

# N-TYPE MONO CRYSTALLINE HALF CUT MODULE - BACK CONTACT TECHNOLOGY - DOUBLE GLASS

445 / 450 / 455 / 460 Watts

## BLACK TIGER SERIES



### Overview

Black Tiger modules provide numerous benefits to customers seeking a high-quality product with exceptional performance and aesthetic, captivating design. The "Black Tiger" 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.



Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance



100 % electro-luminescence tested

### Key Benefits



Zero Light Induced Degradation



30 Years Limited Product Warranty



0% Front Grid Shading Loss



Low Pmax Temperature Coefficient



Low LCOE

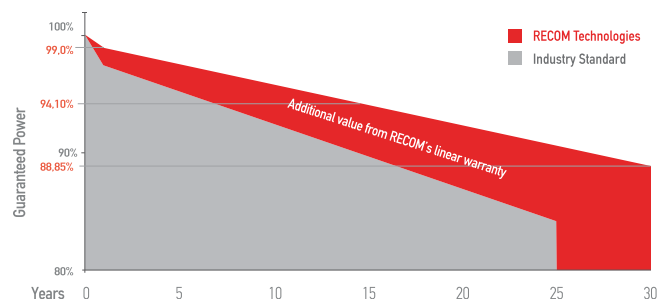


Higher Light Conversion

### 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 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)
Withstanding Hail	Maximum Diameter of 25 mm with impact speed of 23 m/s
Power Tolerance	Guaranteed +0/+5W (STC condition)
Warranties	<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>• 30-year transferable linear power output warranty</li> </ul>

### Linear Performance Warranty



First Year Output  $\geq 99.0\%$     2-30 Year Decline  $\leq 0.35\%$     30 Year Output  $\geq 88,85\%$

# Black Tiger

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RCM-xxx-7DRCG (xxx=445-460)

### Electrical Characteristics

POWER CLASS <sup>(1)</sup>			445		450		455		460	
Testing Condition			STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	P <sub>max</sub>	[Wp]	445	336	450	339	455	343	460	347
Maximum Power Voltage	V <sub>mp</sub>	[V]	33.59	31.64	33.69	31.73	33.79	31.83	33.89	31.92
Maximum Power Current	I <sub>mp</sub>	[A]	13.25	10.62	13.36	10.71	13.47	10.79	13.58	10.88
Open Circuit Voltage	V <sub>oc</sub>	[V]	39.95	37.63	40.05	37.72	40.15	37.82	40.25	37.91
Short Circuit Current	I <sub>sc</sub>	[A]	13.81	11.20	13.87	11.25	13.93	11.29	13.99	11.34
Module Efficiency	Eff	[%]	22,8		23,0		23,3		23,6	
Maximum Series Fuse	I <sub>R</sub>	[A]	25							
Maximum System Voltage	V <sub>sys</sub>	[V]	1500V DC (IEC)							

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

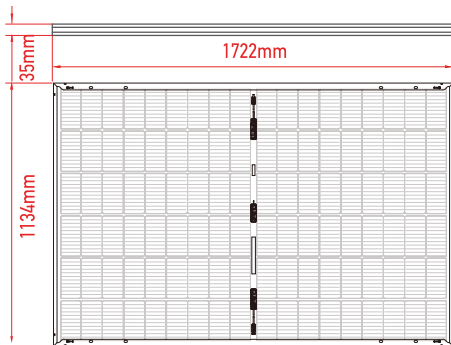
(2) STC (Standard Testing Condition): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM 1.5

(3) NMOT (Nominal Operating Module Temperature): Irradiance 800W/m<sup>2</sup>, NMOT, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s

### Mechanical Data

Dimensions	1722 mm x 1134 mm x 30 mm
Weight	24,0 Kg (±3 %)
Cell Type	RC-N-Type - 182mm x 91mm (2 x 54 Pcs) - G10
Front Glass	2.0 mm Tempered and low iron glass + Anti Reflective Coating
Rear Side	2.0 mm Tempered and low iron glass
Frame	Anodized Aluminium Alloy (Black)
Junction Box	IP68, 3 Bypass diodes
Connector	MC4/EVO2 compatible
Output cable	4mm <sup>2</sup> - Length: 1200 mm or can be customized

### Dimensions

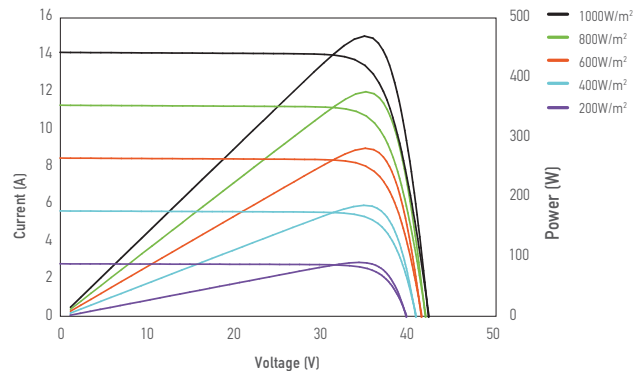


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### I-V Curve

The module relative power loss at low light irradiance of 200W/m<sup>2</sup> is less than 3%.



### Temperature Characteristics

P <sub>max</sub> Temperature Coefficient	-0.29% / °C
V <sub>oc</sub> Temperature Coefficient	-0.24% / °C
I <sub>sc</sub> Temperature Coefficient	+0.05% / °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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