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SOLAR PRODUCTS MANUFACTURER

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# SOLAR MODULE

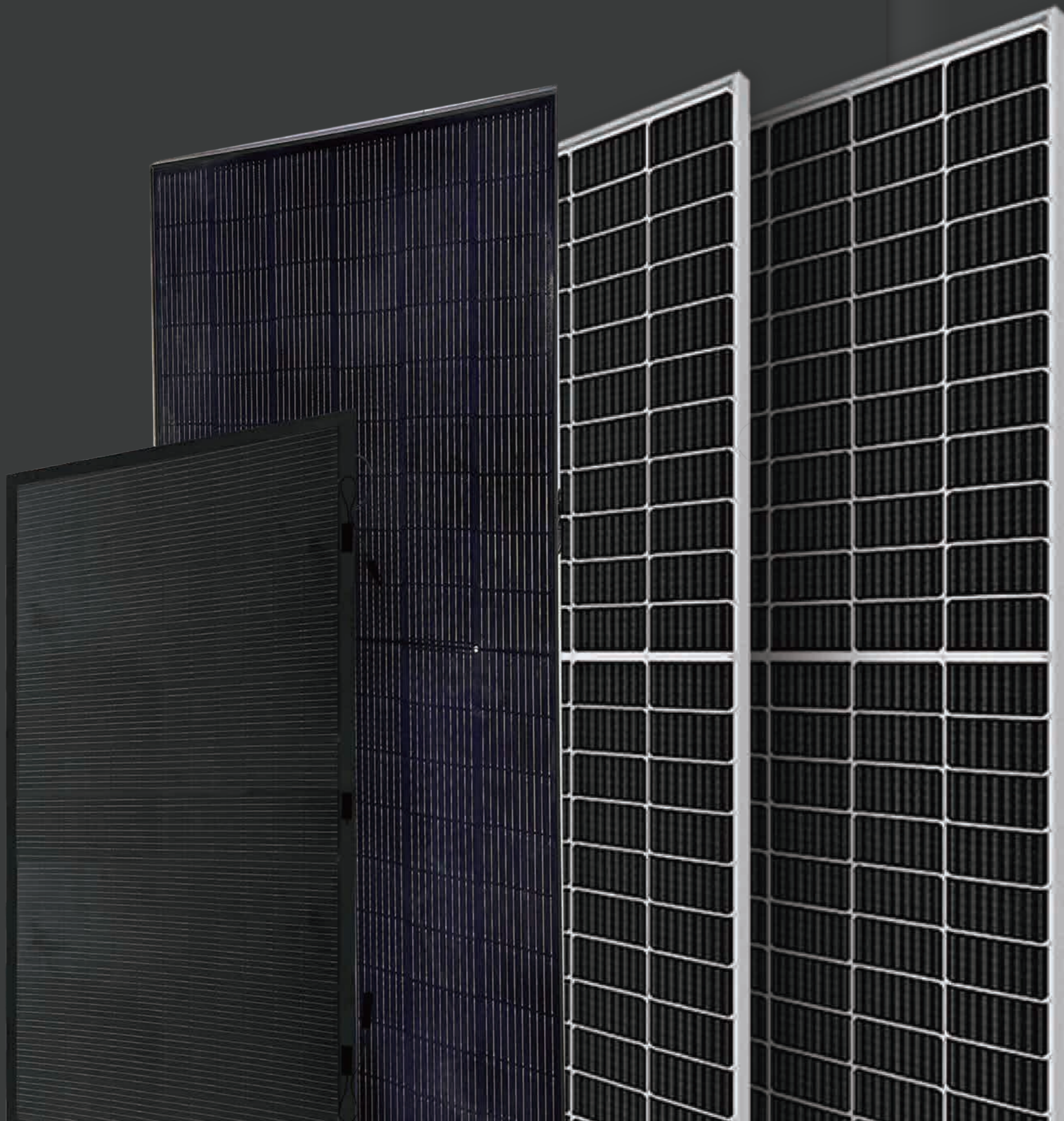
光伏组件

深圳市天德普储能科技有限公司  
SHENZHEN SAKO SOLAR CO., LTD.

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**1997**

Established Zhejiang SAKO for AVR



**2000**

Hangzhou SAKO for Frequency Inverter



**2002**

Shenzhen SAKO for UPS and inverter



**2009**

Found a factory for lead-acid battery in Dongguan



**2016**

Found a factory for solar panels in Dongguan



**2019**

Established Lithium Battery Pack Factory in Dongguan



**2022**

Micro Inverters



**2023**

Balcony ESS

# COMPANY DEVELOPMENT ROADMAP

企业发展

**Area**

30000 square meters

**employees**

Employees 500

# GLOBAL LAYOUT

## 全球布局

SAKO with advanced production equipment and high operational efficiency. Established in 1993, SAKO is the professional manufacturer engaged in research, development, sale and service of high quality power and solar products, with main products cover: home inverter, off grid solar inverter, solar panel, lithium iron battery pack and storage solar system. As we SAKO produce all key components of solar system by ourselves, we have the advantage on cost control And quality control. Customer can do one stop shopping from SAKO and we give the warranty to The whole system based on our rich experience.

SAKO adhering to the service tenet of "Customer first Quality first, Credit first", rapidly response to diversified markets and clients' demands, aim at to providing global customers with quality products and considerate services.



ISO9001



ISO14001



OHSAS45001



CE FOR INVERTER



CE FOR LITHIUM BATTERY



TUV FOR PANEL



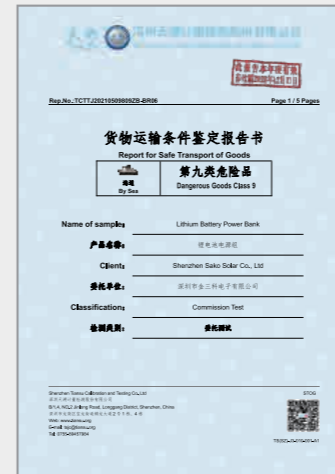
CB FOR INVERTER



CB FOR LITHIUM BATTERY



MSDS



Report for safe transport of goods



CQC FOR PANEL(IEC61730)



CQC FOR PANEL(IEC61215)

# Qualification

# & Certificates

# N-Type TOPCon SERIES

- **SMBB Technology**

Reduce the current transmission distance, reduce grid line shielding, and improve optical utilization  
combined with round wire ribbon can increase the utilization rate of incident light by 70% and increase the power by 1–1.5%

- **Higher Power**

For the same module type, the power of N-type modules is 15–30W higher than that of P-type modules

## Lower Temperature

---

- **Coefficient**

The temperature coefficient of P-type PV module is  $-0.34\%/^{\circ}\text{C}$   
N-type module optimized temperature coefficient to  $-0.29\%/^{\circ}\text{C}$   
Power generation is particularly prominent in high temperature environments

- **Better Power Guarantee**

N-type modules decay 1% in the first year (P-type 2%)  
Power warranty for 30 years  
After 30 years, the output power is not lower than 87.4% of the initial power



## 565-585Watt N-Type MONO-FACIAL MODULE

Positive power tolerance of 0-+3%

IEC61215(2016), IEC61730(2016)  
 ISO9001:2015: Quality Management System  
 ISO 14001:2015: Environment Management System  
 ISO45001:2018 Occupational Health and Safety Management Systems

**SMBB Technology**  
 Better light trapping and current collection to improve module power output and reliability

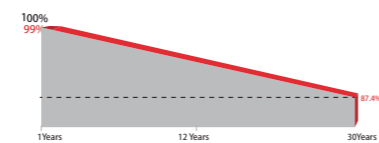
**HOT Hot 2.0 Technology**  
 The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.

**PID Resistance**  
 Excellent Anti-PI0 performance guarantee via optimized mass-production process and materials control.

**Enhanced Mechanical Load**  
 Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

**Durability Against Extreme Environmental Conditions**  
 High salt mist and ammonia resistance.

### LINEAR PERFORMANCE WARRANTY



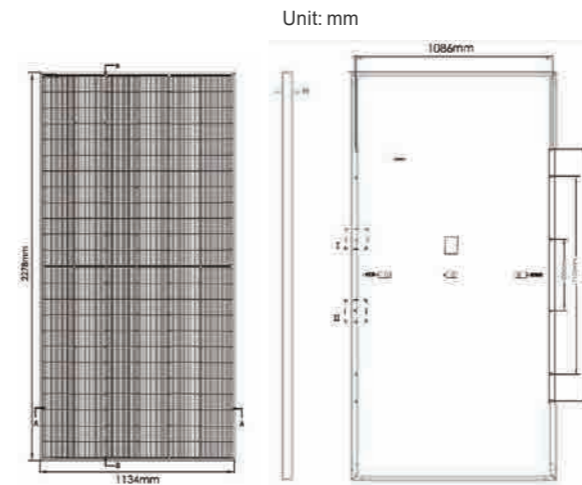
■ SAKO Linear Performance Warranty  
 ■ Industry Standard Warranty

30 Years output guarantee  
 12 Years quality assurance  
 5-year limited warranty of materials and workmanships.

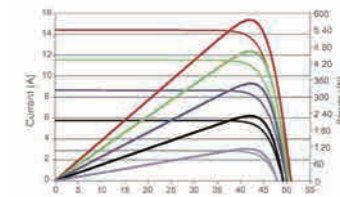
**Warning:** Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice

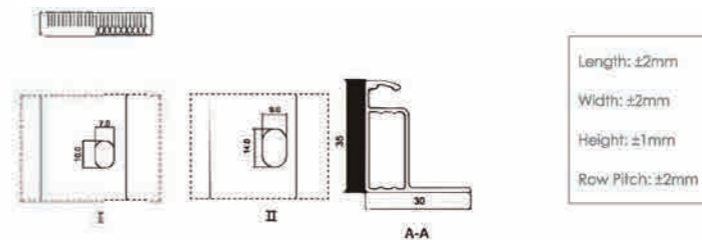
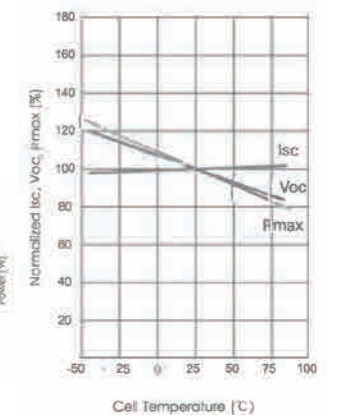
www.sakopower.com



Current-Voltage & Power-Voltage Curves (575W)



Temperature Dependence of I<sub>sc</sub>, V<sub>oc</sub>, P<sub>max</sub>



| Mechanical Characteristics |   |
|----------------------------|---|
| Cell Type                  | N type Mono-crystalline   |
| No. of cells               | 144 (6x24)  |
| Dimensions                 | 2278x 1134x35mm   |
| Weight                     | 28 kg   |
| Front Glass                | 3.2mm, Anti-Reflection Cooling, High Transmission, Low Iron, Tempered Glass |
| Frame                      | Anodized Aluminium Alloy  |
| Junction Box               | IP68 Rated  |
| Output Cables              | TUV 1x4.0mm <sup>2</sup> (+): 300mm, (-): 300mm or Customized Length        |

## Packaging Configuration

31 pcs/pallets, 62pcs/stack, 620pcs/ 40'HQ Container

| Module Type                                  | SK-72M-565HC      |        | SK-72M-570HC |        | SK-72M-575HC |        | SK-72M-580HC |        | SK-72M-585HC |        |
|--|-------------------|--------|--------------|--------|--------------|--------|--------------|--------|--------------|--------|
|  | STC               | NOCT   | STC          | NOCT   | STC          | NOCT   | STC          | NOCT   | STC          | NOCT   |
| Maximum Power (P <sub>max</sub> )            | 565Wp             | 425Wp  | 570Wp        | 429Wp  | 575Wp        | 432Wp  | 580Wp        | 436Wp  | 585Wp        | 440Wp  |
| Maximum Power Voltage (V <sub>mp</sub> )     | 41.92V            | 39.38V | 42.07V       | 39.51V | 42.22V       | 39.60V | 42.37V       | 39.69V | 42.52V       | 39.81V |
| Maximum Power Current (I <sub>mp</sub> )     | 13.48A            | 10.79A | 13.55A       | 10.85A | 13.62A       | 10.92A | 13.69A       | 10.99A | 13.76A       | 11.05A |
| Open-circuit Voltage (V <sub>oc</sub> )      | 50.60V            | 48.06V | 50.74V       | 48.20V | 50.88V       | 48.33V | 51.02V       | 48.46V | 51.16V       | 48.60V |
| Short-circuit Current (I <sub>sc</sub> )     | 14.23A            | 11.49A | 14.31A       | 11.55A | 14.39A       | 11.62A | 14.47A       | 11.68A | 14.55A       | 11.75A |
| Module Efficiency STC(%)                     | 21.87             |        | 22.07        |        | 22.26        |        | 22.45        |        | 22.65        |        |
| Operating Temperature (°C)                   | -40°C~+85°C       |        |              |        |              |        |              |        |              |        |
| Maximum System Voltage                       | 1000/1500VDC(IEC) |        |              |        |              |        |              |        |              |        |
| Maximum Series Fuse Rating                   | 25A               |        |              |        |              |        |              |        |              |        |
| Power Tolerance                              | 0~+3%             |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of P <sub>max</sub> | -0.29%/C          |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of V <sub>oc</sub>  | -0.25%/C          |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of I <sub>sc</sub>  | 0.045%/°C         |        |              |        |              |        |              |        |              |        |
| Nominal Operating Cell Temperature (NOCT)    | 45±2C             |        |              |        |              |        |              |        |              |        |

STC:1000W/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.



