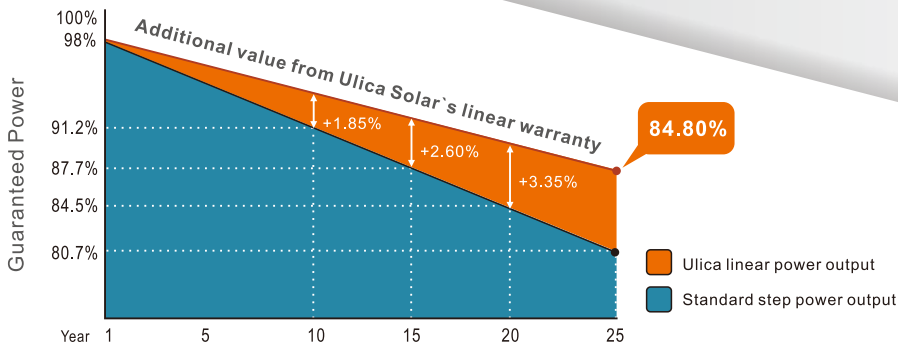
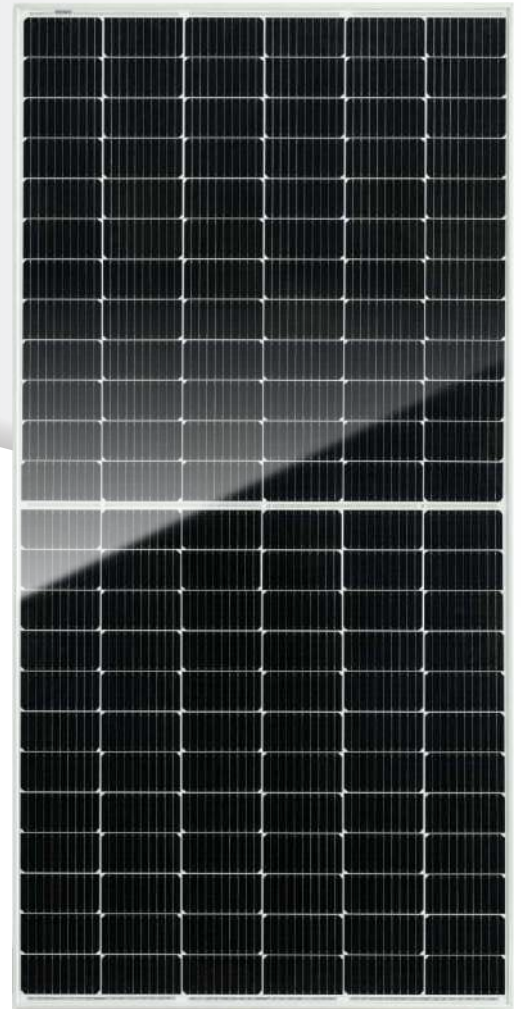


MONO HALF-CUT MODULE

UL-450 | 455 | 460M-144HV

450W-460W 1500V MBB 166mm cell



Global Tier 1 brand as announced by Bloomberg NEF



Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient



Outstanding mechanical load resistance
3800 Pa wind load, 5400 Pa snow load



Anti-PID (potential induced degradation)
Passed anti-PID test under 85% damp heat, 85% relative humidity for 96 hours



Great Durability against extreme conditions
Passed salt mist corrosion test, ammonia corrosion test, dust & sand test, fire test, all certified by TUV



About Ulica Solar: As member of Shanshan Group (stock code: 600884) which is TOP500 Enterprise in China, Ulica Solar is the leading manufacturer of solar cells and solar panels in China since 2005, and has been continuously listed as the Tier 1 PV Module Manufacturer from Q1 2020 by Bloomberg NEF, with the annual capacity of 3GW, and own investment projects of 300MW.

ELECTRICAL PERFORMANCE

Electrical Parameters Standard Test Conditions

Module Type	UL-450M-144HV			UL-455M-144HV	UL-460M-144HV
Power Output	P _{max}	W	450	455	460
Power Tolerance	ΔP _{max}	W	0/+5W		
Module Efficiency	η _m	%	20.70	20.93	21.16
Voltage at P _{max}	V _m	V	41.0	41.1	41.2
Current at P _{max}	I _m	A	10.98	11.07	11.17
Open-Circuit Voltage	V _{oc}	V	49.8	49.9	50.0
Short-Circuit Current	I _{sc}	A	11.55	11.64	11.74

STC:1000W/m² irradiance,25C module temperature,AM1.5

THERMAL CHARACTERISTICS

Nominal Operating Cell Temperature	NOCT	°C	43±2
Temperature Coefficient of P _{max}	γ	%/°C	-0.340
Temperature Coefficient of V _{oc}	β _{voc}	%/°C	-0.290
Temperature Coefficient of I _{sc}	α _{isc}	%/°C	+0.049

OPERATING CONDITIONS

Max.System Voltage	DC1500V
Max.Series Fuse Rating	20A
Operating Temperature Range	-40°C~85°C
Max static snow load	5400Pa
Max static wind load	3800Pa
Application Class	A

CONSTRUCTION MATERIALS

Front Cover(material/type/thickness)	low-iron tempered glass/3.2mm
Cell(quantity/material/type/dimension)	144/monocrystalline/166X83mm
Encapsulant(material)	ethylene vinyl acetate(EVA)
Frame(material/anodization color)	anodized aluminum alloy/silver or black
Junction Box(protection degree)	IP68
Cable(length/cross-sectionalarea)	4mm ² Landscape: (+) 1300mm/(-)1300 mm Portrait: (+)400 mm/(-) 200mm
Plug Connector	MC4 compatible

GENERAL CHARACTERISTICS

Dimension(L/W/H)	2094/1038/35mm
Weight	23.3kg

PACKING CONFIGURATION

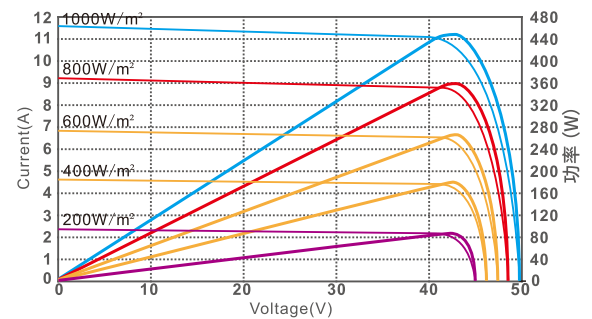
Pallet Size(L/W/H)	2134/1130/2350mm
Pallet Weight	1526kg
Pieces per Pallet	62pcs
Pieces per Container	682pcs

INTERNATIONAL CERTIFICATES

- IEC 61215, IEC 61730
- ISO 9001: 2015(Quality management systems)
- ISO 14001: 2015 (Environmental management systems)
- ISO 45001: 2018 (Occupational health and safety)
- UNI 9177 la CLASSE DI REAZIONE AL FUOCO:1

I-V CURVE

I-V characteristics at different irradiances



I-V characteristics at different temperature

