

BIFACIAL HJT MONO CRYSTALLINE HALF CUT MODULE – DOUBLE GLASS

440 / 445 / 450 / 455 / 460 Watts

Lion Series



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



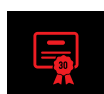
Anti-PID & LID Technology



Higher yield per surface area



Low LCOE



30 Years Limited Product Warranty



Low Pmax at $-0,24\%$ / $^{\circ}\text{C}$



Higher Light Conversion



Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance

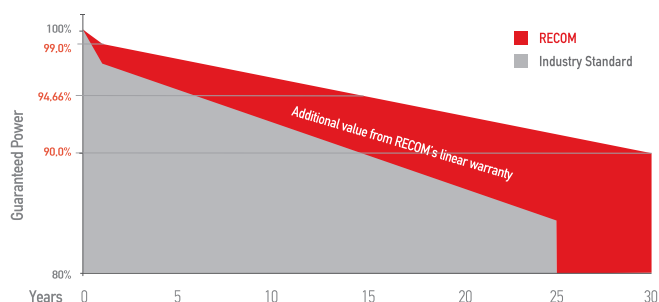


100 % electro-luminescence tested

Tests, Certifications and Warranties

Standard Tests	IEC 61215, IEC 61730
Factory Quality Tests	ISO 9001: 2015, ISO 14001: 2015
Certifications	Conformity to CE, PV CYCLE Fire safety Class A according to UL790
Wind and Snow Loads Testing	Module certified to withstand extreme wind (2400 Pascal) and snow loads (5400 Pascal)
Power Tolerance	Guaranteed $+0/+5\text{W}$ (STC condition)
Warranties	• 30-year limited product warranty • 15-year manufacturer warranty on 94,66% of the nominal performance • 30-year transferable linear power output warranty

Linear Performance Warranty



First Year Output	$\geq 99.0\%$	2-30 Year Decline	$\leq 0.31\%$	30 Year Output	$\geq 90.0\%$
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Lion

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RCM-xxx-RDBHAA (xxx=440-460)

Electrical Characteristics

POWER CLASS ⁽¹⁾			440		445		450		455		460	
Testing Condition			STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	Pmax	[Wp]	440	335	445	338	450	342	455	346	460	350
Maximum Power Voltage	Vmp	[V]	30,43	28,91	30,66	29,11	30,88	29,30	31,10	29,51	31,30	29,71
Maximum Power Current	Imp	[A]	14,47	11,58	14,53	11,62	14,60	11,68	14,66	11,73	14,72	11,78
Open Circuit Voltage	Voc	[V]	36,68	35,01	36,95	35,27	37,22	35,52	37,47	35,77	37,72	36,00
Short Circuit Current	Isc	[A]	15,62	12,21	15,30	12,24	15,36	12,29	15,41	12,33	15,45	12,36
Module Efficiency	Eff	[%]	22,02		22,27		22,52		22,77		23,02	
Maximum Series Fuse	IR	[A]	30									
Maximum System Voltage	Vsys	[V]	1500V DC (IEC)									

(1) Measurement Tolerances: P_{max} (± 3%), I_{sc} & V_{oc} (± 3%) - Power Classification 0/+5W

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

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

Bi Facial Output (4)

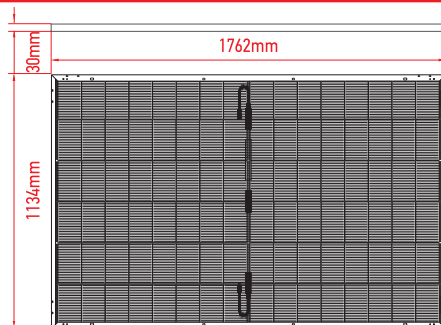
POWER CLASS			440		445		450		455		460	
			P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]
Power with Backside Gain	+5	[%]	462,0	23,1%	467,3	23,4%	472,5	23,6%	477,8	23,9%	483,0	24,2%
	+10	[%]	484,0	24,2%	489,5	24,5%	495,0	24,8%	500,5	25,0%	506,0	25,3%
	+15	[%]	506,0	25,3%	511,8	25,6%	517,5	25,9%	523,3	26,2%	529,0	26,5%
	+20	[%]	528,0	26,4%	534,0	26,7%	540,0	27,0%	546,0	27,3%	552,0	27,6%
	+25	[%]	550,0	27,5%	556,3	27,8%	562,5	28,2%	568,8	28,5%	575,0	28,8%
	+30	[%]	572,0	28,6%	578,5	29,0%	585,0	29,3%	591,5	29,6%	598,0	29,9%

(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	1762 mm x 1134 mm x 30 mm
Weight	23.0 Kg
Cell Type	HJT - 182mm x 105mm (2 x 48 Pcs) - G12R
Front Glass	1.6 mm Tempered and low iron glass + ARC
Rear Side	1.6 mm Tempered and low iron glass
Frame	Anodized Aluminium Alloy (Black)
Junction Box	IP68, 3 Bypass diodes
Connector	Genuine MC4 or MC4 compatible
Output cable	4mm ² - Length = 300mm or customized

Dimensions

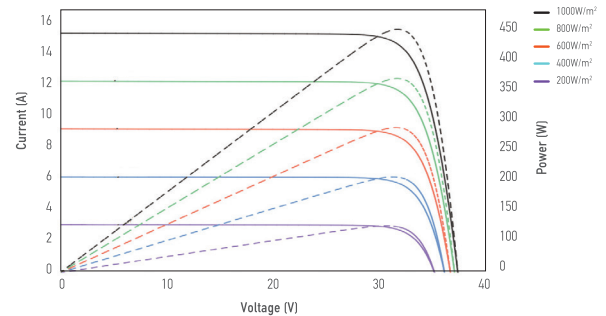


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I-V Curve

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



Temperature Characteristics

P _{max} Temperature Coefficient	-0.26% / °C
V _{oc} Temperature Coefficient	-0.24% / °C
I _{sc} Temperature Coefficient	+0.04% / °C
Operating Temperature	-40~+85 °C
Nominal Operating Module Temperature (NMOT)	42 ± 2 °C

Packing Configuration

Container	40' HC
Pieces per Pallet	36
Pallets per Container	26
Pieces per Container	(36+36)x13=936 pcs

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