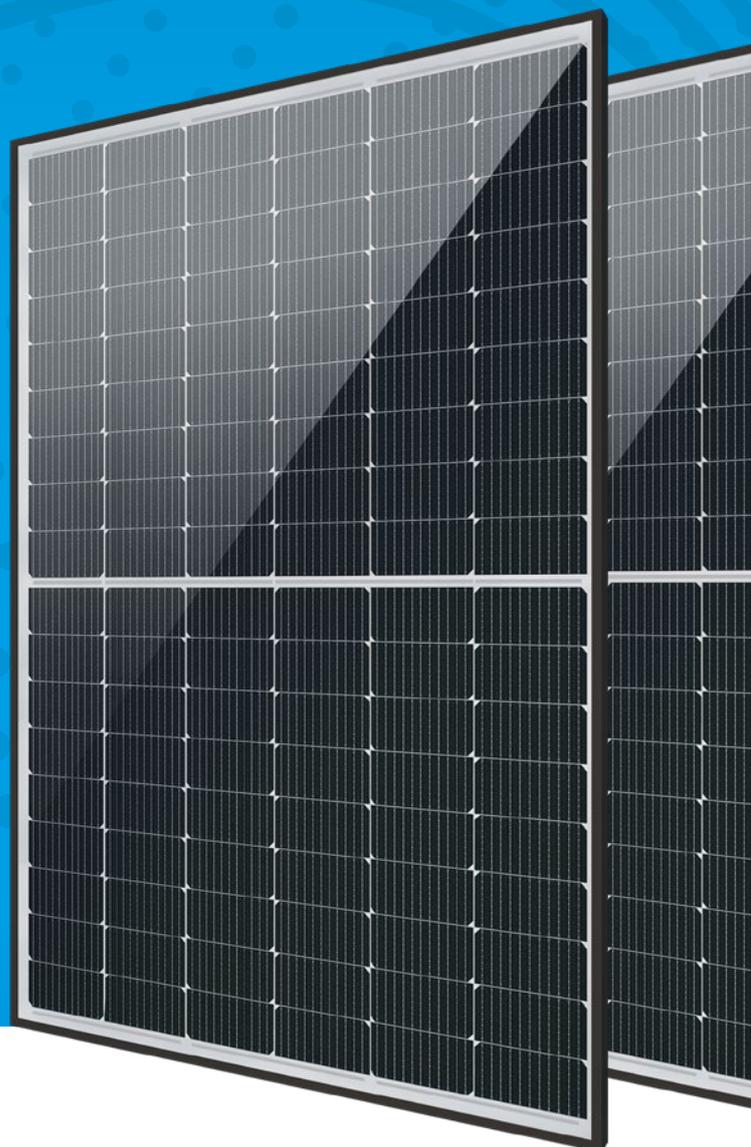
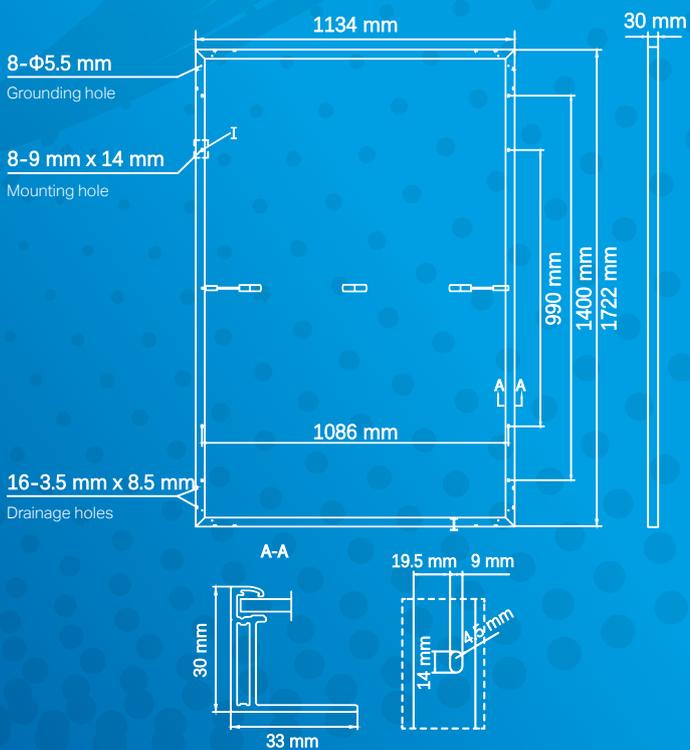
CURRENT VOLTAGE CURVE