## 410-430Watt N-Type MONO-FACIAL MODULE

Positive power tolerance of 0-+3%

IEC61215(2016), IEC61730(2016)  
 ISO9001:2015: Quality Management System  
 ISO 14001:2015: Environment Management System  
 ISO45001:2018 Occupational Health and Safety Management Systems

**SMBB Technology**  
 Better light trapping and current collection to improve module power output and reliability

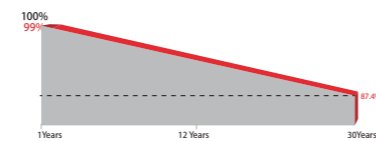
**HOT Hot 2.0 Technology**  
 The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.

**PID Resistance**  
 Excellent Anti-PI0 performance guarantee via optimized mass-production process and materials control.

**Enhanced Mechanical Load**  
 Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

**Durability Against Extreme Environmental Conditions**  
 High salt mist and ammonia resistance.

### LINEAR PERFORMANCE WARRANTY

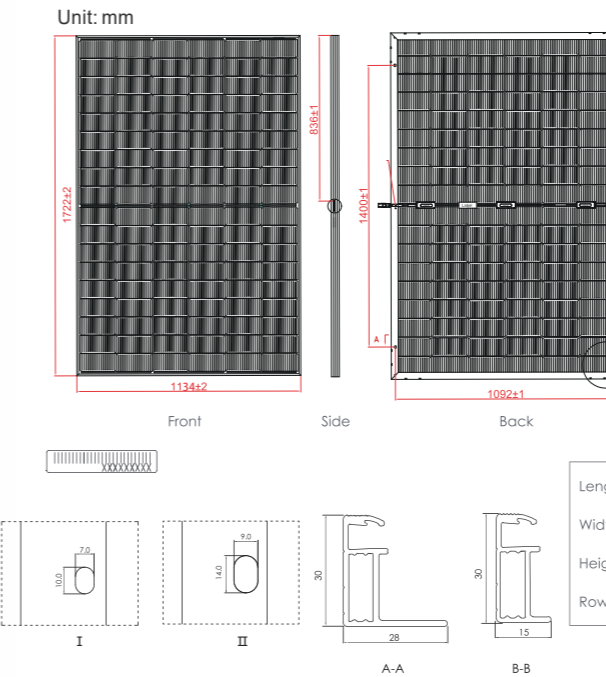


■ SAKO Linear Performance Warranty  
 ■ Industry Standard Warranty

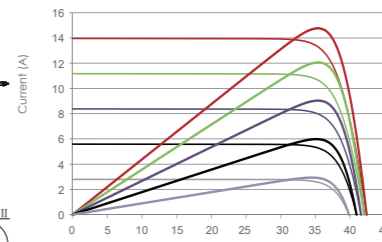
30 Years output guarantee  
 12 Years quality assurance  
 5-year limited warranty of materials and workmanships.

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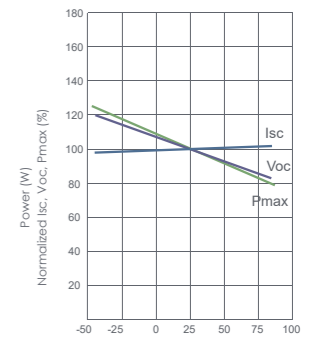
Note: This publication summarizes product warranty and Specifications which are subject to change without notice



Current-Voltage & Power-Voltage Curves (430W)



Isc, Voc, Pmax



| Mechanical Characteristics |  |
|----------------------------|--|
| Cell Type                  | N type Mono-crystalline  |
| No. of cells               | 108 (2x54)   |
| Dimensions                 | 1722x1134x30mm   |
| Weight                     | 24 kg  |
| Front Glass                | 3.2mm, Anti-Reflection Coating                                       |
| Frame                      | Anodized Aluminium Alloy   |
| Junction Box               | IP68 Rated   |
| Output Cables              | TUV 1x4.0mm <sup>2</sup> (+): 300mm, (-): 300mm or Customized Length |

## Packaging Configuration

size: 1760x1140x1280mm 36pcs/plt, 936pcs/40HQ

| Module Type                               | SK-54M-410HC       |        | SK-54M-415HC |        | SK-54M-420HC |        | SK-54M-425HC |        | SK-54M-430HC |        |
|---|--------------------|--------|--------------|--------|--------------|--------|--------------|--------|--------------|--------|
|   | STC                | NOCT   | STC          | NOCT   | STC          | NOCT   | STC          | NOCT   | STC          | NOCT   |
| Maximum Power (Pmax)                      | 410Wp              | 308Wp  | 415Wp        | 312Wp  | 420Wp        | 316Wp  | 425Wp        | 320Wp  | 430Wp        | 323Wp  |
| Maximum Power Voltage (Vmp)               | 31.13V             | 10.61A | 31.32V       | 10.68A | 31.51V       | 10.76A | 31.70V       | 10.83A | 31.88V       | 10.91A |
| Maximum Power Current (Imp)               | 13.17A             | 29.06V | 13.25A       | 29.21V | 13.33A       | 29.34V | 13.41A       | 29.50V | 13.49A       | 29.63V |
| Open-circuit Voltage (Voc)                | 37.73V             | 35.84V | 37.92V       | 36.02V | 38.11V       | 36.20V | 38.30V       | 36.38V | 38.49V       | 36.56V |
| Short-circuit Current (Isc)               | 13.91A             | 11.23A | 13.99A       | 11.29A | 14.07A       | 11.36A | 14.15A       | 11.42A | 14.23A       | 11.49A |
| Module Efficiency STC(%)                  | 21.00%             |        | 21.25%       |        | 21.51%       |        | 21.76%       |        | 22.02%       |        |
| Operating Temperature (°C)                | -40°C~+85°C        |        |              |        |              |        |              |        |              |        |
| Maximum System Voltage                    | 1000/1500VDC (IEC) |        |              |        |              |        |              |        |              |        |
| Maximum Series Fuse Rating                | 25A                |        |              |        |              |        |              |        |              |        |
| Power Tolerance                           | 0~+3%              |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of Pmax          | -0.29%/°C          |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of Voc           | -0.25%/°C          |        |              |        |              |        |              |        |              |        |
| Temperature Coefficients of Lsc           | 0.045%/°C          |        |              |        |              |        |              |        |              |        |
| Nominal Operating Cell Temperature (NOCT) | 45±2°C             |        |              |        |              |        |              |        |              |        |

| BIFACIAL OUTPUT-REAR SIDE POWER GAIN |                           |        |        |        |        |        |
|--------------------------------------|---------------------------|--------|--------|--------|--------|--------|
| 5%                                   | Maximum Power (Pmax)      | 462Wp  | 468Wp  | 474Wp  | 480Wp  | 486Wp  |
|                                      | Module Efficiency STC (%) | 22.91% | 23.10% | 23.29% | 23.48% | 23.65% |
| 15%                                  | Maximum Power (Pmax)      | 483Wp  | 489Wp  | 495Wp  | 501Wp  | 506Wp  |
|                                      | Module Efficiency STC (%) | 25.10% | 25.30% | 25.51% | 25.71% | 25.89% |
| 25%                                  | Maximum Power (Pmax)      | 525Wp  | 531Wp  | 537Wp  | 543Wp  | 549Wp  |
|                                      | Module Efficiency STC (%) | 27.28% | 27.50% | 27.73% | 27.95% | 28.12% |



# HALF-CELL PERC PV SERIES

Whole solar cell: $P=1^2R$   
Half solar cell: $P=(1/2)^2R$

---

- **HALF-CELL**  
Current density reduced by 1/2  
Internal losses reduced to 1/4 of conventional PV modules  
Rated output power increased by 5-10W

Whole solar cell:0 power output  
Half solar cell:50% power output

---

- **HALF-CELL**  
Shadow Occlusion Still Generates Electricity  
Design of PV modules connected in parallel up and down symmetrically  
Effectively reduce current mismatch caused by shading
- **Lossless Scribing**  
Non-destructive scribing technology, no mechanical damage  
Smooth cutting surface without burrs  
The risk of cell cracks is low, and micro cracks are reduced by more than 50%

## Multi-busbar cells

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- **Multiple Busbars**  
Dense grid lines, uniform force, multi-busbar design  
The output power is increased by more than 5W
- **New Welding Wire**  
Using round wire ribbon to reduce the shading area  
The incident light is reflected multiple times, increasing the power by 1-2W

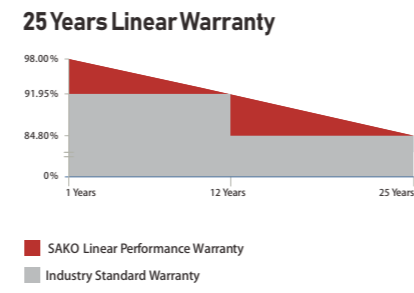


**SK-650P8-132M SK-655P8-132M SK-660P8-132M  
SK-665P8-132M SK-670P8-132M**

**MONO HALF -CELL 9BB/10BB**

| Representation | Product Name  | Half-Cell | Solar Cell Type | Wattage | Silicon Type      |
|----------------|---------------|-----------|-----------------|---------|-------------------|
| EXAMPLE        | SK-650P8-144M | 132PCS    | 210*210MM       | 650W    | M:Monocrystalline |

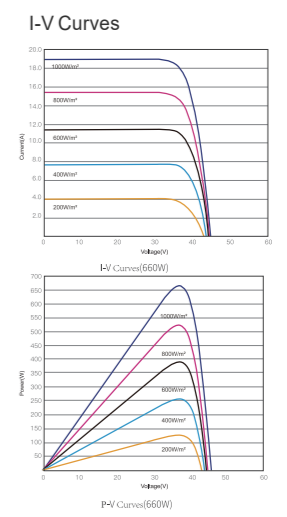
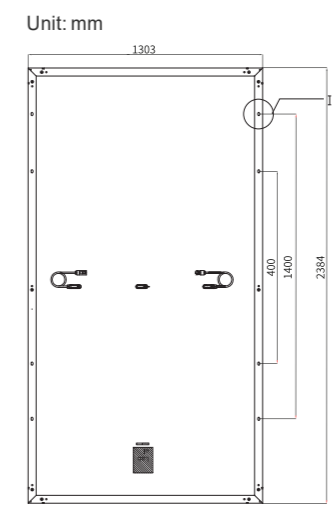
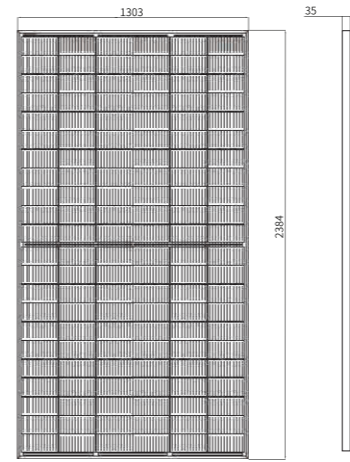
- High module conversion efficiency**  
Module efficiency up to 21.5%
- Half-cell Design**  
Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.
- Excellent weak light performance**  
More power output in weak light condition such as cloudy, morning and sunset
- Higher Durability against harsh environment**  
Reliable quality leads to a better sustainability even in harsh environment
- Lower operating temperature**  
Lower operating temperature and temperature coefficient increases the power output



25 Years output guarantee  
12 Years quality assurance  
5-year limited warranty of materials and workmanships.

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**ELECTRICAL PERFORMANCE**

| Electrical Parameters at Standard Test Conditions(STC) |               |               |               |               |               |
|--|---------------|---------------|---------------|---------------|---------------|
| Module Type  | SK-650P8-132M | SK-655P8-132M | SK-660P8-132M | SK-665P8-132M | SK-670P8-132M |
| Power Output (Pmax / W)                                | 650W          | 655W          | 660W          | 665W          | 670W          |
| Power Output Tolerances                                | ±5%           | ±5%           | ±5%           | ±5%           | ±5%           |
| Module Efficiency (ηm)                                 | 20.93%        | 21.09%        | 21.25%        | 21.41%        | 21.57%        |
| Voltage at Pmax (Vmp / V)                              | 37.88V        | 38.06V        | 38.24V        | 38.24V        | 38.59V        |
| Current at Pmax (Imp / A)                              | 17.16A        | 17.21A        | 17.26A        | 17.31A        | 17.36A        |
| Open-circuit Voltage (Voc / V)                         | 45.50V        | 45.70V        | 45.90V        | 46.10V        | 46.32V        |
| Short-circuit Current (Isc / A)                        | 18.45A        | 18.5A         | 18.55A        | 18.6A         | 18.65A        |

