

Harvest the Sunshine

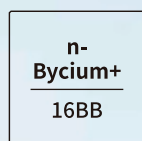
JA SOLAR

445W



JAM54D41 MB Black Module n-type Double Glass Bifacial Modules

Premium Cells



MBB Half-Cell
Technology

26%



Cell Conversion
Efficiency

Premium Modules



Higher power
generation better LCOE



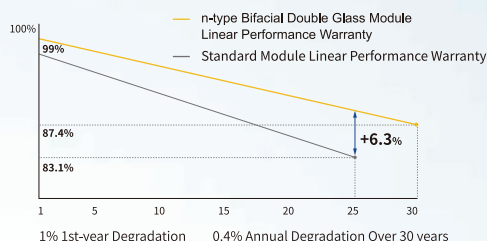
n-type with very
Lower LID



Better Temperature
Coefficient



Better low irradiance
response



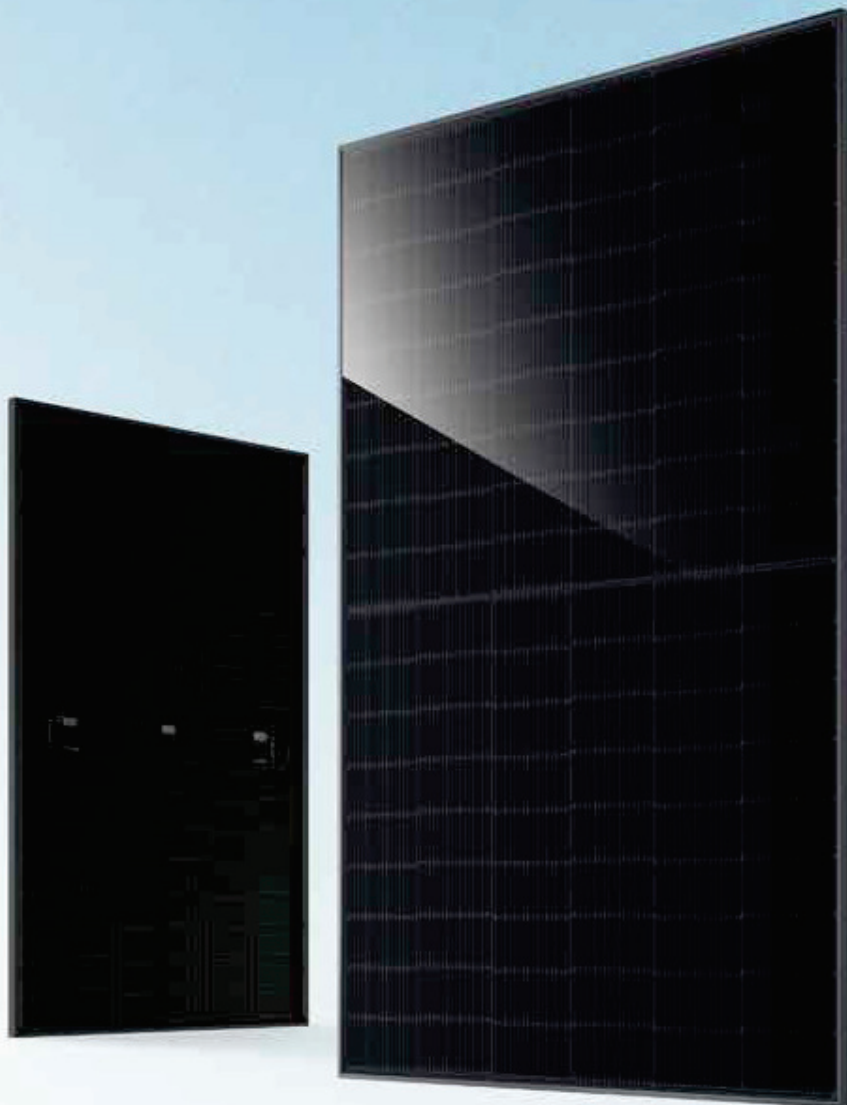
12-year product
warranty



30-year linear power
output warranty

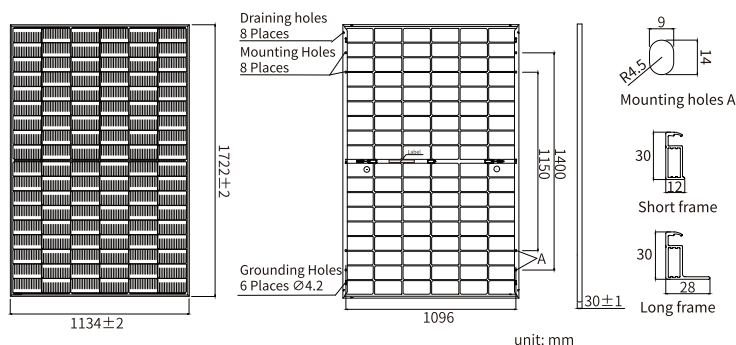
Comprehensive Certificates

- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941: 2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing



DEEP BLUE 4.0 Pro

JAM54D41 MB n-type Double Glass Bifacial Modules



MECHANICAL PARAMETERS

Cell	Mono
Weight	21.5kg
Dimensions	1722±2mm×1134±2mm×30±1mm
Cable Cross Section Size	4mm ² (IEC), 12 AWG(UL)
No. of cells	108(6×18)
Junction Box	IP68, 3diodes
Connector	QC 4.10-351/ MC4-EVO2A
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-) Landscape: 1100mm(+)/1100mm(-)
Front Glass/Back Glass	1.6mm/1.6mm
Packaging Configuration	36pcs/Pallet, 936pcs/40HQ Container

Remark: customized frame color and cable length available upon request

ELECTRICAL PARAMETERS AT STC

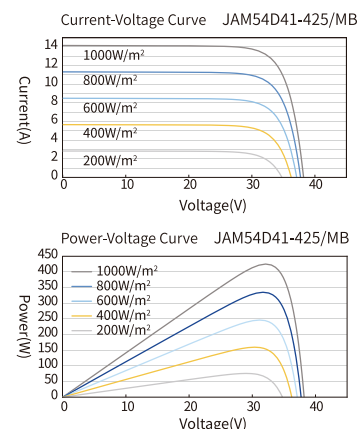
