

Think GAIA
For Life and the Earth

SANYO

Bifacial Photovoltaic Module



HIT Double
Photovoltaic Module

IT'S TIME TO REFLECT



THE MOST POWERFUL SOLAR PANEL ON EARTH

SANYO is proud to introduce the HIT Double bifacial solar panel. Bifacial solar technology, made by SANYO, means that our solar panels are able to generate power from both sides simultaneously. With bifacial technology, customers can achieve the highest power per square foot of any solar panels in the world.

POWER FROM BOTH SIDES

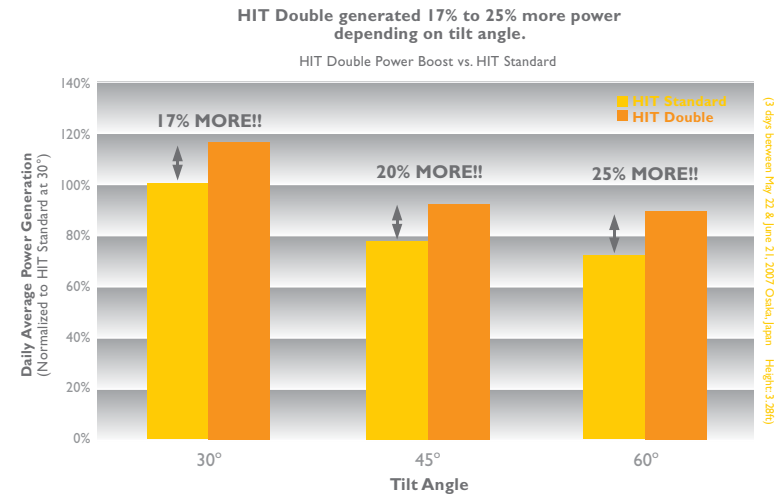
SANYO's HIT Double bifacial solar panel captures sunlight from both sides of the panel simultaneously, by using SANYO's proprietary bifacial HIT (Heterojunction with Intrinsic Thin Layer) solar cells. The solar panel has two glass layers, which allow a portion of sunlight to pass through the panel. The sunlight that has passed through the solar panel, along with the light reflected off surrounding surfaces, is captured by the back face of the panel, increasing the amount of energy produced by up to 30% compared to single-sided HIT Power solar panels.

BRILLIANT AESTHETICS

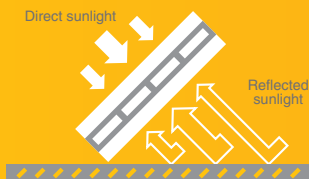
The HIT Double sets a new aesthetic standard in photovoltaic system design. With a double glass structure that allows brilliant light and shadows to shine through the panels, the solar cells truly appear to be floating in the air. Both residential and commercial customers will enjoy new architectural possibilities using the HIT Double, including awnings, canopies, trellises, carports, walkways and more!

MORE KILOWATT HOURS = MORE SAVINGS

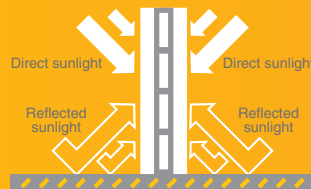
The HIT Double is designed for maximum energy performance (kWh) and is the module of choice in areas with performance-based incentive programs (PBIs or Solar RECs). Powered by SANYO's high efficiency HIT cells, the HIT Double captures the most possible sunlight, giving a quicker return on investment and an edge over competing technologies.



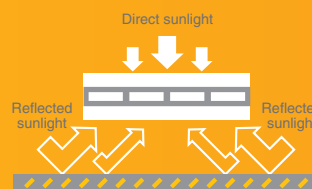
Slanted Installation



Vertical Installation



Horizontal Installation



HIT Double bifacial solar panels capture additional ambient or scattered sunlight to produce more power at any angle and any direction.

HIT Double can increase the amount of electricity produced by up to 30% compared to single-sided SANYO HIT Power panels depending on system design, location, and surface reflectance. With such high output, the HIT Double 200 watt model is the most powerful commercially available solar panel in the industry at 21.1% equivalent module efficiency and 19.6 watts per square foot, delivering 50% more power per square foot than the average solar panel.

SANYO conducted comparison tests at different angles of inclination to study the power increases achieved. At maximum bifacial effect, customers can achieve up to 30% above the HIT Double's STC rated power level. Most installations achieve between 10% and 20% with the average being a 15% gain in power. Please note that extra power will vary depending on individual site characteristics such as system design and surface reflectance.