STC: 1000W/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

| Electrical parameters at NMOT (Irradiance 800 W/m <sup>2</sup> , ambient temperature 20 °C, AM=1.5, wind speed 1 m) |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|
| Module Type   | SK-650P8-132M | SK-655P8-132M | SK-660P8-132M | SK-665P8-132M | SK-670P8-132M |
| Power Output (Pmax / W)   | 492.07W       | 495.85W       | 499.64W       | 503.42W       | 507.21W       |
| Voltage at Pmax (Vmp / V)   | 34.24V        | 34.43V        | 34.63V        | 34.82V        | 35.02V        |
| Current at Pmax (Imp / A)   | 14.37A        | 14.40A        | 14.42A        | 14.46A        | 14.48A        |
| Open-circuit Voltage (Voc / V)  | 41.79V        | 42.03V        | 42.26V        | 42.50V        | 42.74V        |
| Short-circuit Current (Isc / A)   | 15.11A        | 15.15A        | 15.17A        | 15.21A        | 15.23A        |

| Thermal Characteristics           |       |      |        |
|-----------------------------------|-------|------|--------|
| Normal operating cell temperature | NOCT  | °C   | 45±2   |
| Temperature coefficient of Pmax   | γ     | %/°C | 43     |
| Temperature coefficient of Voc    | βvoc  | %/°C | -0.262 |
| Temperature coefficient of Isc    | αisc  | %/°C | 0.05   |
| Temperature coefficient of Vmpp   | βvmpp | %/°C | -0.42  |

| Construction Materials              |                                       |
|-------------------------------------|---------------------------------------|
| Front cover(material/thickness)     | low-iron tempered glass/3.2mm         |
| Cell(quantity/material)             | 132 monocrystalline siliction (11*12) |
| Frame(Materials)                    | anodized aluminum alloy/silver/clear  |
| Junction box(protection degree)     | ≥IP68,TUV & UL                        |
| Cable (length/cross-sectional area) | 300mm/4mm <sup>2</sup>                |

| Operating Conditions             |               |
|----------------------------------|---------------|
| Max.system voltage               | 1500Vdc       |
| Max.series fuse rating           | 30A           |
| Operating temperature range      | -40°C to 85°C |
| Max.static load,front(e.g.,snow) | 5400Pa        |
| Max.static load,back(e.g.,wind)  | 2400Pa        |
| Max.hailstone impact(diameter)   | 25mm/23m/s    |

| General Characteristics            |                                    |
|------------------------------------|------------------------------------|
| Products Dimension(L/W/H)          | 2384*1303*35mm                     |
| Weight                             | 33.5KGS                            |
| QTY of per pallet                  | 31pcs per pallet                   |
| Packaging box dimensions           | 1150*1350*2580MM                   |
| No. of pallets for 40HQ containers | 17 Pallets ( 527PCS, GW.: 1095KGS) |

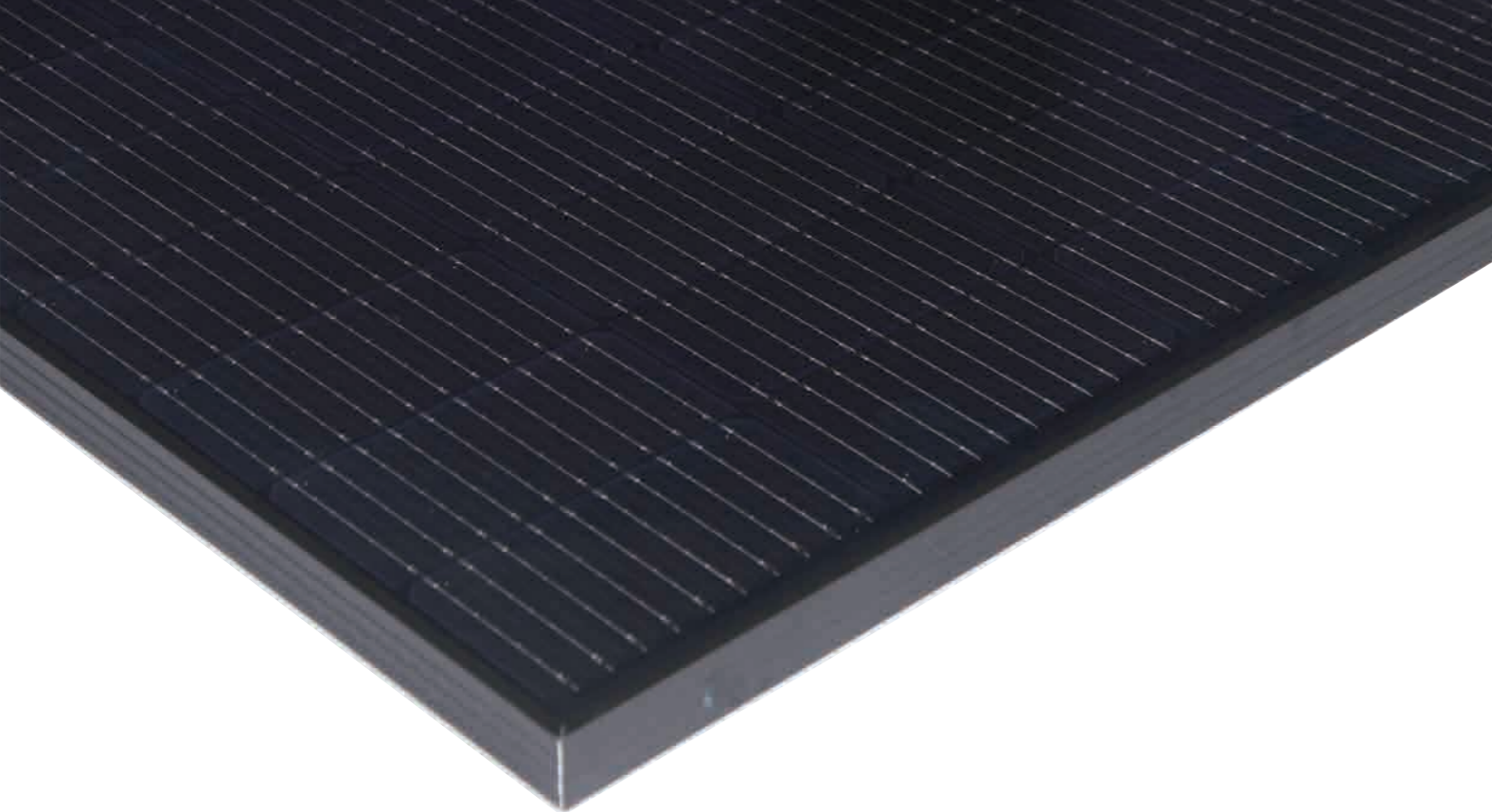
Note: This publication summarizes product warranty and Specifications which are subject to change without notice.











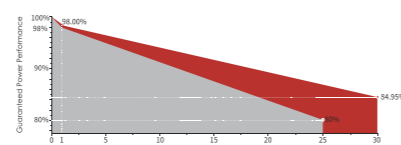
## SK-400P8-108M SK-405P8-108M SK-410P8-108M SK-415P8-108M

Positive power tolerance of 0-+3%

IEC61215(2016), IEC61730(2016)  
ISO9001:2015: Quality Management System  
ISO 14001:2015: Environment Management System  
ISO45001:2018  
Occupational Health and Safety Management Systems

- Multi Busbar Technology**  
Better light trapping and current collection to improve module power output and reliability
- Reduced Hot Spot Loss**  
Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.
- PID Resistance**  
Excellent Anti-PI0 performance guarantee via optimized mass-production process and materials control.
- Enhanced Mechanical Load**  
Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).
- Durability Against Extreme Environmental Conditions**  
High salt mist and ammonia resistance.

### LINEAR PERFORMANCE WARRANTY



■ SAKO Linear Performance Warranty  
■ Industry Standard Warranty

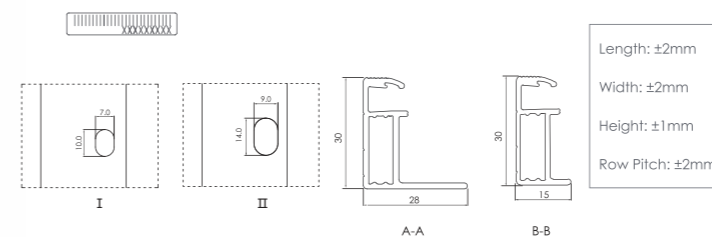
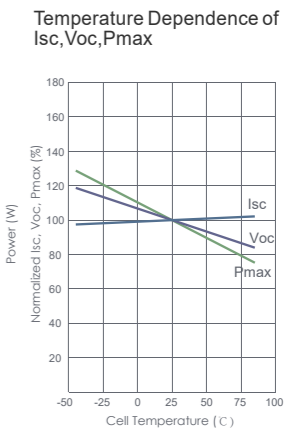
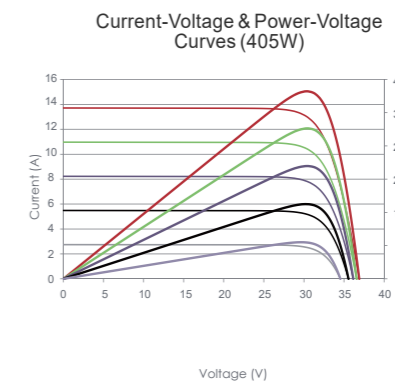
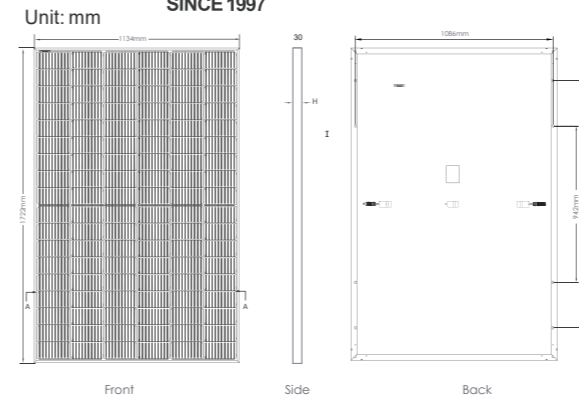
12 Year Product Warranty  
30 Year Linear Power Warranty  
0.45% Annual Degradation Over 30 years

Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice

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SINCE 1997



### Mechanical Characteristics

| Cell Type     | P type Mono-crystalline   |
|---------------|---|
| No. of cells  | 108 (2x54)  |
| Dimensions    | 1722x1134x30mm (67.80x44.65x1.18 Inch)                                      |
| Weight        | 20.5 kg   |
| Front Glass   | 3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass |
| Frame         | Anodized Aluminium Alloy  |
| Junction Box  | IP68 Rated  |
| Output Cables | TUV 1x4.0mm <sup>2</sup> (+): 300mm, (-): 300mm or Customized Length        |

## Packaging Configuration

size: 1760x1140x1280mm 36pcs/plt, 936pcs/40HQ

### SPECIFICATIONS

| Module Type                               | SK-400P8-108M      |        | SK-405P8-108M |        | SK-410P8-108M |        | SK-415P8-108M |        |
|---|--------------------|--------|---------------|--------|---------------|--------|---------------|--------|
|   | STC                | NOCT   | STC           | NOCT   | STC           | NOCT   | STC           | NOCT   |
| Maximum Power (Pmax)                      | 400Wp              | 298Wp  | 405Wp         | 301Wp  | 410Wp         | 305Wp  | 415Wp         | 309Wp  |
| Maximum Power Voltage (Vmp)               | 30.42V             | 10.47A | 30.52V        | 28.56V | 30.62V        | 28.72V | 30.79V        | 28.88V |
| Maximum Power Current (Imp)               | 13.15A             | 28.42V | 13.27A        | 10.55A | 13.39A        | 10.62A | 13.48A        | 10.69A |
| Open-circuit Voltage (Voc)                | 36.98V             | 34.90V | 37.06V        | 34.98V | 37.14V        | 35.05V | 37.31V        | 35.21V |
| Short-circuit Current (Isc)               | 13.78A             | 11.13A | 13.85A        | 11.19A | 13.92A        | 11.24A | 14.01A        | 11.32A |
| Module Efficiency STC (%)                 | 20.48%             |        | 20.74%        |        | 21.00%        |        | 21.25%        |        |
| Operating Temperature (°C)                | -40°C~+85°C        |        |               |        |               |        |               |        |
| Maximum System Voltage                    | 1000/1500VDC (IEC) |        |               |        |               |        |               |        |
| Maximum Series Fuse Rating                | 25A                |        |               |        |               |        |               |        |
| Power Tolerance                           | 0-+3%              |        |               |        |               |        |               |        |
| Temperature Coefficients of Pmax          | -0.35%/°C          |        |               |        |               |        |               |        |
| Temperature Coefficients of Voc           | -0.28%/°C          |        |               |        |               |        |               |        |
| Temperature Coefficients of Isc           | 0.048%/°C          |        |               |        |               |        |               |        |
| Nominal operating cell temperature (NOCT) | 45±2°C             |        |               |        |               |        |               |        |





## SK-340P8-96M SK-345P8-96M SK-350P8-96M SK-355P8-96M SK-360P8-96M

MONO HALF -CELL 9BB/10BB

| Representation | Product Name | Half-Cell | Solar Cell Type | Wattage | Silicon Type      |
|----------------|--------------|-----------|-----------------|---------|-------------------|
| EXAMPLE        | SK-360P8-96M | 96PCS     | 182×182MM       | 360W    | M:Monocrystalline |

High module conversion efficiency  
Module efficiency up to 20.64%

**Half-cell Design**  
Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.

**Excellent weak light performance**  
More power output in weak light condition such as cloudy, morning and sunset

**Higher Durability against harsh environment**  
Reliable quality leads to a better sustainability even in harsh environment

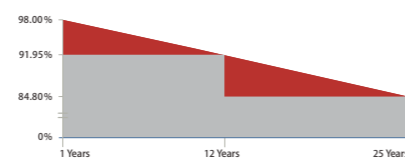
**Lower operating temperature**  
Lower operating temperature and temperature coefficient increases the power output

**Anti- PID (Potential induced degradation)**  
Excellent Anti-PID performance

**Lower LCOE**  
2% more power generation, lower LCOE

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### 25 Years Linear Warranty



■ SAKO Linear Performance Warranty  
■ Industry Standard Warranty

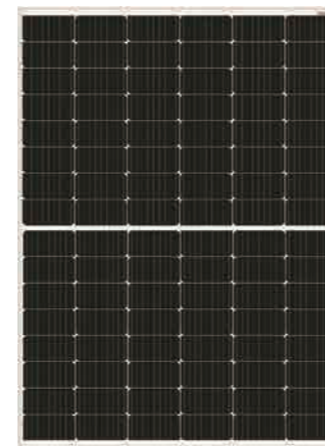
25 Years output guarantee  
12 Years quality assurance  
5-year limited warranty of materials and workmanship.



