

EN182/94RN-108D- 450/455/460/465/470/475W

Bifacial Dual Glass TOPCON Monocrystalline Solar Module 108 Half-cell Series

ABOUT ECONESS ENERGY

Established in 2009, Econess Energy is engaged in PV power station development and PV module production. With current annual production capacity of 12GW modules, Econess Energy now distributes its PV products all over the world, such as Germany, Spain, Italy, France, India, Japan etc. As a strong, bankable partner, we are committed to building strategic, mutually beneficial collaboration with installers and developers.



KEY FEATURES

- 
Multi Busbar Technology
 Better light trapping and current collection to improve module power output and reliability
- 
Bifacial power generation
 Bifacial cell technology, 5% to 25% more yield depends on different conditions
- 
Lower temperature coefficients
 Enhance power generation
- 
Enhanced Mechanical Load
 Certified to withstand: wind load (2400 Pa) and snow load (5400 Pa)
- 
IP68 junction box
 High waterproof level
- 
High customer value
 Lower BOS cost and LCOE

SYSTEM & PRODUCT CERTIFICATES

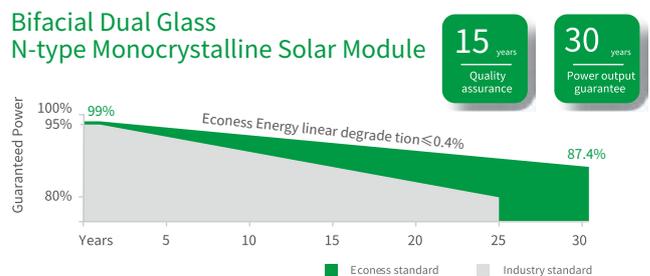
- IEC 61215 / IEC 61730
- IEC 61701 / IEC 62804
- ISO 9001 : 2015 Quality Management System
- ISO 14001 : 2015 Environment Mangement System
- ISO 45001 : 2018 Occupational Health and Safety Management System



QUALITY WARRANTY

Econess Energy guarantees that defects will not appear in materials and workmanship defined by IEC61215 or IEC61730 under normal installation, use and maintenance as specified in Econess Energy's installation manual for 15 years from the warranty starting date.

PERFORMANCE WARRANTY



ELECTRICAL PARAMETERS

Performance at STC (Power Tolerance 0 - +5w)

Maximum Power(Pmax/W)	450	455	460	465	470	475
Operating Voltage (Vmpp/V)	32.83	33.00	33.18	33.36	33.54	33.72
Operating Current(Imp/A)	13.71	13.79	13.87	13.95	14.03	14.11
Open-Circuit Voltage (Voc/V)	39.30	39.50	39.70	39.90	40.10	40.30
Short-Circuit Current(Isc/A)	14.48	14.56	14.64	14.72	14.80	14.88
Module Efficiency η_m (%)	22.52	22.77	23.02	23.27	23.52	23.77

Performance at BNPI

Maximum Power(Pmax/W)	499	504	510	515	521	526
Operating Voltage (Vmpp/V)	32.98	33.15	33.33	33.51	33.69	33.87
Operating Current(Imp/A)	15.12	15.21	15.29	15.38	15.46	15.54
Open-Circuit Voltage (Voc/V)	39.45	39.65	39.85	40.05	40.25	40.45
Short-Circuit Current(Isc/A)	16.04	16.13	16.22	16.31	16.40	16.49

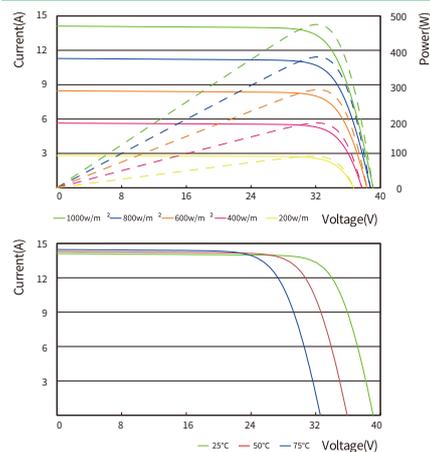
STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5

BNPI: Efront =1000W/m², Erear =135W/m²

MECHANICAL SPECIFICATION

Cell Arrangement	108[2 x (9 x 6)], 182 x188 mm
Weight	22 kg(48.50 lb)
Module Dimensions	1762x1134 x 30mm(69.37 x 44.65 x 1.18 inch)
Cable	300mm (11.81 inch) · 4 mm ² (0.006 sq.in)
Front Glass	2.0 mm High Transmission, Tempered Glass
Packing Configuration	36pcs/Pallet, 936pcs/40hq
Frame	Anodized aluminum alloy or customizable composite frame
Junction Box	IP68

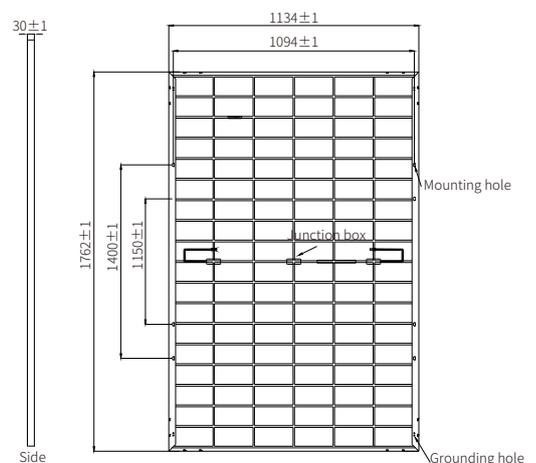
I-V CURVE



OPERATING CONDITIONS

Maximum System Voltage	1500V (IEC/UL) DC
Operating Temp	-40°C ~ +85°C
Maximum Fuse Rating	30 A
Static Loading	5400 Pa
Connector	MC4 Compatible

TECHNICAL DRAWINGS (mm)



TEMPERATURE COEFFICIENT

Temperature Coefficient(Pmax)	-0.30%/°C
Temperature Coefficient(Voc)	-0.26%/°C
Temperature Coefficient(Isc)	+0.046%/°C
NOCT	45±2°C