When HIT Double produces more power, its value is unmatched. As a result of the extra power generated from the back side, HIT Double's effective price goes down. Consider the following example for illustration purposes only.



Model: HIT Double 200	BASE POWER	with 10% Bifacial Effect	with 15% Bifacial Effect	with 20% Bifacial Effect	with 25% Bifacial Effect	with 30% Bifacial Effect
Watts	200w	219w	228w	237w	246w	256w
Reduced Price Per Watt	-	-9%	-12%	-16%	-19%	-22%

Bifacial effect refers to the influence of backside irradiation on short circuit current (ISC) compared to Base Power.

THE MOST BEAUTIFUL SOLAR PANEL ON EARTH

Make your home a solar home: enjoy new possibilities with HIT Double including awnings, canopies, trellises, skylights, walkways, carports, porch and deck coverings, and more. With so many ways to go solar, the HIT Double is a favorite among home owners, designers, architects, builders and engineers. How will you go solar?



Garden Patio:
3.04kW
Phatport® designed and built by
Phat Energy
Los Angeles, CA



Rooftop Trellis:
1.95kW
Golden Energy Inc. and Jesse Bornstein
Architecture
Santa Monica, CA



Patio Awning:
11.4kW
Solar Living Design
Lakewood, CO



Carport:
2.85kW
Lumos Solarscape Carport
by Lighthouse Solar
Boulder, CO



Skylight:
380W
ENVIRO International Architects & Builders
Photo courtesy of Kodiak Greenwood
Monterey, CA



Breezeway:
44kW
El Solutions
Burbank, CA

FREQUENTLY ASKED QUESTIONS

What is HIT Double?

Bifacial solar technology, made only by SANYO, means our solar panels are able to generate power from both the front and back face of the panels simultaneously, achieving the highest power per square foot of any solar panels in the world.

What applications are best for HIT Double?

With HIT Double panels, customers can enjoy new solar applications such as awnings, canopies, trellises, carports, walkways, etc., in addition to traditional ground-mounted arrays.

What technology enables the HIT Double bifacial characteristics?

SANYO's proprietary HIT cells are bifacial by design and have a single crystalline layer surrounded by amorphous silicon thin film layers on both the top and bottom of the cell, enabling power generation from both faces. SANYO designed the HIT Double solar panel with a glass/glass construction. This unique construction allows ambient and reflected light off surrounding surfaces to be harnessed by the back face of the panel. Typically, monofacial solar panels, including SANYO's HIT Power series, have an opaque back sheet material. But with monofacial panels, unlike HIT Double bifacial panels, no extra power is generated from the back face.

How can I maximize the power of HIT Double's back face?

- 1) Elevate the panels as much as possible (at least one meter is recommended) above the ground or roof surface, allowing reflected and ambient light to be captured by the back face.
- 2) Place the panels over light-colored surfaces.
- 3) Ensure that mounting and support rails do not shade the back face.

What applications are not suitable for HIT Double solar panels?

HIT Double's superior performance cannot be realized when mounting the panels extremely close to surfaces—such as flush on a roof—because the panel itself shades the area directly beneath it and prevents light from being reflected off nearby surfaces to the back of the panel.

How much extra power can I expect from the bifacial effect?

Up to 30% above the HIT Double's STC rated power level. Most installations achieve between 10% and 20%, with the average being a 15% gain in power. Please note that extra power will vary depending on individual site characteristics such as system design and surface reflectance.

Are HIT Double panels more expensive than HIT Power panels?

Yes. HIT Double panels are approximately 10% more than HIT Power panels. Therefore, well-designed systems and sites with good surface reflectance that achieve 10% or more power gain due to the bifacial effect will actually cost less per kWh than HIT Power solar panels.

Can I use mirrors to reflect light onto HIT Double panels?

No. HIT Double solar panels are designed only to capture normally occurring ambient light beneath the panels. No mirrors, lenses, or other devices can be used in conjunction with HIT Double panels to focus or concentrate light onto the panels.

How much light shines through the solar panel?

Approximately 15% of incoming light shines through the back face, allowing the panels to be used in architectural and other aesthetic applications.

Does the HIT Double work when it snows?

Yes. Even when snow covers the front face, the solar panel can still generate power from the back face due to reflected light from snow on the ground.

Who can install HIT Double solar panels on my house or business?

Please contact SANYO's authorized representatives for a local installer in your area by visiting www.sanyo.com/solar

I am an installer, where can I purchase HIT Double mounting solutions?

Companies such as Florian Solar Products, Direct Power & Water, Uni-Rac, and others provide mounting solutions for the HIT Double.