CHSM54M-HC



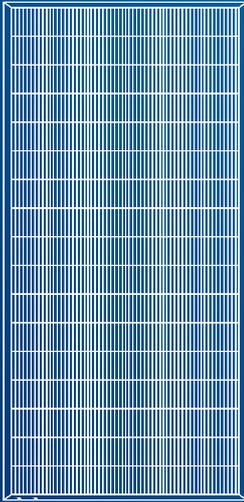
DIMENSIONS

CHSM54M-HC



CHSM72M-HC

PV module 450W



KEY FEATURES

PV modules CHSM72M-HC

Special design of the cell makes it possible to lower resistance of electrodes and obtain lower current, thus improving its efficiency. This reduces losses caused by partial shading and cell wear, while increasing the solar energy conversion capacity.

Modules with above average energy efficiency,
ideal for smaller projects with high energy consumption

Fully certified by the accredited independent VDE Institute guaranteeing compliance with international quality standards (ISO 9001, ISO 14001, ISO 17025)

High performance of modules in difficult conditions confirmed by tests for resistance to salt, sand, and ammonium corrosion

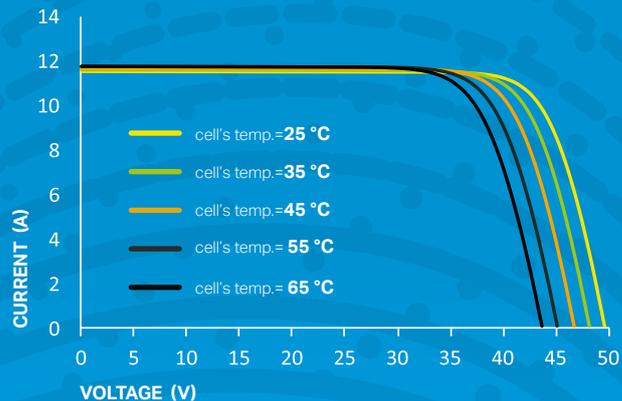
Module properties adjusted **to European climate conditions and legal regulations**

Lightweight and durable construction, easy and versatile installation both on the roof and on the ground