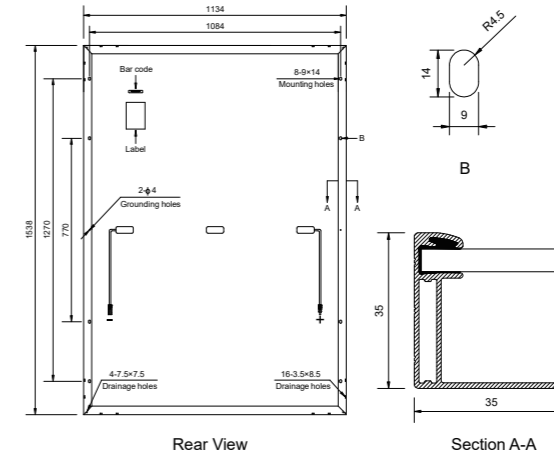
Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice

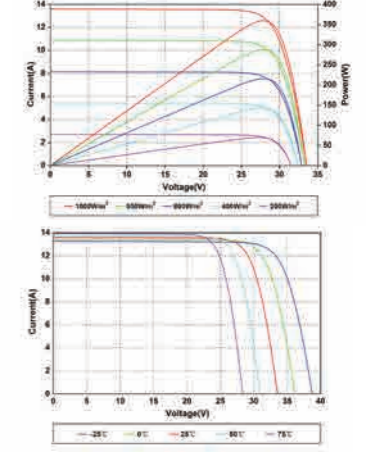
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SINCE 1997



Unit: mm



I-V Curves



### ELECTRICAL PERFORMANCE

| Electrical Parameters at Standard Test Conditions(STC) |              |              |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|
| Module Type  | SK-340P8-96M | SK-345P8-96M | SK-350P8-96M | SK-355P8-96M | SK-360P8-96M |
| Power Output (Pmax / W)                                | 340W         | 345W         | 350W         | 355W         | 360W         |
| Power Output Tolerances                                | ±3%          | ±3%          | ±3%          | ±3%          | ±3%          |
| Module Efficiency (ηm)                                 | 19.50%       | 19.78%       | 20.07%       | 20.35%       | 20.64%       |
| Voltage at Pmax (Vmp / V)                              | 26.93V       | 27.13V       | 27.33V       | 27.52V       | 27.72V       |
| Current at Pmax (Imp / A)                              | 12.63A       | 12.72A       | 12.81A       | 12.9A        | 12.99A       |
| Open-circuit Voltage (Voc / V)                         | 32.19V       | 32.47V       | 32.65V       | 32.82V       | 33.0V        |
| Short-circuit Current (Isc / A)                        | 13.45A       | 13.56A       | 13.67A       | 13.79A       | 13.9A        |

STC:1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

| Electrical parameters at NMOT (Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m) |              |              |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|
| Module Type  | SK-340P8-96M | SK-345P8-96M | SK-350P8-96M | SK-355P8-96M | SK-360P8-96M |
| Power Output (Pmax / W)  | 254W         | 258W         | 262W         | 266W         | 270W         |
| Voltage at Pmax (Vmp / V)  | 24.5V        | 24.70        | 24.9V        | 25.1V        | 25.3V        |
| Current at Pmax (Imp / A)  | 10.37A       | 10.45A       | 10.53A       | 10.6A        | 10.68A       |
| Open-circuit Voltage (Voc / V)   | 29.8V        | 30.0V        | 30.2V        | 30.4V        | 30.6V        |
| Short-circuit Current (Isc / A)  | 10.93A       | 10.99A       | 11.05A       | 11.11A       | 11.17A       |

| Thermal Characteristics           |       |      |       |
|-----------------------------------|-------|------|-------|
| Normal operating cell temperature | NOCT  | °C   | 45±2  |
| Temperature coefficient of Pmax   | γ     | %/°C | 43    |
| Temperature coefficient of Voc    | βvoc  | %/°C | -0.27 |
| Temperature coefficient of Isc    | αisc  | %/°C | 0.05  |
| Temperature coefficient of Vmpp   | βvmpp | %/°C | -0.42 |

| Construction Materials              |                                      |
|-------------------------------------|--------------------------------------|
| Front cover(material/thickness)     | low-iron tempered glass/3.2mm        |
| Cell(quantity/material)             | 96PCS Mono Perc (182MM)              |
| Frame(Materials)                    | anodized aluminum alloy/silver/clear |
| Junction box(protection degree)     | ≥IP65                                |
| Cable (length/cross-sectional area) | 300mm/4mm²                           |

| Operating Conditions             |               |
|----------------------------------|---------------|
| Max.system voltage               | 1500Vdc       |
| Max.series fuse rating           | 20A           |
| Operating temperature range      | -40°C to 85°C |
| Max.static load,front(e.g.,snow) | 5400Pa        |
| Max.static load,back(e.g.,wind)  | 2400Pa        |
| Max.hailstone impact(diameter)   | 25mm/23m/s    |

| General Characteristics            |                                   |
|------------------------------------|-----------------------------------|
| Products Dimension(L/W/H)          | 1538*1134*30mm                    |
| Weight                             | 19.0KGS                           |
| QTY of per pallet                  | 36pcs per pallet                  |
| Packaging box dimensions           | 1650*1095*1145MM                  |
| No. of pallets for 40HQ containers | 28 Pallets ( 1008PCS, GW: 630KGS) |

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.





Monocrystalline Solar Module ●●●

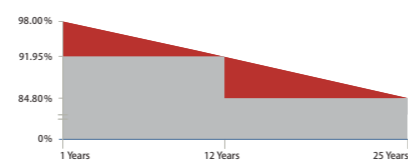
## SK-260P8-72M SK-265P8-72M SK-270P8-72M SK-275P8-72M

MONO HALF -CELL 9BB/10BB

| Representation | Product Name | Half-Cell | Solar Cell Type | Wattage | Silicon Type      |
|----------------|--------------|-----------|-----------------|---------|-------------------|
| EXAMPLE        | SK-275P8-72M | 72 PCS    | 182×182MM       | 275W    | M:Monocrystalline |

- High module conversion efficiency**  
Module efficiency up to 20.76%
- 9BB/10BB Cell**  
New circuit design, lower internal current, lower RS loss.
- Excellent weak light performance**  
More power output in weak light condition such as cloudy, morning and sunset
- Higher Durability against harsh environment**  
Reliable quality leads to a better sustainability even in harsh environment
- Lower operating temperature**  
Lower operating temperature and temperature coefficient increases the power output
- Anti-PID (Potential induced degradation)**  
Excellent Anti-PID performance
- Lower LCOE**  
2% more power generation, lower LCOE

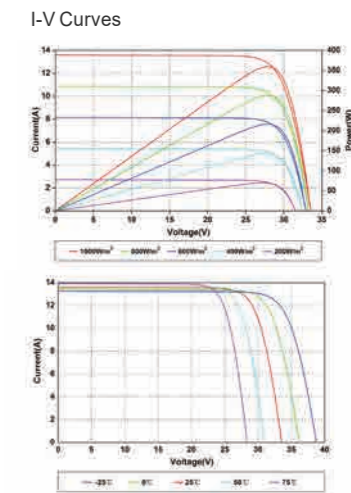
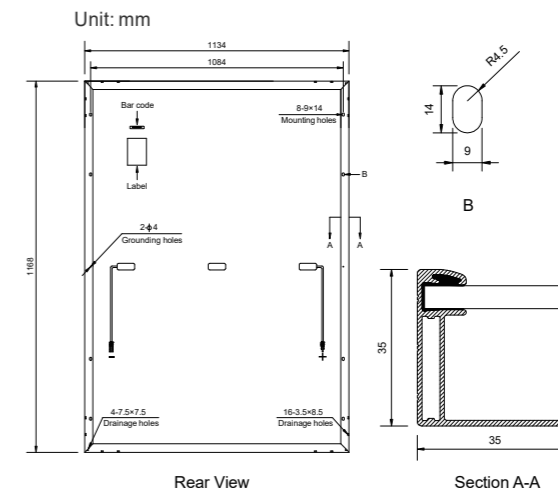
### 25 Years Linear Warranty



■ SAKO Linear Performance Warranty  
 ■ Industry Standard Warranty  
 25 Years output guarantee  
 12 Years quality assurance  
 5-year limited warranty of materials and workmanships.

Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice



### ELECTRICAL PERFORMANCE

Electrical Parameters at Standard Test Conditions (STC)

| Module Type                     | SK-260P8-72M | SK-265P8-72M | SK-270P8-72M | SK-275P8-72M |
|---------------------------------|--------------|--------------|--------------|--------------|
| Power Output (Pmax / W)         | 260W         | 265W         | 270W         | 275W         |
| Power Output Tolerances         | ±3%          | ±3%          | ±3%          | ±3%          |
| Module Efficiency (ηm)          | 19.63%       | 20.00%       | 20.38%       | 20.76%       |
| Voltage at Pmax (Vmp / V)       | 20.4V        | 20.61V       | 20.82V       | 21.03V       |
| Current at Pmax (Imp / A)       | 12.75A       | 12.86A       | 12.97A       | 13.08A       |
| Open-circuit Voltage (Voc / V)  | 24.35V       | 24.55V       | 24.75V       | 24.95V       |
| Short-circuit Current (Isc / A) | 13.67A       | 13.79A       | 13.9A        | 14.03A       |

STC: 1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

### Thermal Characteristics

| Parameter                         | Symbol | Unit | Value |
|-----------------------------------|--------|------|-------|
| Normal operating cell temperature | NOCT   | °C   | 45±2  |
| Temperature coefficient of Pmax   | γ      | %/°C | 43    |
| Temperature coefficient of Voc    | βvoc   | %/°C | -0.27 |
| Temperature coefficient of Isc    | αisc   | %/°C | 0.05  |
| Temperature coefficient of Vmpp   | βvmpp  | %/°C | -0.42 |

### Construction Materials

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Front cover (material/thickness)    | low-iron tempered glass/3.2mm        |
| Cell (quantity/material)            | 72PCS Mono Perc (182MM)              |
| Frame (Materials)                   | anodized aluminum alloy/silver/clear |
| Junction box (protection degree)    | ≥IP65                                |
| Cable (length/cross-sectional area) | 300mm/4mm²                           |

### Operating Conditions

|                                      |               |
|--------------------------------------|---------------|
| Max. system voltage                  | 1500Vdc       |
| Max. series fuse rating              | 20A           |
| Operating temperature range          | -40°C to 85°C |
| Max. static load, front (e.g., snow) | 5400Pa        |
| Max. static load, back (e.g., wind)  | 2400Pa        |
| Max. hailstone impact (diameter)     | 25mm/23m/s    |

### General Characteristics

|                                    |   |
|------------------------------------|---|
| Products Dimension (L/W/H)         | 1168*1134*30mm                                |
| Weight                             | 17.0KGS                                       |
| QTY of per pallet                  | 36pcs per pallet                              |
| Packaging box dimensions           | 1220*1095*1145MM                              |
| No. of pallets for 40HQ containers | 36 Pallets ( 1296PCS, GW: 560KGS per pallets) |

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.