TYPE	JAM54D41 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB	JAM54D41 -445/MB
Rated Maximum Power(P _{max}) [W]	420	425	430	435	440	445
Open Circuit Voltage (V _{oc}) [V]	38.28	38.56	38.84	39.11	39.38	39.65
Maximum Power Voltage(V _{mp}) [V]	32.38	32.64	32.88	33.13	33.37	33.64
Short Circuit Current(I _{sc}) [A]	13.65	13.70	13.75	13.80	13.85	13.90
Maximum Power Current(I _{mp}) [A]	12.97	13.02	13.08	13.13	13.18	13.23
Module Efficiency [%]	21.5	21.8	22.0	22.3	22.5	22.8
Power Tolerance	0~+3%					
Temperature Coefficient of I _{sc} (α _{Isc})	+0.045%/°C					
Temperature Coefficient of V _{oc} (β _{Voc})	-0.250%/°C					
Temperature Coefficient of P _{max} (γ _{Pmp})	-0.290%/°C					
STC	Irradiance 1000W/m ² , cell temperature 25°C, AM1.5G					

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

ELECTRICAL CHARACTERISTICS WITH 10% SOLAR IRRADIATION RATIO

TYPE	JAM54D41 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB	JAM54D41 -445/MB
Rated Max Power(P _{max}) [W]	454	459	464	470	475	481
Open Circuit Voltage(V _{oc}) [V]	38.28	38.56	38.84	39.11	39.38	39.65
Max Power Voltage(V _{mp}) [V]	32.38	32.64	32.88	33.13	33.37	33.64
Short Circuit Current(I _{sc}) [A]	14.74	14.80	14.85	14.90	14.96	15.01
Max Power Current(I _{mp}) [A]	14.01	14.06	14.12	14.18	14.24	14.29
Irradiation Ratio (rear/front)	10%					