Does the HIT Double come in a frameless or laminate version?

No. Not at this time.



SOLAR ARK

The World's Largest Monument to Solar Energy

Maximum Output

630 kW

Number of PV Modules

5046

CO² Reduction

95 Tons per Year

Weight

3,000 Metric Tons

Dimensions

315m Length, 9m Width, 37m Height

Location

Gifu, Japan

Completion Date

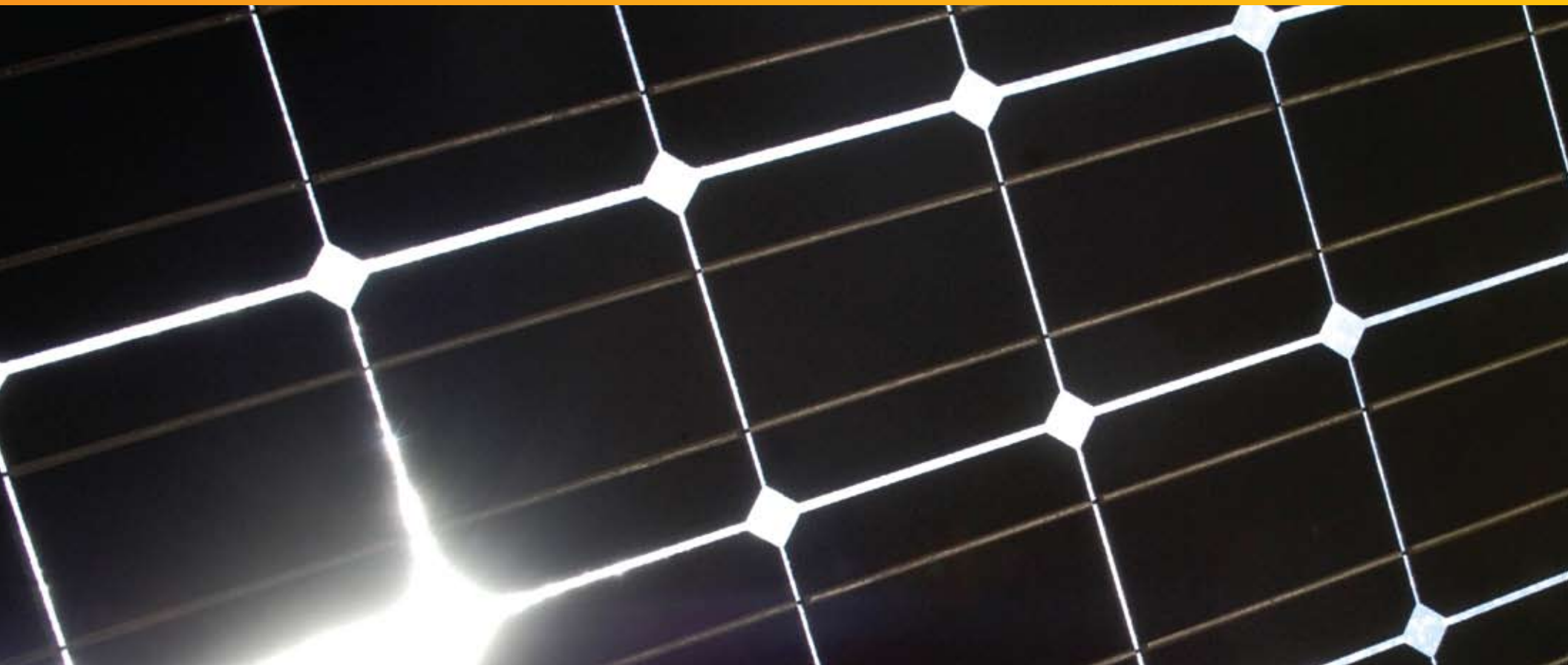
December 2001

Just what is “a prosperous life?” And what is necessary to ensure that it lasts into the future? The 21st century has been named the century of the environment. Finding solutions to environmental problems is something we cannot ignore if we want to ensure the future of mankind. What is necessary right now is to improve the awareness of each and every one of us, so we can accumulate the strength and ability needed to solve this problem. It’s also a matter of generating the wisdom needed to live in harmony with the earth.

It is because of this that we would like to work with our children—who will bear with them the responsibility for the future—to develop an empathy for both science and ecology.

With this in mind, we created the SOLAR ARK project as a place where people can feel the vital importance of the environment, as well as the enjoyment and wonder of science.

HIT Double
Photovoltaic Module



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