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## SK-130P8-36M SK-150P8-39M SK-160P8-42M SK-170P8-45M

MONO HALF -CELL 9BB/10BB

| Representation | Product Name | Half-Cell | Solar Cell Type | Wattage | Silicon Type      |
|----------------|--------------|-----------|-----------------|---------|-------------------|
| EXAMPLE        | SK-150P8-39M | 39PCS     | 182×182MM       | 150W    | M:Monocrystalline |

**High module conversion efficiency**  
Module efficiency up to 19.32%

**9BB/10BB Cell**  
New circuit design, lower internal current, lower RS loss

**Excellent weak light performance**  
More power output in weak light condition such as cloudy, morning and sunset

**Higher Durability against harsh environment**  
Reliable quality leads to a better sustainability even in harsh environment

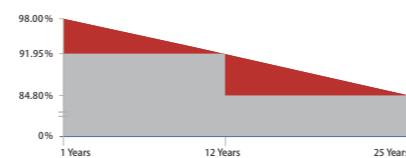
**Lower operating temperature**  
Lower operating temperature and temperature coefficient increases the power output

**Anti- PID (Potential induced degradation)**  
Excellent Anti-PID performance

**Lower LCOE**  
2% more power generation, lower LCOE

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### 25 Years Linear Warranty



■ SAKO Linear Performance Warranty  
■ Industry Standard Warranty

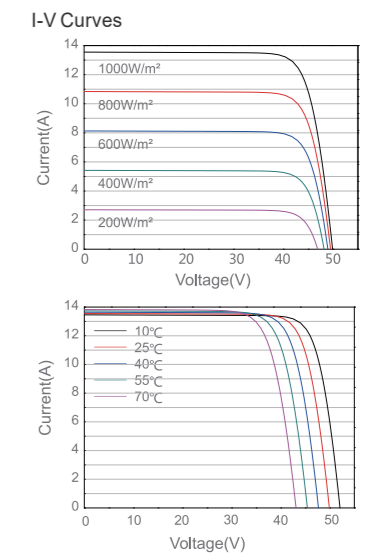
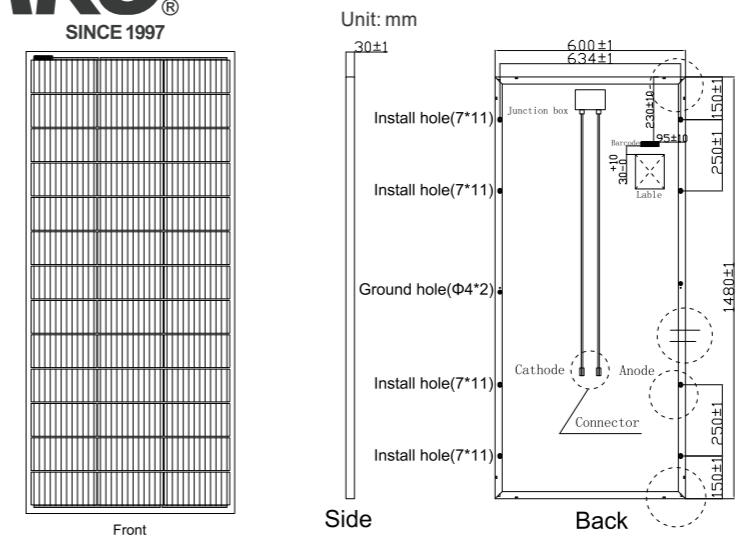
25 Years output guarantee  
12 Years quality assurance  
5-year limited warranty of materials and workmanships.

**Warning:** Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice

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Monocrystalline Solar Module ●●●



### ELECTRICAL PERFORMANCE

| Electrical Parameters at Standard Test Conditions (STC) |              |              |              |              |
|---|--------------|--------------|--------------|--------------|
| Module Type   | SK-130P8-36M | SK-150P8-39M | SK-160P8-42M | SK-170P8-45M |
| Power Output (Pmax / W)                                 | 130W         | 150W         | 160W         | 170W         |
| Power Output Tolerances                                 | ±3%          | ±3%          | ±3%          | ±3%          |
| Module Efficiency (ηm)                                  | 18.00%       | 19.23%       | 19.32%       | 19.14%       |
| Voltage at Pmax (Vmp / V)                               | 20.58V       | 22.58V       | 24.32V       | 26.0V        |
| Current at Pmax (Imp / A)                               | 6.24A        | 6.64A        | 6.58A        | 6.52A        |
| Open-circuit Voltage (Voc / V)                          | 24.41V       | 26.45V       | 28.48V       | 30.52V       |
| Short-circuit Current (Isc / A)                         | 6.55A        | 6.99A        | 6.92A        | 6.86A        |

STC:1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

| Operating Conditions                |               |
|-------------------------------------|---------------|
| Max.system voltage                  | 1000Vdc       |
| Max.series fuse rating              | 15A           |
| Operating temperature range         | -40°C to 85°C |
| Max.static load, front (e.g., snow) | 5400Pa        |
| Max.static load, back (e.g., wind)  | 2400Pa        |
| Max.hailstone impact (diameter)     | 25mm/23m/s    |

| Construction Materials              |                                      |          |          |          |
|-------------------------------------|--------------------------------------|----------|----------|----------|
| 182MM Mono Perc Cell(QTY)           | 36 cells                             | 39 cells | 42 cells | 45 cells |
| Front cover(material/thickness)     | low-iron tempered glass/3.2mm        |          |          |          |
| Frame(Materials)                    | anodized aluminum alloy/silver/clear |          |          |          |
| Junction box(protection degree)     | ≥IP65                                |          |          |          |
| Cable (length/cross-sectional area) | 700mm/2.5mm²                         |          |          |          |

| General Characteristics            |                  |                  |                  |                  |
|------------------------------------|------------------|------------------|------------------|------------------|
| Products Dimension(L/W/H)          | 1200*600*30mm    | 1300*600*30mm    | 1380*600*30mm    | 1480*600*30mm    |
| Weight                             | 8.0KGS           | 8.5KGS           | 8.5KGS           | 8.5KGS           |
| QTY of per pallet                  | 2pcs per carton  | 2pcs per carton  | 2pcs per carton  | 2pcs per carton  |
| Packaging box dimensions           | 1210*610*70MM    | 1310*610*70mm    | 1490*610*70mm    | 1490*610*70mm    |
| No. of pallets for 40HQ containers | 2630PCS per 40HQ | 2450PCS per 40HQ | 2130PCS per 40HQ | 2130PCS per 40HQ |

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.





## SK-435P6-144M SK-440P6-144M SK-445P6-144M SK-450P6-144M SK-455P6-144M SK-460P6-144M

MONO HALF -CELL 9BB/10BB

| Representation | Product Name  | Half-Cell | Solar Cell Type | Wattage | Silicon Type      |
|----------------|---------------|-----------|-----------------|---------|-------------------|
| EXAMPLE        | SK-450P6-144M | 144 PCS   | 166×166MM       | 450W    | M:Monocrystalline |

**High module conversion efficiency**  
Module efficiency up to 21.16%

**Half-cell Design**  
Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.

**Excellent weak light performance**  
More power output in weak light condition such as cloudy, morning and sunset

**Higher Durability against harsh environment**  
Reliable quality leads to a better sustainability even in harsh environment

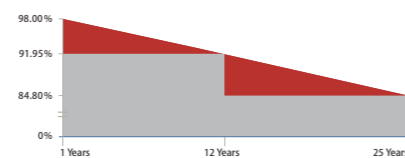
**Lower operating temperature**  
Lower operating temperature and temperature coefficient increases the power output

**Anti- PID (Potential induced degradation)**  
Excellent Anti-PID performance

**Lower LCOE**  
2% more power generation, lower LCOE

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### 25 Years Linear Warranty



SAKO Linear Performance Warranty  
Industry Standard Warranty

25 Years output guarantee  
12 Years quality assurance  
5-year limited warranty of materials and workmanship.

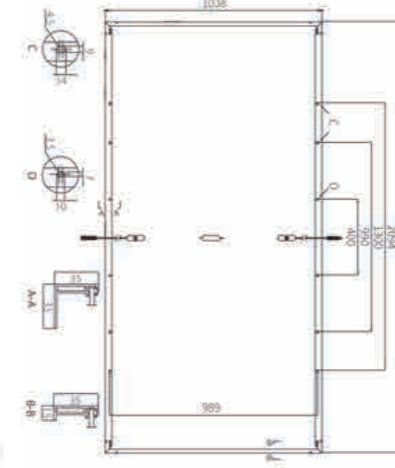
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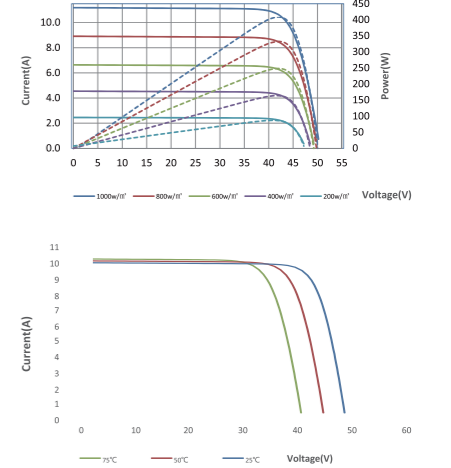


Unit: mm



Monocrystalline Solar Module ●●●

I-V Curves



### ELECTRICAL PERFORMANCE

| Electrical Parameters at Standard Test Conditions(STC) |               |               |               |               |               |               |
|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Module Type  | SK-435P6-144M | SK-440P6-144M | SK-445P6-144M | SK-450P6-144M | SK-455P6-144M | SK-460P6-144M |
| Power Output (Pmax / W)                                | 435W          | 440W          | 445W          | 450W          | 455W          | 460W          |
| Power Output Tolerances                                | ±3%           | ±3%           | ±3%           | ±3%           | ±3%           | ±3%           |
| Module Efficiency (ηm)                                 | 20.01%        | 20.24%        | 20.47%        | 20.70%        | 20.93%        | 21.16%        |
| Voltage at Pmax (Vmp / V)                              | 40.35V        | 40.55V        | 40.75V        | 40.95V        | 41.18V        | 41.37V        |
| Current at Pmax (Imp / A)                              | 10.78A        | 10.85A        | 10.92A        | 10.99A        | 11.05A        | 11.12A        |
| Open-circuit Voltage (Voc / V)                         | 48.51V        | 48.72V        | 48.93V        | 49.11V        | 49.32V        | 49.53V        |
| Short-circuit Current (Isc / A)                        | 11.45A        | 11.51A        | 11.57A        | 11.63A        | 11.69A        | 11.75A        |

STC:1000W/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

| Electrical parameters at NMOT (Irradiance 800 W/m <sup>2</sup> , ambient temperature 20 °C, AM=1.5, wind speed 1 m) |               |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Module Type   | SK-435P6-144M | SK-440P6-144M | SK-445P6-144M | SK-450P6-144M | SK-455P6-144M | SK-460P6-144M |
| Power Output (Pmax / W)   | 322W          | 326W          | 330W          | 333W          | 336W          | 339W          |
| Voltage at Pmax (Vmp / V)   | 37.5V         | 37.9V         | 38.1V         | 38.3V         | 38.5V         | 38.7V         |
| Current at Pmax (Imp / A)   | 8.58A         | 8.6A          | 8.66A         | 8.7A          | 8.73A         | 8.76A         |
| Open-circuit Voltage (Voc / V)  | 46V           | 46.2V         | 46.3V         | 46.5V         | 46.7V         | 46.7V         |
| Short-circuit Current (Isc / A)   | 9.12A         | 9.17A         | 9.23A         | 9.29A         | 9.35A         | 9.35A         |

| Thermal Characteristics           |       |      |       |
|-----------------------------------|-------|------|-------|
| Normal operating cell temperature | NOCT  | °C   | 45±2  |
| Temperature coefficient of Pmax   | γ     | %/°C | -0.35 |
| Temperature coefficient of Voc    | βvoc  | %/°C | -0.27 |
| Temperature coefficient of Isc    | αisc  | %/°C | 0.05  |
| Temperature coefficient of Vmpp   | βvmpp | %/°C | -0.42 |

| Construction Materials              |                                      |
|-------------------------------------|--------------------------------------|
| Front cover(material/thickness)     | low-iron tempered glass/3.2mm        |
| Cell(quantity/material)             | 144PCS Mono Perc (166MM)             |
| Frame(Materials)                    | anodized aluminum alloy/silver/clear |
| Junction box(protection degree)     | ≥IP65                                |
| Cable (length/cross-sectional area) | 300mm/4mm <sup>2</sup>               |

| Operating Conditions             |               |
|----------------------------------|---------------|
| Max.system voltage               | 1500Vdc       |
| Max.series fuse rating           | 20A           |
| Operating temperature range      | -40°C to 85°C |
| Max.static load,front(e.g.,snow) | 5400Pa        |
| Max.static load,back(e.g.,wind)  | 2400Pa        |
| Max.hailstone impact(diameter)   | 25mm/23m/s    |

| General Characteristics            |                                  |
|------------------------------------|----------------------------------|
| Products Dimension(L/W/H)          | 2094*1038*35mm                   |
| Weight                             | 22.5KGS                          |
| QTY of per pallet                  | 30pcs per pallet                 |
| Packaging box dimensions           | 2295*1095*1145MM                 |
| No. of pallets for 40HQ containers | 22 Pallets ( 660PCS, GW: 760KGS) |

Note: This publication summarizes product warranty and Specifications which are subject to change without notice.



