XMA SOLAR PANEL

XPV-585BI-43M

Monocrystalline PV Bifacial Solar Panel

Bifacial Monocrystal Solar Panel

585W / 144 cells / 43V

High efficiency monocrystalline solar cells.
N-Type With TOPCon technology
High performance with low light conditions.
For severe environmental conditions.
Manufactured with high quality components.
Doble tempered-glass Bifacial design

Monocrystall + TOPCon - Max. Power 585W (Top Face):
High efficiency Monocrystal cells

Voltage at Maximum Power

144 Cells in Series: 2x(6x12) 182*91mm type

Outstandings Features

5 Layers Lamination:
(1) Low-Iron Tempered Glass + (2) EVA +
(3) PV Cells + (4) EVA +
(5) Low-Iron Tempered Glass

Bifacial Panel, doble 2mm Low Iron Tempered Glass:
Max. Solar production, Minimal sun light reflection
Max. mechanical and environmental strength

Anodized Aluminum Frame:
Corrosion-resistance and structural strength

Connection:
4mm2 Cables with MC4 (+) (-) connectors

High temperature resistant:
Operation Range: -40 to +85ºC

Guaranteed Output Power 88%:
During first 30 years

Guaranteed Output Power 94%:
During first 10 years

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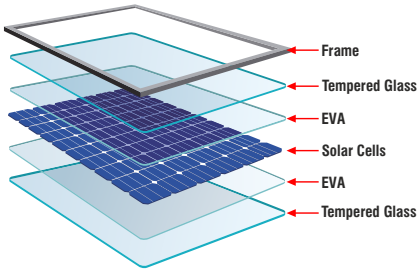
Main Features: Technology

Bifacial Solar Panel



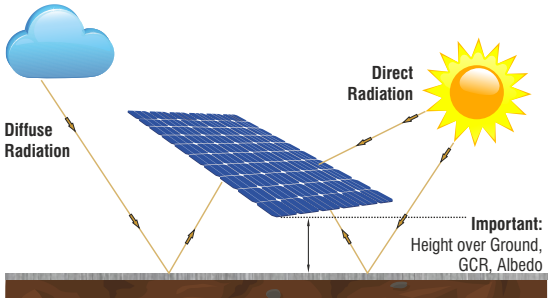
Bifacial solar panels can capture sunlight on both sides, unlike monofacial panels, which have a backsheet covering the rear side.This allows them to generate electricity from solar radiation received on both the front and rear surfaces. With sunlight on the front side alone, this model can produce up to 585W (STC*), while the rear side can contribute up to 30% additional power.

Our bifacial panels are protected on both sides by low-reflection tempered glass, which enhances photovoltaic conversion efficiency and significantly improves mechanical strength and rigidity.The dual-glass construction also provides superior resistance to humidity and UV radiation, preventing degradation over time and ensuring long-lasting durability without yellowing or aging.

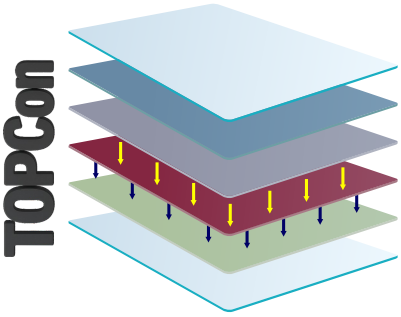
Our solar panels convert sunlight into electricity on both the front and rear sides, using both direct and diffuse radiation. This allows for highly efficient dual-side energy generation, making them ideal for optimized solar cogeneration.

These favorable conditions can be further enhanced by installation parameters such as the GCR (Ground Coverage Ratio) and panel height above ground, among other factors that we will detail later on.

In addition, N-Type cell structure and advanced TOPCon technology provide excellent resistance to Potential Induced Degradation (PID), ensuring a long service life and a high level of reliability in energy production.



TOPCon Technology. Cutting-Edge Photovoltaic Technology



TOPCon technology features an innovative rear-side cell architecture made up of ultra-thin layers that work together to boost panel performance and efficiency.

One of these layers acts as a passive shield, minimizing energy loss, while another functions as an electron filter, allowing electricity to flow more easily and with less resistance.

Although TOPCon was originally developed to enhance solar cell efficiency by replacing the traditional rear metal contact with a passivated polysilicon layer to reduce electrical loss, leaving the rear side exposed to light opened the door to bifacial cell architecture—enabling the design of our high-efficiency bifacial panels.

