

## N-TYPE MONOCRYSTALLINE HALF-CUT MODULE -BACK CONTACT TECHNOLOGY - TECHNOLOGY

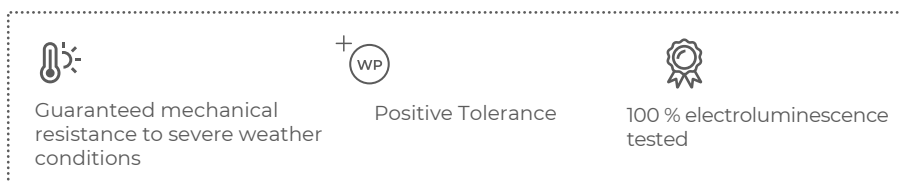
440 / 445 / 450 / 455 / 460 / 465 / 470 Watts



### Half-Cut BackContact Series

#### Overview

BackContact modules provide numerous benefits to customers seeking a high-quality product with exceptional performance and aesthetic, captivating design. The "BackContact" module utilizes N-Type cell technology in conjunction with a rear connection method known as BackContact. As a result, there is 0% front grid shadow loss, which increases the PV module's yield. Due to reduced shading on the front of the cell, the module maximizes total cell area realizing higher efficiency and resulting in a fast return on investment.



#### Key benefits



Zero Light Induced Degradation



0% Front Grid Shading Loss



Low LCOE



30 Years Limited Product Warranty



Low Pmax Temperature Coefficient



Higher Light Conversion

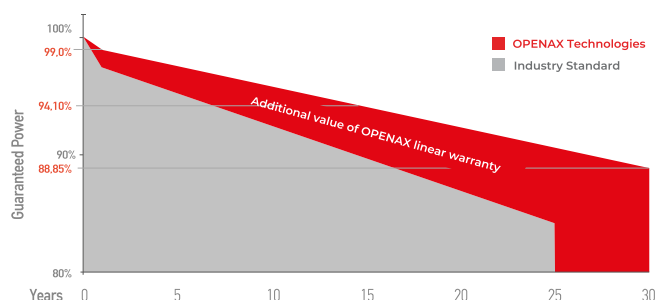
#### Tests, Certifications and Guarantees

<b>Standard tests</b>	IEC 61215, IEC 61730
<b>Factory quality testing</b>	ISO 9001: 2015, ISO 14001: 2015
<b>Certifications</b>	Conformity to CE, PV CYCLE Fire safety Class C according to UL790
<b>Wind and Snow Loads Testing</b>	Module certified to withstand extreme wind [2400 Pascal] and snow loads [5400 Pascal]
<b>Withstanding Hail</b>	Maximum Diameter of 25 mm with impact speed of 23 m/s

<b>Power Tolerance</b>	Guaranteed +0/+5W [STC condition]
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<b>Warranties</b>	<ul style="list-style-type: none"> <li>✓ 30-year limited product warranty</li> <li>✓ 15-year manufacturer warranty on 94, 10% of the nominal performance</li> <li>✓ Linear power output guarantee over 30 years</li> </ul>
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#### Linear performance guarantees



Production 1st year	≥ 99.0%	Power between 2 and 25 years	≤ 0.35%	Power output at 25 years	≥ 88.85%
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## Electrical performance

POWER CLASS <sup>(1)</sup>			440		445		450		455		460		465		470	
Measurement condition			STC <sup>(2)</sup>	NMOT <sup>(3)</sup>	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum power	P <sub>max</sub>	[Wp]	440	331	445	335	450	339	455	343	460	346	465	350	470	358
Voltage at P <sub>max</sub>	V <sub>mp</sub>	[V]	34,38	32,47	34,44	32,52	34,50	32,58	34,56	32,64	34,62	32,69	34,68	32,75	34,74	32,786
Current at P <sub>max</sub>	I <sub>mp</sub>	[A]	12,80	10,22	12,93	10,32	13,05	10,41	13,17	10,51	13,29	10,61	13,41	10,71	13,54	10,90
Open Circuit Voltage	V <sub>oc</sub>	[V]	40,82	38,55	40,88	38,60	40,94	38,66	41,00	38,72	41,06	38,77	41,12	38,83	41,18	38,94
Short circuit current	I <sub>sc</sub>	[A]	13,92	11,26	14,02	11,34	14,12	11,42	14,22	11,50	14,25	11,52	14,29	11,55	14,32	11,60
Surface efficiency	Eff	[%]	22,1		22,3		22,6		22,8		23,1		23,3		23,5	
Max. Reverse Current	I <sub>r</sub>	[A]	25													
System voltage max	V <sub>sys</sub>	[V]	1500 CD (IEC)													

(1) Measurement tolerances: P<sub>max</sub> (± 3%), I<sub>sc</sub> & V<sub>oc</sub> (± 3%) - Power classification 0/+5W

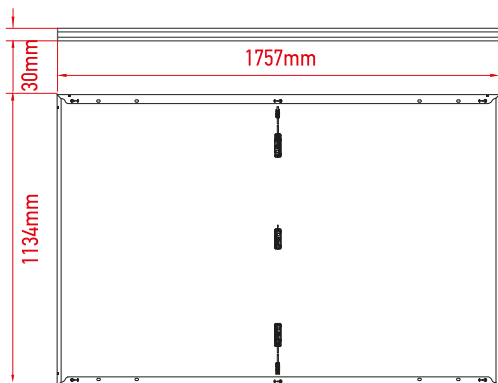
(2) STC (Standard Test Conditions): Irradiance 1000W/m<sup>2</sup> Cell Temperature 25°C, AM 1.5

(3) NMOT (Nominal Module Operating Temperature): Irradiance 800W/m<sup>2</sup> Ambient Temperature 20°C, AM

## Mechanical characteristics

Dimensions	1757mm x 1134 x 30mm
Weight	21.5 Kg
Cells	N-Type 182mm x 91mm (2x54 Pcs) - G10
Front panel	3.2mm Tempered and low iron glass + ARC
Rear panel	Anti-aging film (Black)
Frame	Anodized aluminum alloy (Black)
Junction box	IP68 - 3 Bypass Diodes
Connectors	Compatible MC - EVO2
Cables	Cross-section: 4 mm <sup>2</sup> - Length: 1200mm or can be customized

## Dimensions



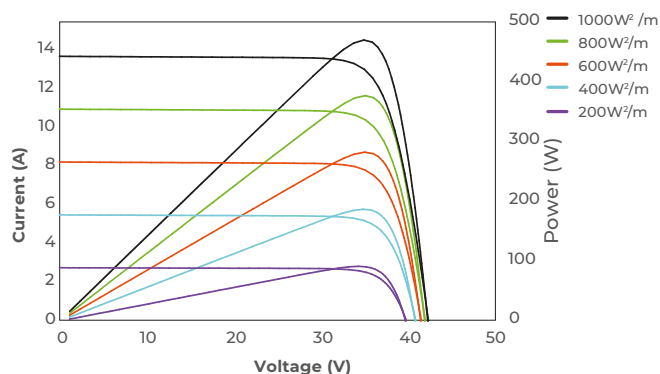
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## I-V curve

Power loss in low-light environments: 200W/m<sup>2</sup> is less than 3%.



## Thermal coefficients

Coeff./ P <sub>max</sub>	-0.26% / °C
Coeff./ V <sub>oc</sub>	-0.22% / °C
Coeff./ I <sub>sc</sub>	+0.05% / °C
Operating temperature	-40~+85 °C
Nominal module operating temperature (NMOT)	42 ± 2 °C

## Packaging configuration

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