# FLEXIBLE PV MODULE SERIES

## MONOCRYSTALLINE HIGH-EFFICIENCY

- In order to solve the roof of light buildings, or other requirements with a certain flexibility of solar panels, both with solar power generation function, but also according to the need to appropriately change the shape of the solar panel, and also has a light transmission effect.

- Flexible solar cell module, this solar cell module can be bent around a certain Angle according to needs, suitable for various occasions.
- Lightweight and ultra-thin design
- Ultra high flexibility
- Efficient and reliable
- Customization
- Efficient and reliable
- Plumbum free environmental protection
- Long lasting and stable quality



## SK-F160W SK-F165W SK-F170W

Module conversion efficiency | 18-19%

### Long lasting and stable quality

- ◆ Through various long-term reliability tests
- ◆ ISO 9001, ISO 14001, ISO 45001 and CE
- ◆ The reliability of components is effectively ensured under EL test before and after lamination.
- ◆ Fully automatic production line and the leading photovoltaic technology

### Product characteristics

**Lightweight and ultra-thin design**  
The component weight is as light as 3.12kg in weight and as thin as 3mm, meeting the requirements of various low load projects.

**Ultra high flexibility**  
With ultra-thin silicon chip and advanced organic polymer materials, the component can perfectly fit various curved roofs.

**Efficient and reliable**  
It is improving the battery conversion efficiency. The power generation performance is excellent under low light conditions.

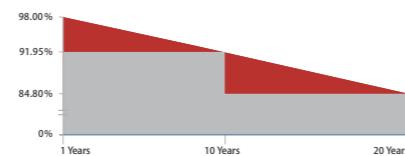
**Customization**  
Products can be customized to meet the needs of different application scenarios.

**Easy installation**  
Due to convenience and quickness, the costs of installation and transport are greatly reduced.

**Plumbum free environmental protection**  
Base on the concept of green environmental protection, the production process and materials achieve plumbum free.

[www.sakopower.com](http://www.sakopower.com)

### 20 Years design life



■ SAKO Linear Performance  
■ Industry Standard Performance

20 Years design life  
1 year limited warranty of materials and workmanship.

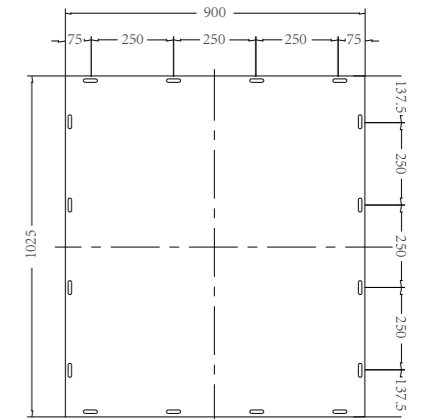
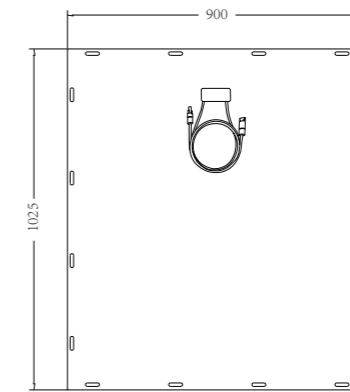
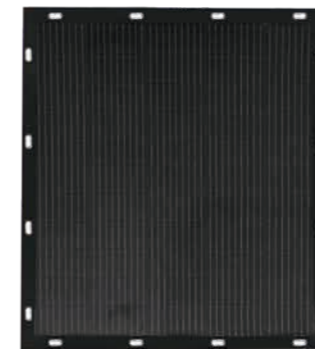


Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

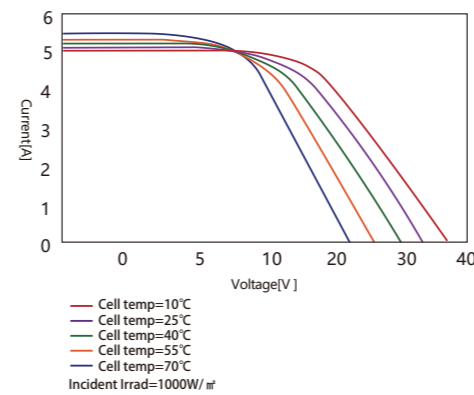
Note: This publication summarizes product warranty and Specifications which are subject to change without notice

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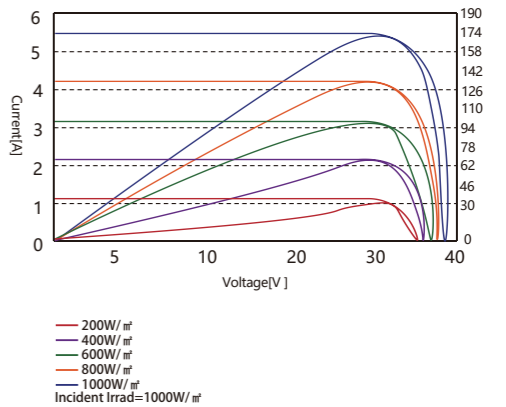
ETFE Monocrystalline Solar Module ●●●



Temperature curves of current and voltage at different temperatures



Curve of current and voltage/curve of power voltage under different irradiance



### Electrical Performance Parameter (STC)

| Parameter Name               | Unit | SK-F160W | SK-F165W | SK-F170W |
|------------------------------|------|----------|----------|----------|
| Maximum power (Pm)           | W    | 160W     | 165W     | 170W     |
| Power Deviation              | W    | ±3%      | ±3%      | ±3%      |
| Optimal working voltage (Vm) | V    | ≥32.175  | ≥32.395  | ≥32.725  |
| Optimal working current (Im) | A    | ≥5.155   | ≥5.21    | ≥5.305   |
| Open-circuit voltage (Voc)   | V    | ≥37.455  | ≥37.675  | ≥38.005  |
| Short-circuit current (Isc)  | A    | ≥5.52    | ≥5.545   | ≥5.57    |

STC·AM=1.5, Irradiance 1000W/m², Operating Temperature: 25°C

### Mechanical

|                      |  |
|----------------------|--|
| Cell array           | 11 (166/2) *5                                  |
| Size                 | 1025*900*3mm                                   |
| Size of 46-piece box | 1180*1168*1120mm                               |
| Front film           | Lightweight high transparent polymer materials |
| Wind/snow pressure   | 2400mpa/5400mpa                                |

### Mechanical

|                   |                       |
|-------------------|-----------------------|
| Back board colour | Black and white       |
| Terminal block    | Protection grade IP67 |
| Cable             | 4mm²                  |
| Diode             | 2                     |
| Weight            | 3.12KG                |

### Temperature coefficient

|                                       |           |
|---------------------------------------|-----------|
| Battery nominal operating temperature | 25±2°C    |
| Current temperature coefficient (Isc) | +0.05%/°C |
| Voltage temperature coefficient       | -0.32%/°C |
| Power factor (Pm)                     | -0.40%/°C |

### Working conditions

|                                |               |
|--------------------------------|---------------|
| The largest system voltage     | DC1500V (IEC) |
| The largest fuse rated current | 20A           |
| Operating temperature range    | -40~+120°C    |
| Connector                      | MC Compatible |





## SK-F210W SK-F215W SK-F220W

Module conversion efficiency | 18-19%

### Long lasting and stable quality

- ◆ Through various long-term reliability tests
- ◆ ISO 9001, ISO 14001, ISO 45001 and CE
- ◆ The reliability of components is effectively ensured under EL test before and after lamination.
- ◆ Fully automatic production line and the leading photovoltaic technology

### Product characteristics

**Lightweight and ultra-thin design**  
The component weight is as light as 3.80kg in weight and as thin as 3mm, meeting the requirements of various low load projects.

**Ultra high flexibility**  
With ultra-thin silicon chip and advanced organic polymer materials, the component can perfectly fit various curved roofs.

**Efficient and reliable**  
It is improving the battery conversion efficiency. The power generation performance is excellent under low light conditions.

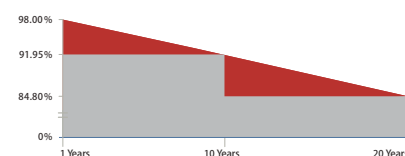
**Customization**  
Products can be customized to meet the needs of different application scenarios.

**Easy installation**  
Due to convenience and quickness, the costs of installation and transport are greatly reduced.

**Plumbum free environmental protection**  
Base on the concept of green environmental protection, the production process and materials achieve plumbum free.

[www.sakopower.com](http://www.sakopower.com)

### 20 Years design life



■ SAKO Linear Performance  
■ Industry Standard Performance

20 Years design life  
1 year limited warranty of materials and workmanship.

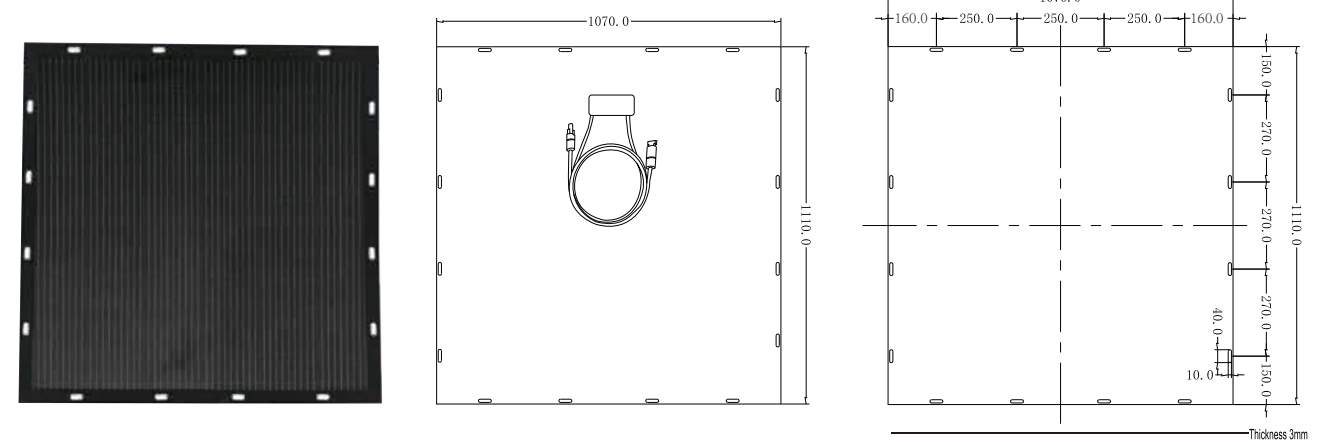


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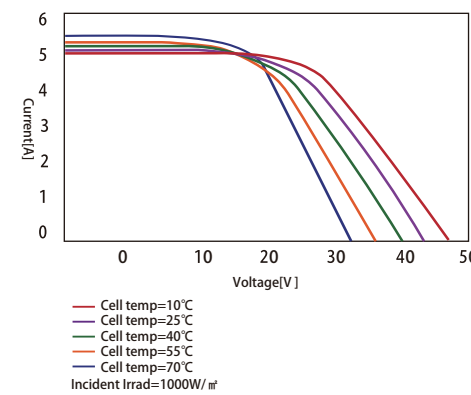
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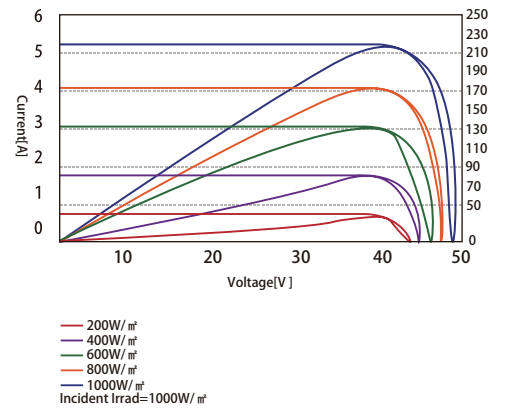
ETFE Monocrystalline Solar Module ●●●



Temperature curves of current and voltage at different temperatures



Curve of current and voltage/curve of power voltage under different irradiance



### Electrical Performance Parameter (STC)

| Parameter Name               | Unit | SK-F210W | SK-F215W | SK-F220W |
|------------------------------|------|----------|----------|----------|
| Maximum power (Pm)           | W    | 210W     | 215W     | 220W     |
| Power Deviation              | W    | ±3%      | ±3%      | ±3%      |
| Optimal working voltage (Vm) | V    | ≥42.12   | ≥42.48   | ≥42.84   |
| Optimal working current (Im) | A    | ≥5.155   | ≥5.23    | ≥5.305   |
| Open-circuit voltage (Voc)   | V    | ≥49.032  | ≥49.392  | ≥49.752  |
| Short-circuit current (Isc)  | A    | ≥5.52    | ≥5.545   | ≥5.57    |

STC·AM=1.5, Irradiance 1000W/m², Operating Temperature: 25°C

### Mechanical

|                      |  |
|----------------------|--|
| Cell array           | 12 (166/2) *6                                  |
| Size                 | 1110*1070*3mm                                  |
| Size of 46-piece box | 1280*1168*1260mm                               |
| Front film           | Lightweight high transparent polymer materials |
| Wind/snow pressure   | 2400mpa/5400mpa                                |

### Mechanical

|                   |                       |
|-------------------|-----------------------|
| Back board colour | Black and white       |
| Terminal block    | Protection grade IP67 |
| Cable             | 4mm²                  |
| Diode             | 2                     |
| Weight            | 3.8KG                 |

### Temperature coefficient

|                                       |           |
|---------------------------------------|-----------|
| Battery nominal operating temperature | 25±2°C    |
| Current temperature coefficient (Isc) | +0.05%/°C |
| Voltage temperature coefficient       | -0.32%/°C |
| Power factor (Pm)                     | -0.40%/°C |

### Working conditions

|                                |               |
|--------------------------------|---------------|
| The largest system voltage     | DC1500V (IEC) |
| The largest fuse rated current | 20A           |
| Operating temperature range    | -40~+120°C    |
| Connector                      | MC Compatible |





## SK-F355W SK-F360W SK-F365W SK-F370W

Module conversion efficiency | 19-20%

### Long lasting and stable quality

- ◆ Through various long-term reliability tests
- ◆ ISO 9001, ISO 14001, ISO 45001 and CE
- ◆ The reliability of components is effectively ensured under EL test before and after lamination.
- ◆ Fully automatic production line and the leading photovoltaic technology

### Product characteristics

**Lightweight and ultra-thin design**  
The component weight is as light as 5.85kg in weight and as thin as 3mm, meeting the requirements of various low load projects.