TOPCon significantly increases energy output, especially under real-world conditions, by reducing internal losses that limit conventional technologies. It also improves thermal behavior, maintaining higher efficiency even in hot climates or under low solar irradiance.

TOPCon transforms the panel's rear side into an active, intelligent surface, capable of harnessing light from both directions—maximizing solar capture and making bifacial panels a high-performance solution.

In addition, our cells show lower susceptibility to Light Induced Degradation (LID) and Light and Elevated Temperature Induced Degradation (LETID) compared to conventional technologies like PERC. Thanks to this enhanced durability, our solar panels feature an annual degradation rate of just 0.4%, retaining up to 88% of their original power output after 30 years.

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Main Features: Performance

Higher Operational Yield Compared to Monofacial Panels (Depending on Installation Conditions)

Bifacial Gain	Max. Panel Output (W)	Reflectivity Index	Mounting Structure Type	Detailes	Additional Conditions
≈5%	614	0.2–0.3	1-Axis Tracker	Moderate GCR Height ≈ 0.8–1.0mts	Partial rear shading, natural ground
≈10%	644	≈ 0.25	Elevated Fixed	GCR ≈ 0.3m Height ≈ 1.0–1.2mts	Good spacing (low GCR), light-colored terrain
≈15%	673	≈ 0.35	Tracker or Fixed	Clear ground (gravel, sand) Height ≈ 1.2–1.5mts	Light gravel or reflective surface
≈20%	702	≈ 0.50	Elevated Fixed or 1-Axis Tracker	Height ≈ 1.5–1.8mts	Treated ground (white concrete, reflective membrane)
25-30%	731 - 761	≈ 0.50	Fixed or Optimized Tracker	Requires proper optimization and cleaning Height ≈ 1.5–2.0mts	Requires thorough cleaning, precise GCR design
>30%	>761	≈ 0.50	2-Axis Tracker or Vertical Mounting	Cold climates / Top-tier configurations. Variable height	Extreme conditions: snow, mirror surfaces, high latitudes

Notes:

1. Approximate values depending on irradiation, surface type and condition, structure, mounting configuration, and other variables.
2. The reflectivity index (Albedo) must be maintained through regular cleaning, especially on artificially treated surfaces (painted areas, membranes, white concrete).
3. GCR: Ground Coverage Ratio – Proportion of land covered by solar modules.

TOPCon technology in our bifacial panels enables more efficient electricity generation than traditional PERC technology, representing a clear advancement over most monofacial panels.

In addition, the energy generated on the panel's rear side is added to the front-side output, significantly increasing total power generation—and therefore maximizing the benefits of our bifacial modules.

When combined with factors such as surface albedo, mounting height, GCR (Ground Coverage Ratio), or the use of single- or dual-axis trackers, the overall energy yield can improve even further—making our bifacial panels the best-performing and most advantageous solution on the market.

Standards and Directives

IEC 61215

IEC 61730

ISO 9001: 2023 - Quality Management Systems

ISO 14001: 2023 - Environmental Management Systems

ISO 45001: 2023 - Occupational Health and Safety Management Systems

Xmart by Integra

Technical Features / Características Técnicas — XMA SOLAR PANEL

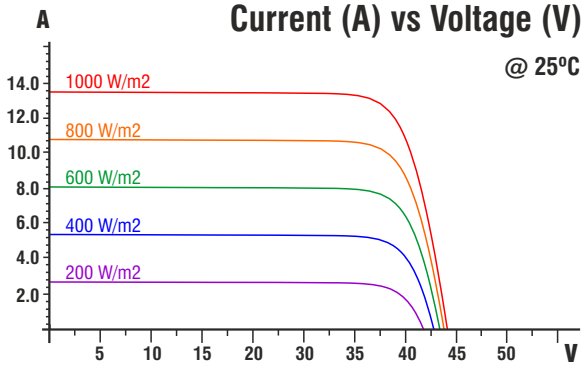
XPV-585BI-43M

Electric Specifications (STC*)

Peak power / Potencia máxima (Pmax)	585W
Cell efficiency / Eficiencia	22.70%
Max. power voltage / Voltaje a potencia max. (Vmp)	43.53V
Max. power current / Corriente a potencia max.	13.44A
Open circuit voltage / Voltaje en abierto (Voc)	52.47V
Short circuit current / Corriente de corto circuito (Isc)	14.07A
Power tolerance / Tolerancia de potencia	0 to +3%
Max. system voltage / Voltaje max. del sistema	1.500V
Max. Over Current / Sobre-Corriente Máxima	25A
Application Class	Class A