CHARACTERISTICS



OPERATING CONDITIONS

Maximum System Voltage	1500V DC
Operating Temperature	-40°C~+85°C
Maximum Series Fuse Rating	30A
Maximum Static Load, Front	5400Pa(112 lb/ft ²)
Maximum Static Load, Back	2400Pa(50 lb/ft ²)
NOCT	45±2°C
Bifaciality	80%±10%
Safety Class	Class II
Fire Performance	UL Type 38/Class C

Declaration of low-reflection modules

Solar modules are designed to absorb solar energy and generate electricity, all JA Solar modules are currently designed with anti-reflective front surfaces to reduce the light reflection.

JA Solar as the PV Module manufacture hereby confirms that the new modules for the Series S10, S20 and S30 are low reflection in the sense that they have an absorption > 90%.

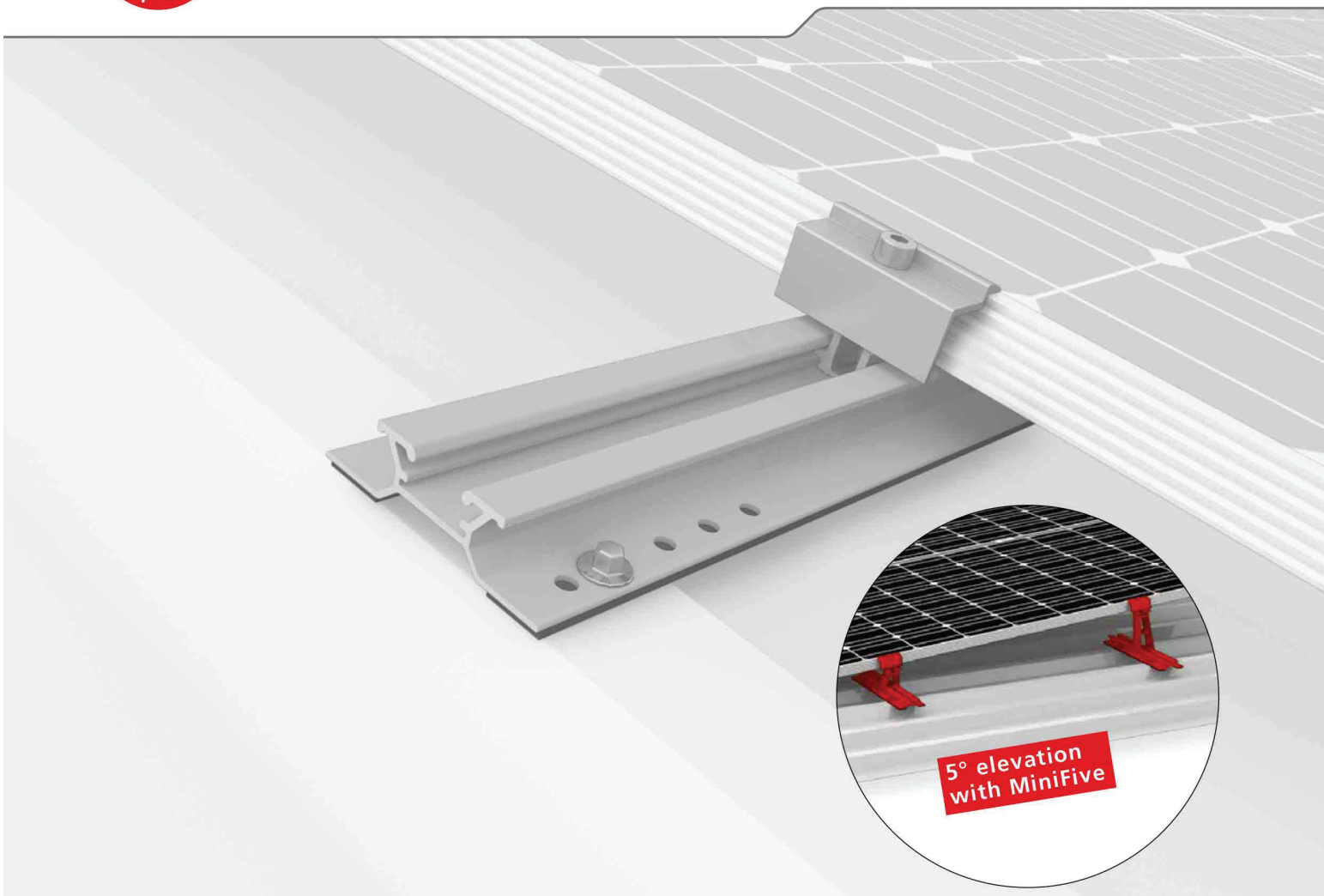
All JA Solar customers are encouraged to consult with JA Solar technical support staff for any further question they may have.