**Ultra high flexibility**  
With ultra-thin silicon chip and advanced organic polymer materials, the component can perfectly fit various curved roofs.

**Efficient and reliable**  
It is improving the battery conversion efficiency. The power generation performance is excellent under low light conditions.

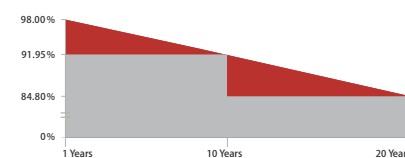
**Customization**  
Products can be customized to meet the needs of different application scenarios.

**Easy installation**  
Due to convenience and quickness, the costs of installation and transport are greatly reduced.

**Plumbum free environmental protection**  
Base on the concept of green environmental protection, the production process and materials achieve plumbum free.

[www.sakopower.com](http://www.sakopower.com)

### 20 Years design life



■ SAKO Linear Performance  
■ Industry Standard Performance

20 Years design life  
1 year limited warranty of materials and workmanship.

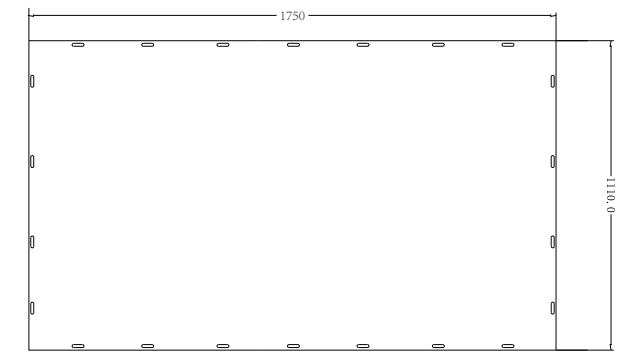
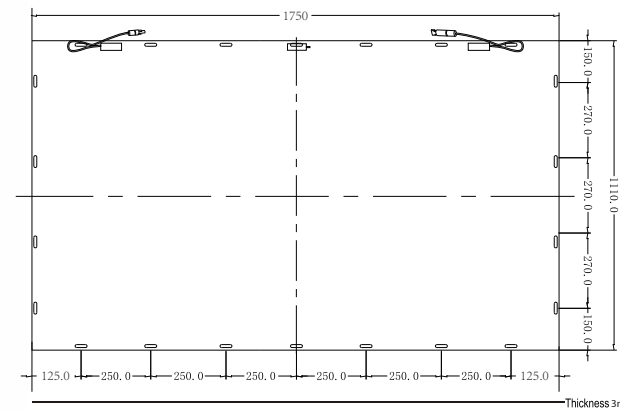
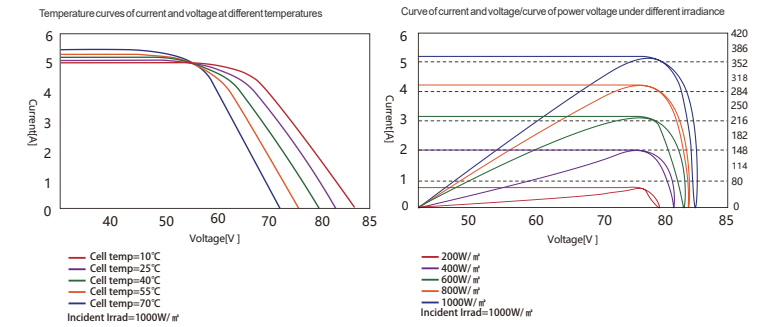


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Note: This publication summarizes product warranty and Specifications which are subject to change without notice



ETFE Monocrystalline Solar Module ●●●



### Electrical Performance Parameter (STC)

| Parameter Name               | Unit | SK-F355W | SK-F360W | SK-F365W | SK-F370W |
|------------------------------|------|----------|----------|----------|----------|
| Maximum power (Pm)           | W    | 355W     | 360W     | 365W     | 370W     |
| Power Deviation              | W    | ±3%      | ±3%      | ±3%      | ±3%      |
| Optimal working voltage (Vm) | V    | >70.44   | >70.92   | >71.04   | >71.4    |
| Optimal working current (Im) | A    | >5.155   | >5.23    | >5.255   | >5.305   |
| Open-circuit voltage (Voc)   | V    | >82.08   | >82.44   | >82.56   | >82.92   |
| Short-circuit current (Isc)  | A    | >5.52    | >5.545   | >5.545   | >5.57    |

STC·AM=1.5, Irradiance 1000W/m<sup>2</sup>, Operating Temperature: 25°C

### Mechanical

|                      |  |
|----------------------|--|
| Cell array           | 12 (166/2) *10                                 |
| Size                 | 1750*1110*3mm                                  |
| Size of 66-piece box | 1950*1260*1150mm                               |
| Front film           | Lightweight high transparent polymer materials |
| Wind/snow pressure   | 2400mpa/5400mpa                                |

### Mechanical

|                   |                       |
|-------------------|-----------------------|
| Back board colour | Black                 |
| Terminal block    | Protection grade IP67 |
| Cable             | 4mm <sup>2</sup>      |
| Diode             | 3                     |
| Weight            | 5.85KG                |

### Temperature coefficient

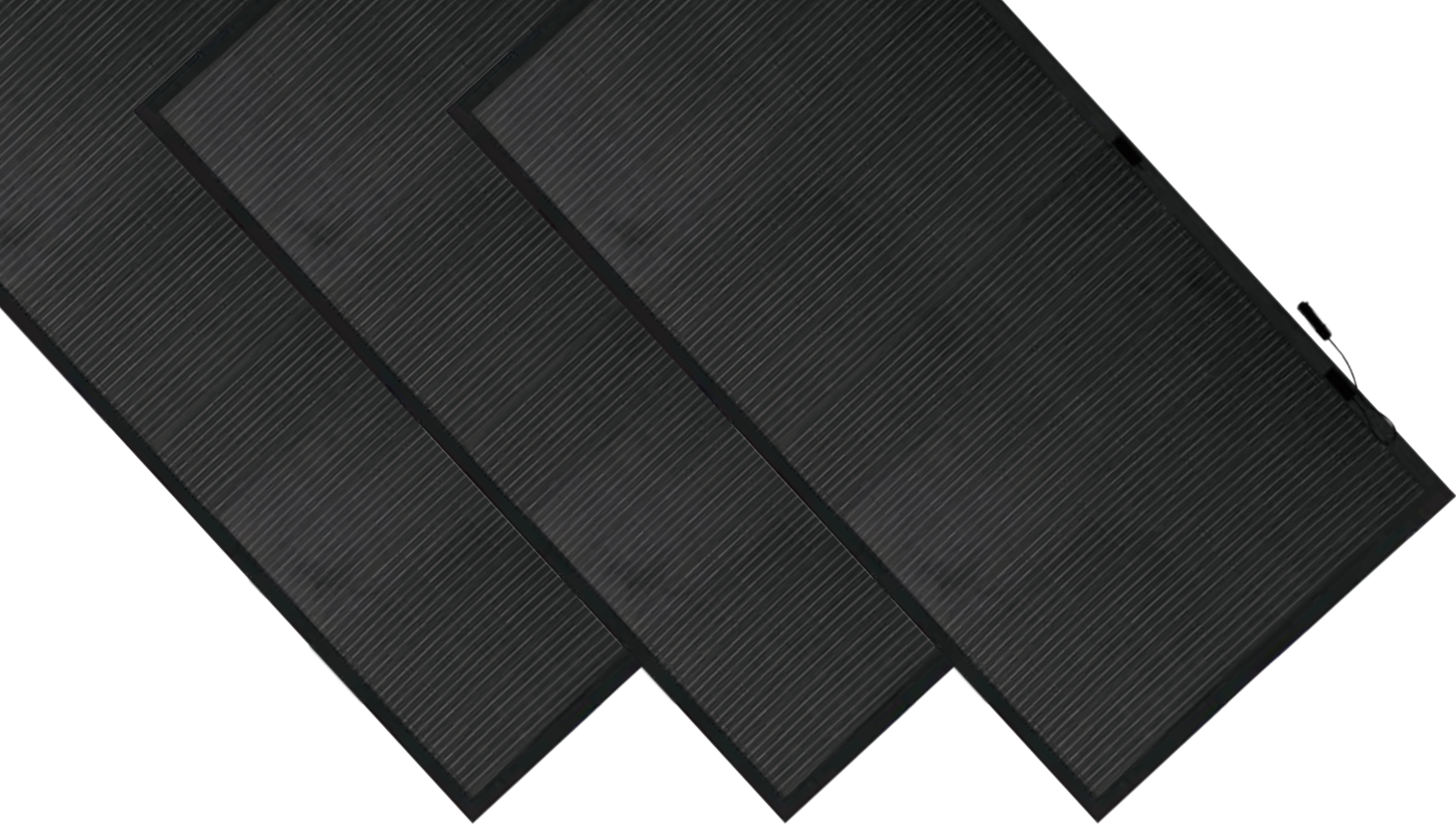
|                                       |           |
|---------------------------------------|-----------|
| Battery nominal operating temperature | 25±2°C    |
| Current temperature coefficient (Isc) | +0.05%/°C |
| Voltage temperature coefficient       | -0.32%/°C |
| Power factor (Pm)                     | -0.40%/°C |

### Working conditions

|                                |               |
|--------------------------------|---------------|
| The largest system voltage     | DC1500V (IEC) |
| The largest fuse rated current | 20A           |
| Operating temperature range    | -40~+120°C    |
| Connector                      | MC Compatible |

|               |       |      |
|---------------|-------|------|
|               | 20FT  | 40HQ |
| PCS/pallet    | 66+50 | 66   |
| PCS/Container | 696   | 1584 |





## SK-F425W SK-F430W

Module conversion efficiency | 19-20%

### Long lasting and stable quality

- ◆ Through various long-term reliability tests
- ◆ ISO 9001, ISO 14001, ISO 45001 and CE
- ◆ The reliability of components is effectively ensured under EL test before and after lamination.
- ◆ Fully automatic production line and the leading photovoltaic technology

### Product characteristics

**Lightweight and ultra-thin design**  
The component weight is as light as 6.40kg in weight and as thin as 3mm, meeting the requirements of various low load projects.

**Ultra high flexibility**  
With ultra-thin silicon chip and advanced organic polymer materials, the component can perfectly fit various curved roofs.

**Efficient and reliable**  
It is improving the battery conversion efficiency. The power generation performance is excellent under low light conditions.

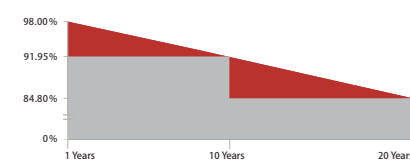
**Customization**  
Products can be customized to meet the needs of different application scenarios.