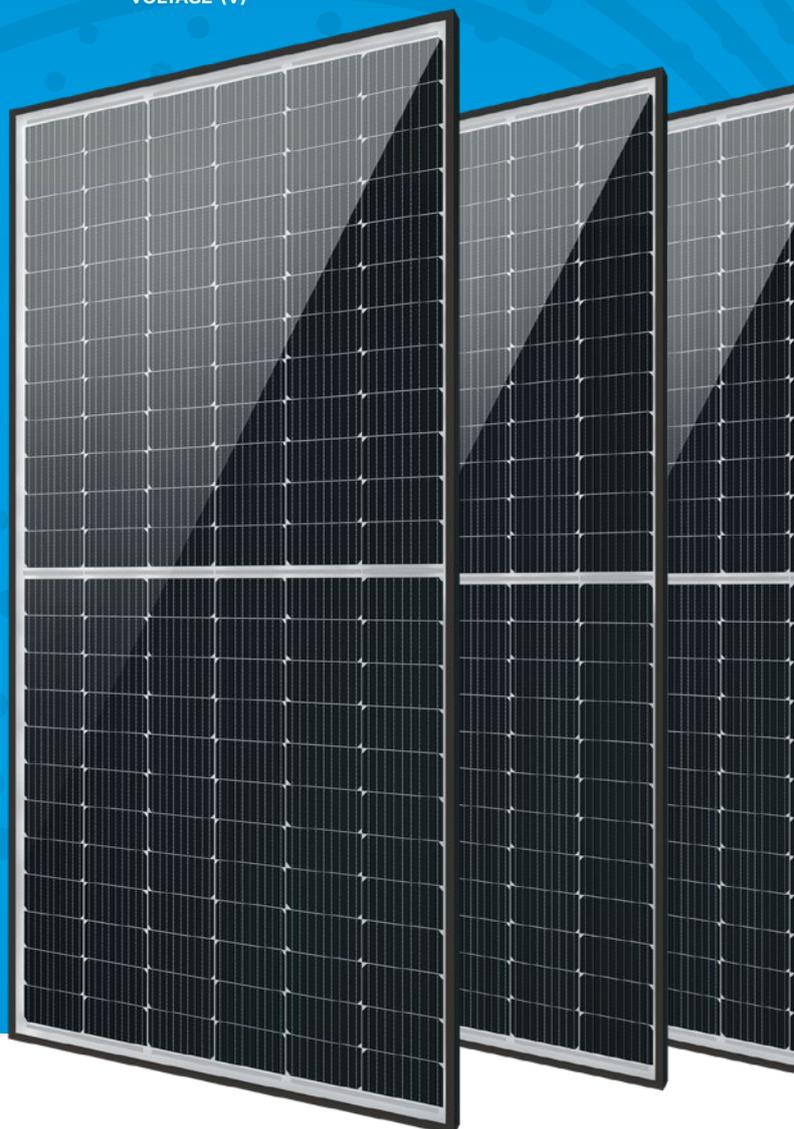
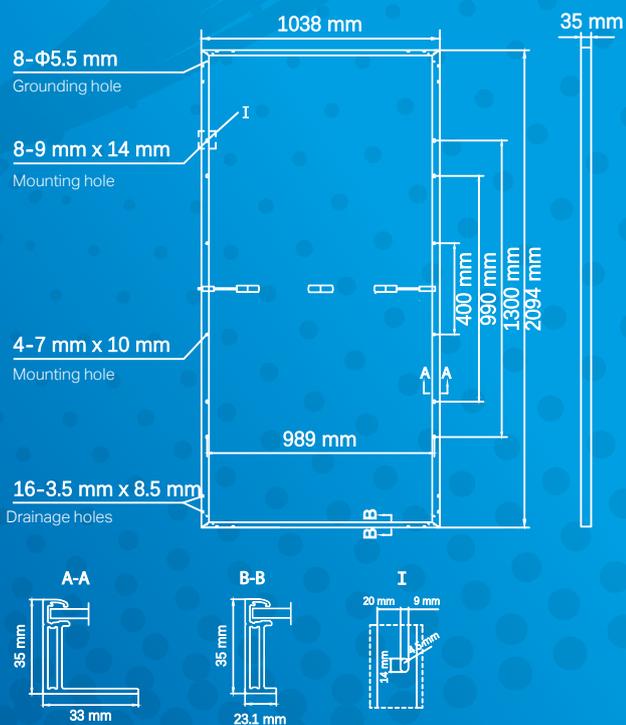
25-year performance guarantee



