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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**Ningbo Ulica Solar Science & Technology Co., Ltd.**

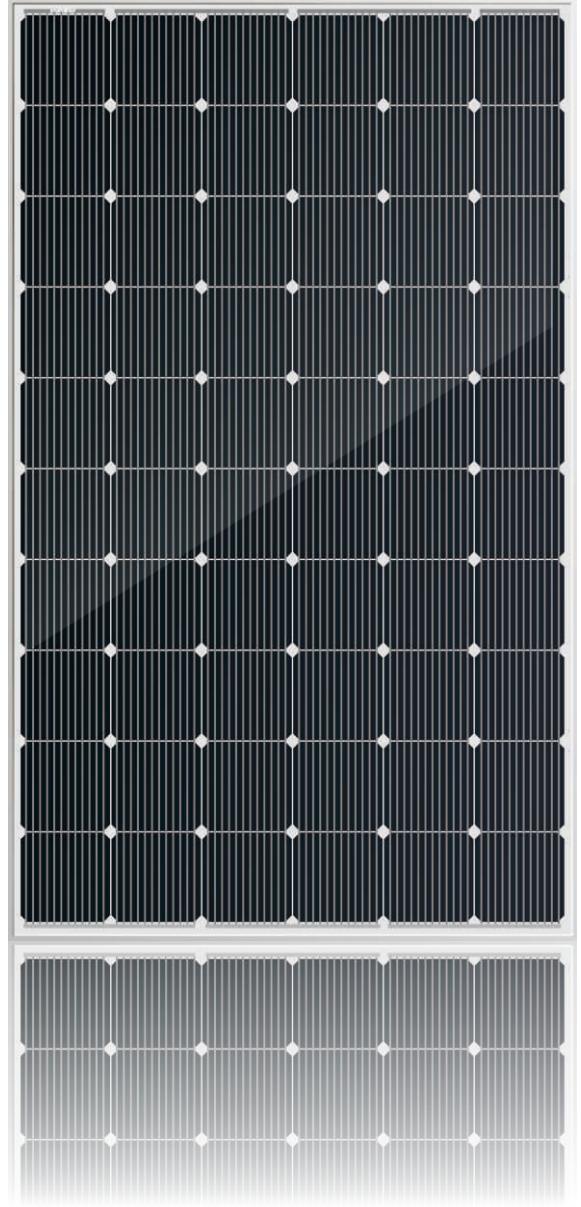
**UL-310-325M-60MBB**

**UL-325M-60MBB**

Also available on the web at  
[EnergyPal.com/ningbo-ulica-solar-science-technology-co-ltd-solar-panels/ul-325m-60mbb](http://EnergyPal.com/ningbo-ulica-solar-science-technology-co-ltd-solar-panels/ul-325m-60mbb)

Ulica Solar is a subsidiary of Shanshan Co.,Ltd(SH.600884), Top 500 Enterprise in China. Ulica designs and manufactures high-quality solar cells and panels starting from August 2005. Its product line covers both mono and poly crystalline models, suitable for full range of projects from off-grid to on-grid, from residential to commercial.

**MONO 60CELL 12BB**



**12 Busbar (MBB) Module**  
Main busbar redesigned, more cell area, reduced power loss



**Positive power tolerance (0~+5W)**



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



**High performance under low light**  
Works at cloudy, rainy days



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



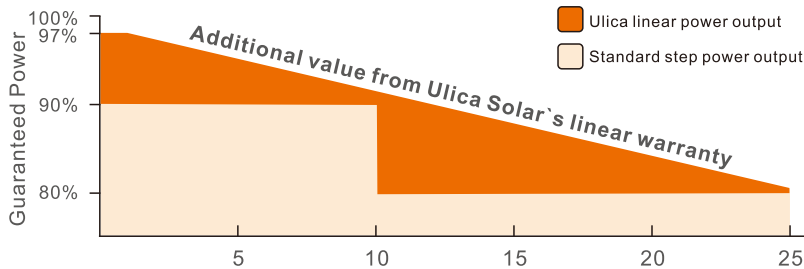
**Great Durability against extreme conditions**  
Passed salt mist corrosion test, ammonia corrosion test, dust & sand test, fire test, all certified by TUV



**Double electroluminescence (EL) tests**  
Carefully inspected before and after lamination to guarantee fault-free modules



**World famous insurance**  
CHUBB(USA), Solar Insurance&Finance(Netherlands)



**12-year product warranty**  
**25-year linear power warranty**



# MONO 310W/315W/320W/325W

## ELECTRICAL PERFORMANCE

Electrical Parameters Standard Test Conditions

Module Type			UL-310M-60MBB	UL-315M-60MBB	UL-320M-60MBB	UL-325M-60MBB
Power Output	P <sub>max</sub>	W	310	315	320	325
Power Tolerance	ΔP <sub>max</sub>	W	0/+5W			
Module Efficiency	η <sub>m</sub>	%	18.94	19.24	19.55	19.86
Voltage at P <sub>max</sub>	V <sub>m</sub>	V	32.9	33.1	33.2	33.4
Current at P <sub>max</sub>	I <sub>m</sub>	A	9.42	9.52	9.64	9.73
Open-Circuit Voltage	V <sub>oc</sub>	V	40.4	40.6	40.7	40.9
Short-Circuit Current	I <sub>sc</sub>	A	9.83	9.93	10.05	10.15

STC: 1000w/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5 spectrum.