**Easy installation**  
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**Plumbum free environmental protection**  
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[www.sakopower.com](http://www.sakopower.com)

### 20 Years design life



■ SAKO Linear Performance  
■ Industry Standard Performance

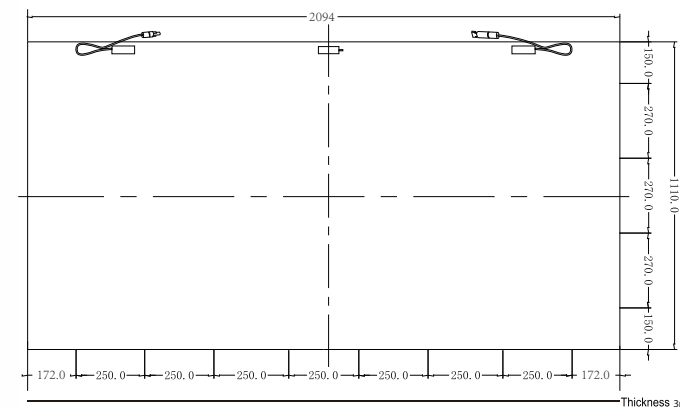
20 Years design life  
1 year limited warranty of materials and workmanships.



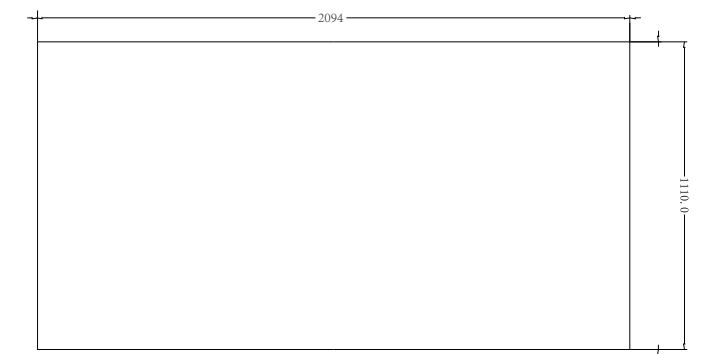
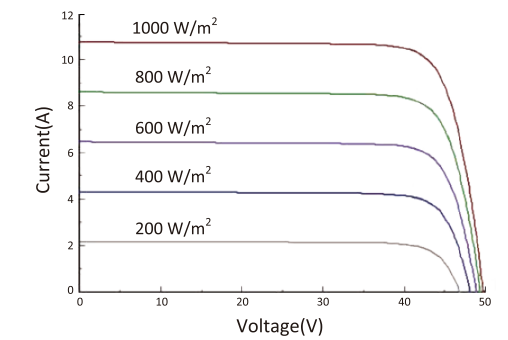
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### Electrical Performance Parameter (STC)

| Parameter Name               | Unit | SK-F425W | SK-F430W |
|------------------------------|------|----------|----------|
| Maximum power (Pm)           | W    | 425W     | 430W     |
| Power Deviation              | W    | ±3%      | ±3%      |
| Optimal working voltage (Vm) | V    | 41.8     | 42.0     |
| Optimal working current (Im) | A    | 10.17    | 10.24    |
| Open-circuit voltage (Voc)   | V    | 49.6     | 49.8     |
| Short-circuit current (Isc)  | A    | 10.67    | 10.74    |

STC·AM=1.5, Irradiance 1000W/m², Operating Temperature: 25°C

### Mechanical

|                      |  |
|----------------------|--|
| Cell array           | 12 (166/2) *12                                 |
| Size                 | 2094*1110*3mm                                  |
| Size of 66-piece box | 2296*1260*1150mm                               |
| Front film           | Lightweight high transparent polymer materials |
| Wind/snow pressure   | 2400mpa/5400mpa                                |

### Mechanical

|                   |                       |
|-------------------|-----------------------|
| Back board colour | Black                 |
| Terminal block    | Protection grade IP68 |
| Cable             | 4mm²                  |
| Diode             | 3                     |
| Weight            | 7.2KG                 |

### Temperature coefficient

|                                       |           |
|---------------------------------------|-----------|
| Battery nominal operating temperature | 25±2°C    |
| Current temperature coefficient (Isc) | +0.05%/°C |
| Voltage temperature coefficient       | -0.32%/°C |
| Power factor (Pm)                     | -0.40%/°C |

### Working conditions

|                                |               |
|--------------------------------|---------------|
| The largest system voltage     | DC1500V (IEC) |
| The largest fuse rated current | 20A           |
| Operating temperature range    | -40~+120°C    |
| Connector                      | MC Compatible |

|               |       |      |
|---------------|-------|------|
|               | 20FT  | 40HQ |
| PCS/pallet    | 66+50 | 66   |
| PCS/Container | 580   | 1320 |



## Photovoltaic roofing system



- Green, zero-carbon energy for urban renewal and beautiful countryside

Safe and reliable

Wide applicability

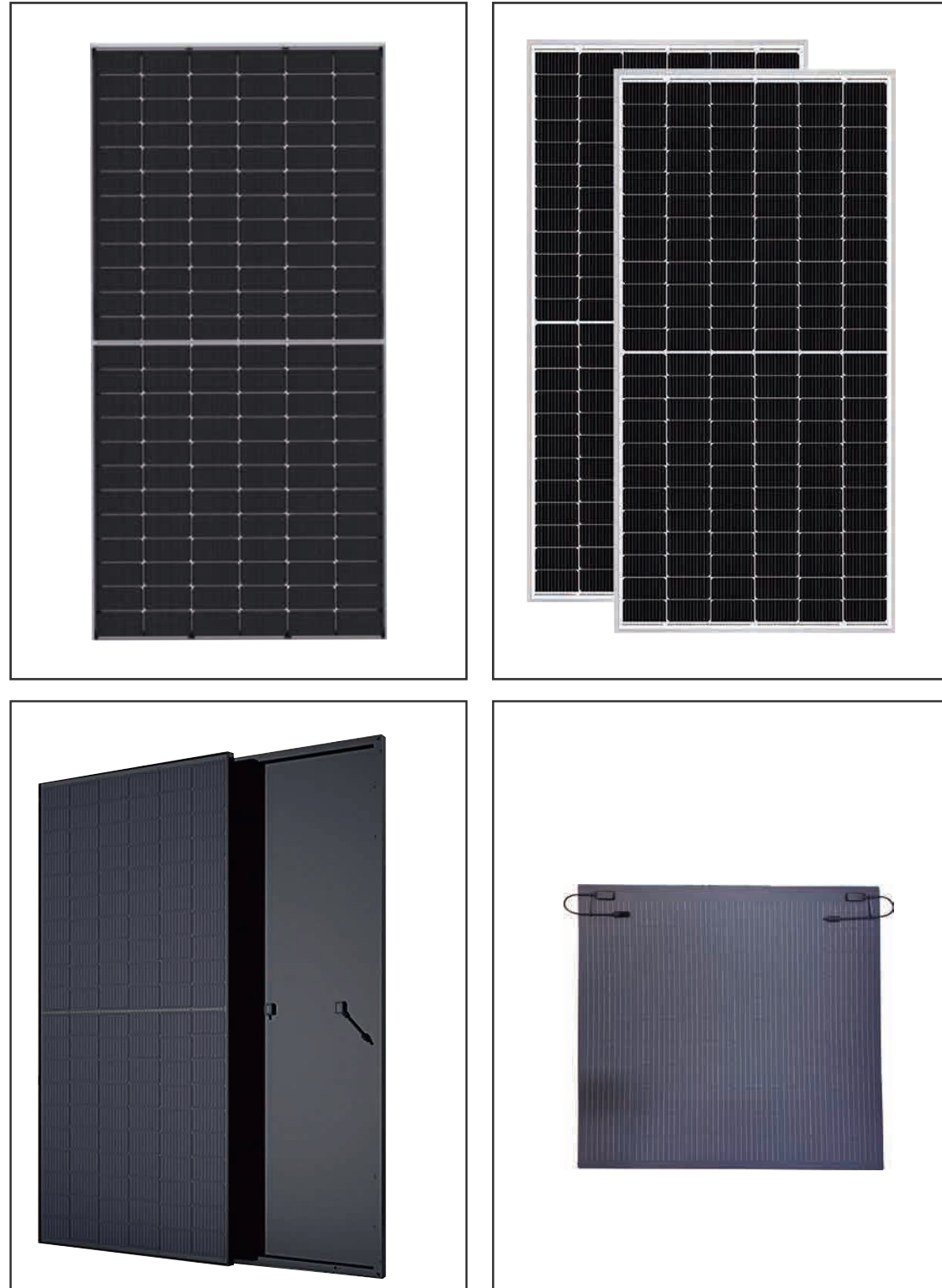
Efficient power generation

Energy saving, clean and environmental protection

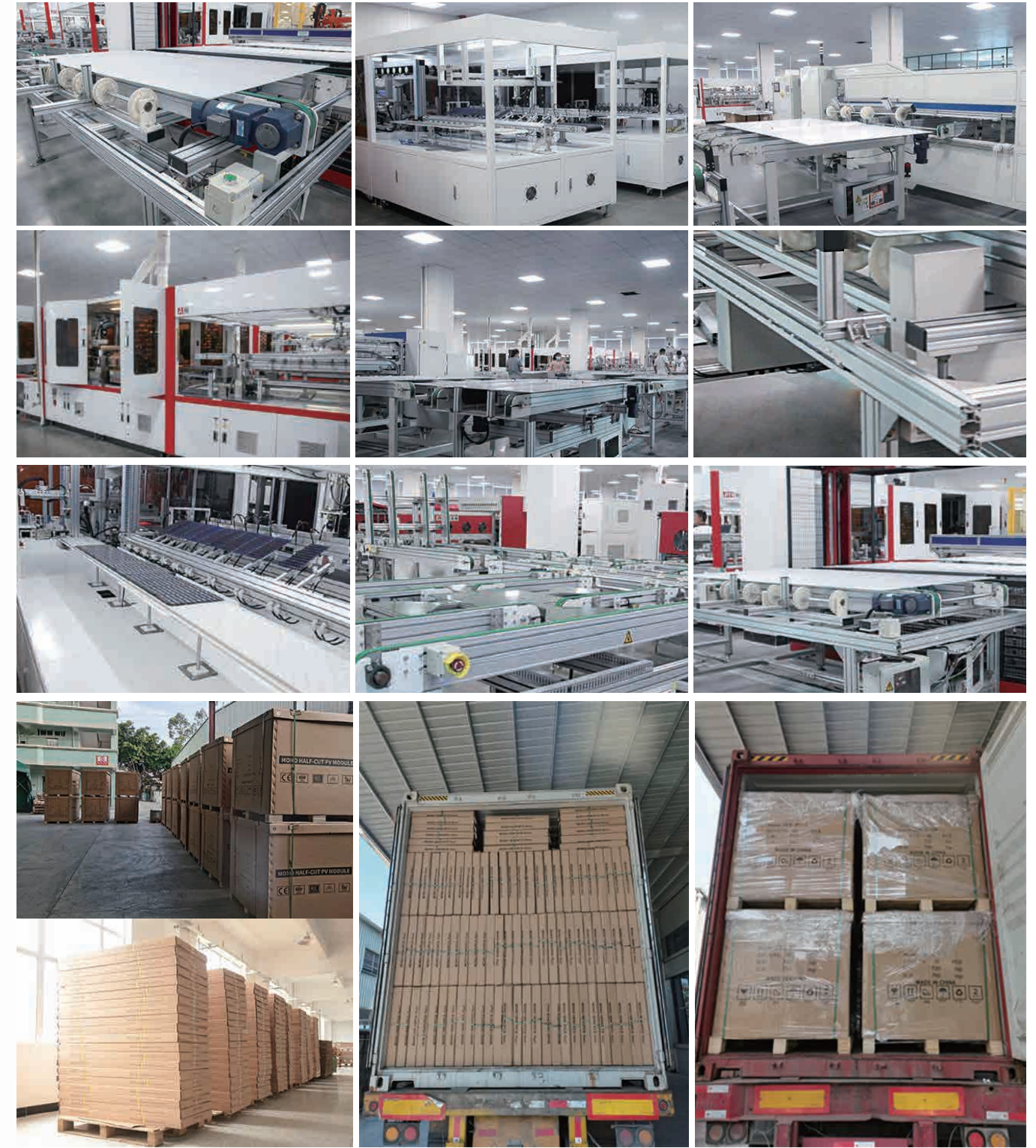




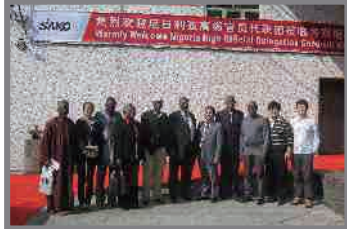
### Production and Packing Line



### Production and Packing Line



### Solar Projects



Nigeria President  
Electional Solar  
Projects  
30,000sets



SAKO Solar  
Installation  
Middle East  
Countries



SAKO Solar  
Installation  
Middle East  
Countries



Solar Building  
Roof  
Power: 100KW



Solar Pumping  
System  
Power: 54KW



Solar Home  
System Lighting  
Africa



Solar Village  
System For Life  
and Lighting



Solar Street  
Light System  
SAKO Engineer  
Commissioning

### Solar Projects



Solar Power  
Plant  
Power: 2MW



Solar Pumping  
System  
For Rural Farm



Solar Home  
System  
Government  
Projects



Africa Solar  
System  
United Nations  
Projects



Solar Power  
System  
Salvador  
Pousada Hotel



Solar Power  
System  
For High Speed  
Way



Solar System  
Installation  
For Hospital  
Organization



Solar Power  
System  
For Seaside  
Town