(*) Irradiance: 1000W/m2 / AM1.5G, Module T: 25ºC

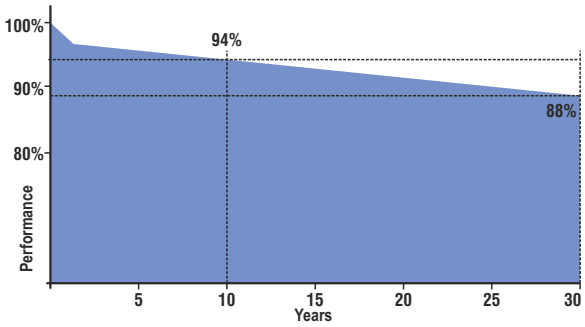
Current (A) vs Voltage (V) @ 25ºC



Temperature Characteristics

Nominal Operating Temperature / Temp. de operación (NMOT)	42 +/- 2ºC
Operating range / Rango de operación	-40 to 85ºC
Isc coeffcient / Coeficiente (a_Isc)	0.045%/ºC
Voc coefficient / Coeficiente Temp (b_Voc)	-0.275%/ºC
Pmax coefficient / Coefficiente (g_Pmax).	-0.35%/ºC

Output Power vs Years of Operation



Connections

Junction Box / Caja de conexiones	IP68, 3 bypass diodes
Connectors / Conectores	(+) & (-) MC4 compatible
Cables	4mm2 Solar Cable

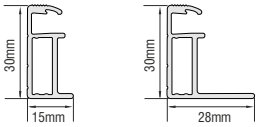
Physical Specifications

Dimensions / Tamaño	2278*1134*30mm
Weight / Peso	28Kg
Solar Cells Arrangement / Cantidad de celdas	144 : 2*(6*12)
Panel Construcción / Estructura del Panel	5 layers
Tempered Glass / Cristal Templado (EN 1096-4:2004)	Doble high transmission, low-iron Solar Glass / Doble Cristal Solar anti-reflectivo de bajo-hierro (2x 2mm)
High Mechanical Strength / Alta Resistencia Mecánica	Against Wind (2.400 Pascal), Snow (5.400 Pascal) / Contra Viento (2.400 Pascales), Nieve (5.400 Pascales)
EVA: Ethylene Vinyl Acetate (First - UL)	High light transmission + High UV Block / De alta transmisión de luz + alto bloqueo UV (0.45mm)
Solar Cells / Celdas solares (Taiwan # 1 Manufacturer)	"A" grade manufactured / Grado "A"
Junction Box / Caja de Conexión	IP68
Frame / Marco	Hight corrosion resistance anodized aluminium / Aluminio anodizado resistente a corrosión

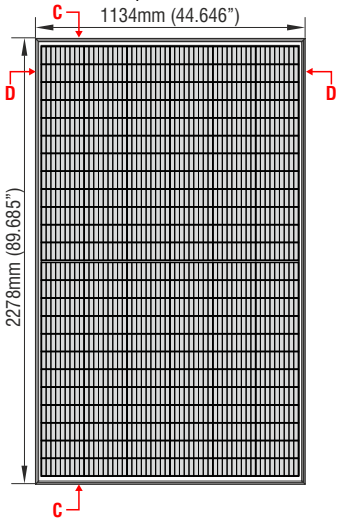
Packing

Carton: 1pc
Pallet: 36pcs
HQ 40': 20 pallets = 720pcs

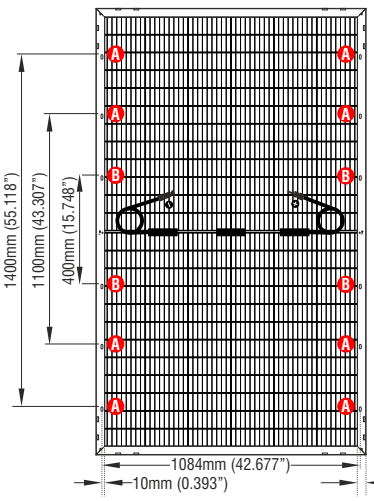
Cross-sections



TOP VIEW / VISTA SUPERIOR



BOTTOM VIEW / VISTA INFERIOR



Mounting Holes
A: 8 x ϕ9x14mm
B: 4 X ϕ7x10mm

SIDE VIEW / VISTA LATERAL