## THERMAL CHARACTERISTICS

Nominal Operating Cell Temperature	NOCT	°C	45±2
Temperature Coefficient of P <sub>max</sub>	γ	%/°C	-0.390
Temperature Coefficient of V <sub>oc</sub>	β <sub>voc</sub>	%/°C	-0.290
Temperature Coefficient of I <sub>sc</sub>	α <sub>isc</sub>	%/°C	+0.049

## OPERATING CONDITIONS

Max. System Voltage	1000V/1500V
Max. Series Fuse Rating	15A
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)	60/monocrystalline/ 156.75x156.75mm
Encapsulant(material)	ethylene vinyl acetate(EVA)
Frame(material/anodization color)	anodized aluminum alloy/silver or black
Junction Box(Protection degree)	IP67
Cable(length/cross-sectional area)	900mm/4mm <sup>2</sup>
Plug Connector	MC4 compatible

## GENERAL CHARACTERISTICS

Dimension(L/W/H)	1650/992/35mm
Weight	18kg

## PACKING CONFIGURATION

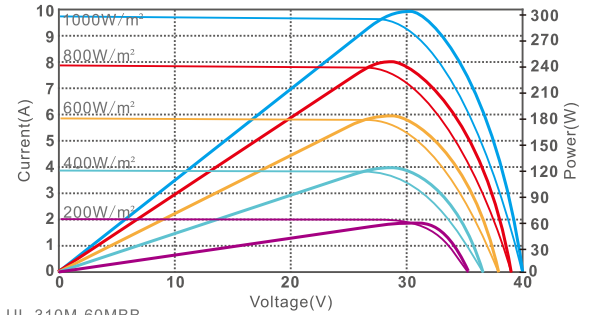
Pallet Size(L/W/H)	1690/1100/2426mm
Pallet Weight	1230kg
Pieces per Pallet	64pcs
Pieces per Container	896pcs

## INTERNATIONAL CERTIFICATES

- TÜV SÜD, TÜV NORD, UL, CE, JET, CEC, MCS, CQC, IMERTRO, NRE, KS
- ISO9001:2015
- ISO14001:2015
- BS OHSAS 18001:2007

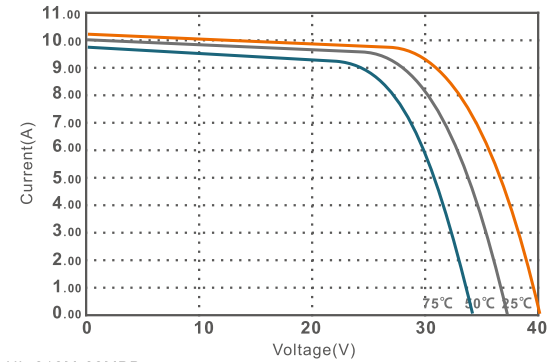
## I-V CURVE

I-V characteristics at different irradiances

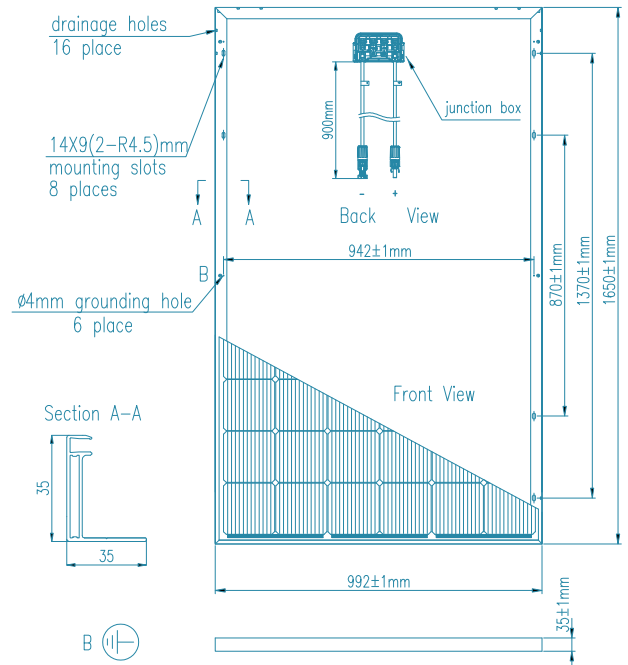


UL-310M-60MBB

I-V characteristics at different temperature



UL-310M-60MBB



Please read the instruction entirely before handling, installing and operating Ulica Solar modules.

Due to continuous research and development, the specification is subject to change without prior notice.