

## BIFACIAL HJT MONO CRYSTALLINE HALF CUT MODULE - DOUBLE GLASS

680 / 685 / 690 / 700 Watts





## **Overview**

Hetero Junction (HJT) photovoltaic module is a Ground breaking Technology. HJT technology guarantees high performance and low degradation of the PV module, substantially improving the results and the yield in the time. "Lion" Series module is the ideal solution for end users who want a Quality PV & reliable product over time and a fast turnaround on their investments.

# **Key Benefits**



Anti-PID & LID Technology



Higher yield per surface area



Low LCOE



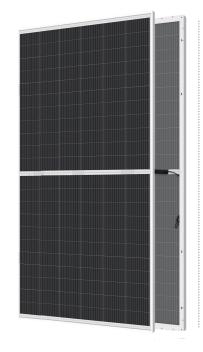
30 Years Limited Product Warranty



Low Pmax at -0,24 % / °C



Higher Light Conversion





Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance

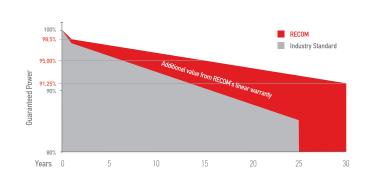


100 % electroluminescence tested

#### Tests. Certifications and Warranties

Standard Tests	IEC 61215. IEC 61730
Statitual u 185t5	IEC 01213, IEC 01730
Factory Quality Tests	ISO 9001: 2015, ISO 14001: 2015
Certifications	Conformity to CE, PV CYCLE Fire safety Class C according to UL790
Insurance	Third party liability insurance provided by Liberty Mutual
Wind and Snow Loads Testing	Module certified to withstand extreme wind (2400 Pascal) and snow loads (5400 Pascal)
Power Tolerance	Guaranteed +0%/+5% (STC condition)
Warranties	<ul> <li>30-year limited product warranty</li> <li>15-year manufacturer warranty on 95,0% of the nominal performance</li> <li>30-year transferable linear power output warranty</li> </ul>

## Linear Performance Warranty



First Year Output

**≥ 98.5**%

2-30 Year Decline

≤ 0.25%

30 Year Output

≥ **91.25**%

#### **Electrical Characteristics**

POWER CLASS (1)			680		685		690		695		700	
Testing Condition			STC (2)	NMOT (3)	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	Pmax	[Wp]	680	521,8	685	525,8	690	529,6	695	533,3	700	537,2
Maximum Power Voltage	Vmp	[V]	42,08	40,36	42,32	40,59	42,55	40,81	42,77	41,02	43,00	41,25
Maximum Power Current	Imp	[A]	16,16	12,93	16,19	12,95	16,22	12,98	16,25	13,00	16,28	13,02
Open Circuit Voltage	Voc	[V]	49,20	46,89	49,40	47,08	49,60	47,27	49,80	47,46	50,00	47,65
Short Circuit Current	Isc	[A]	17,18	13,85	17,20	13,87	17,22	13,89	17,24	13,90	17,26	13,92
Module Efficiency	Eff	[%]	21,9%		22,1%		22,2%		22,4%		22,5%	
Maximum Series Fuse	<b>I</b> R	[A]	30									
Maximum System Voltage	Vsys	[V]	1500V DC									

<sup>(1)</sup> Measurement Tolerances: Pmax ( $\pm$  3%), Isc & Voc ( $\pm$  3%) - Power Classification 0/+5W

#### Bi Facial Output (4)

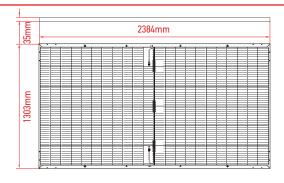
POWER CLASS			680		685		690		695		700	
			Pmax [Wp]	Eff [%]								
	+5	[%]	714,0	23,0%	719,3	23,2%	724,5	23,3%	729,8	23,5%	735,0	23,7%
Power	+10	[%]	748,0	24,1%	753,5	24,3%	759,0	24,4%	764,5	24,6%	770,0	24,8%
with Backside Gain	+15	[%]	782,0	25,2%	787,8	25,4%	793,5	25,5%	799,3	25,7%	805,0	25,9%
	+20	[%]	816,0	26,3%	822,0	26,5%	828,0	26,7%	834,0	26,8%	840,0	27,0%
	+25	[%]	850,0	27,4%	856,3	27,6%	862,5	27,8%	8,888	28,0%	875,0	28,2%
	+30	[%]	884,0	28,5%	890,5	28,7%	897,0	28,9%	903,5	29,1%	910,0	29,3%

(4) Bifaciality Factor > 90% - Back-side power gain depends upon the specific project albedo - Efficiency is according to the surface of the module

#### Mechanical Data

Dimensions	2384 mm x 1303 mm x 35 mm
Weight	38.7 Kg
Cell Type	HJT - 210mm x 105mm (2 x 66 Pcs) - G12
Front Glass	2.0 mm Tempered and low iron glass + ARC
Rear Side	2.0 mm Tempered and low iron glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68, 3 Bypass diodes
Connector	Genuine MC4 Evo2, or MC4 compatible
Output cable	4mm <sup>2</sup> - Length = 300mm or customized

#### **Dimensions**

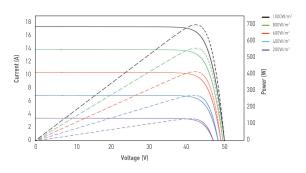


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#### I-V Curve

The module relative power loss at low light irradiance of 200W/m² is less than 3%.



### Temperature Characteristics

Pmax Temperature Coefficient	-0.24% / °C
Voc Temperature Coefficient	-0.22% / °C
Isc Temperature Coefficient	+0.047% / °C
Operating Temperature	-40~+85 °C
Nominal Operating Module Temperature (NMOT)	42 ± 2 °C

## **Packing Configuration**

Container	40°HC
Pieces per Pallet	31
Pallets per Container	17
Pieces per Container	527

<sup>(2)</sup> STC (Standard Testing Condition): Irrandiance 1000W/m², Cell Temperature 25°C, AM 1.5

<sup>(3)</sup> NMOT (Nominal Operating Module Temperature): Irrandiance 800W/m², NMOT, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s