CURRENT VOLTAGE CURVE CHSM72M-HC

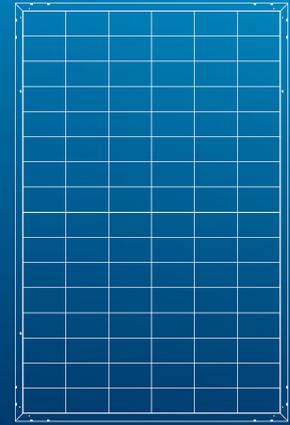


DIMENSIONS CHSM72M-HC





Tier 1
BloombergNEF



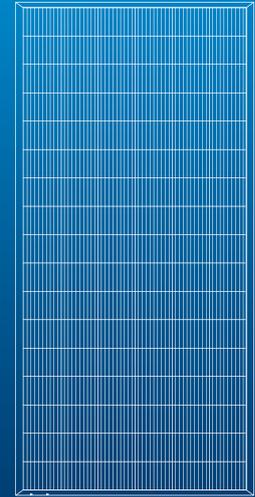
CHSM54M-HC

Technical specifications

Electrical parameters	
	CHSM54M-HC
STC	
Rated output (Pmp)	405 W
Optimum operating voltage (Vmp)	31.26 V
Optimum operating current (Imp)	12.96 A
Open circuit voltage (Voc)	37.20 V
Short circuit	13.76 A
Module efficiency	20.7 %
Module operating temperature	-40 °C ~ 80 °C
Max. series fuse rating	1500 V
NMOT	
Rated output (Pmp)	302.7 W
Optimum operating voltage (Vmp)	29.13 V
Optimum operating current (Imp)	10.39 A
Open circuit voltage	35.15 V
Short circuit current	11.17 A
Temperature parameters	
Nominal module operating temperature	41 ± 2 °C
Temperature coefficient (Pmp)	-0.35% / °C
Temperature coefficient Voc (Pmax)	-0.27% / °C
Temperature coefficient Isc (Pmax)	0.045% / °C
Mechanical parameters	
Solar cell	P Type Monocrystalline
Number of cells	108 (6 × 18)
Dimensions	1722 × 1134 × 30 mm
Weight	21.6 kg
Front glass thickness	3.2 mm tempered glass
Frame	Anodized aluminum alloy
Cable length	4.0 mm ² Portrait: 300 mm Landscape: 1200 mm
Connectors	HCB40
Packaging configuration	
Packing unit	36
Package weight	821 kg



Tier 1
BloombergNEF



CHSM72M-HC

Technical specifications

Electrical parameters	
	CHSM72M-HC
STC	
Rated output (Pmp)	450 W
Optimum operating voltage (Vmp)	41.32 V
Optimum operating current (Imp)	10.89 A
Open circuit voltage (Voc)	49.05 V
Short circuit	11.37 A
Module efficiency	20.7 %
Module operating temperature	-40 °C ~ 80 °C
Max. series fuse rating	1500 V
NMOT	
Rated output (Pmp)	334.5 W
Optimum operating voltage (Vmp)	38.37 V
Optimum operating current (Imp)	8.72 A
Open circuit voltage	45.94 V
Short circuit current	9.16 A
Temperature parameters	
Nominal module operating temperature	41 ± 2 °C
Temperature coefficient (Pmp)	-0.35% / °C
Temperature coefficient Voc (Pmax)	-0.27% / °C
Temperature coefficient Isc (Pmax)	0.050% / °C
Mechanical parameters	
Solar cell	P Type Monocrystalline
Number of cells	144 (6 × 24)
Dimensions	2094 × 1038 × 35 mm
Weight	23 kg
Front glass thickness	3.2 mm tempered glass
Frame	Anodized aluminum alloy
Cable length	4.0 mm ² Portrait: 300 mm Landscape: 1200 mm
Connectors	HCB40
Packaging configuration	
Packing unit	31
Package weight	749 kg



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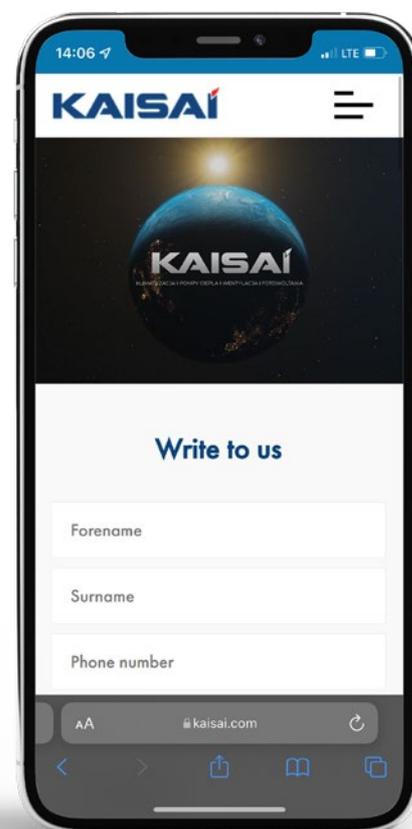
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