Yours faithfully,

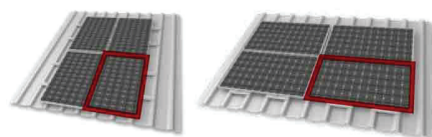
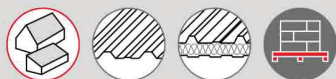
Shanghai JA Solar PV Technology Co., Ltd.
Global Customer Service Department
December 7th, 2020



MiniRail System



- ▶ Innovative and statically optimised short rail system that is quick and easy to mount
- ▶ Universal module clamps and suitable for portrait and landscape orientation
- ▶ 5° elevation with MiniFive: significantly more output thanks to improved ventilation and optimised module angle
- ▶ Optimised for storage and transport



The MiniRail System allows portrait and landscape mounting in the form of grid mounting thanks to the universal module clamps, which are rotatable by 90°.

Components



MiniRail

Landscape and portrait mounting with MiniClamp MC/EC



MiniClamp MC/EC 30 - 50 mm

- ▶ Universal module clamp
- ▶ Clamp is rotatable



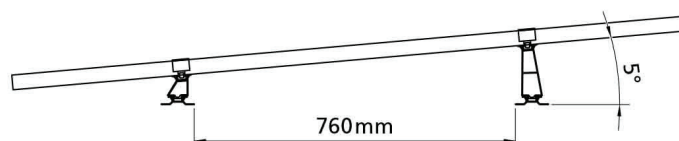
Self-tapping screws

- ▶ Included in MiniRail MC/EC set
- ▶ With sealing washers



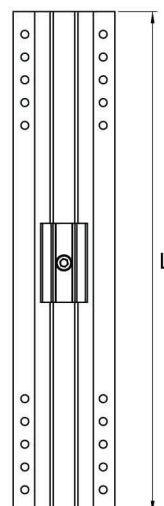
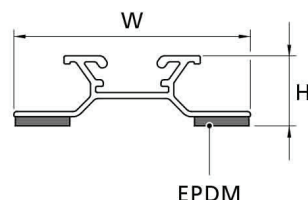
MiniFive front and end

- ▶ Single-sided easy elevation with insertable supporting element
- ▶ Improved ventilation and higher yield
- ▶ Optimised module angle



Technical data

	MiniRail System
Scope of application	Pitched roofs with trapezoidal sheet metal or sandwich panels Roof inclination: 5-75°
Fastening type / roof fixture	Screws in roofing with self-tapping thin sheet screws
Requirements	▶ Sheet thickness: ≥ 0.4 mm steel and ≥ 0.5 mm aluminium ▶ Sandwich panel: Approval from manufacturer required ▶ Crest width: At least 22 mm * ▶ Crest spacing: 101 - 350 mm depending on crest width ▶ Flush area surrounding the bore hole: $\varnothing \geq 20$ mm ▶ Module frame height: 30 - 50 mm
Module orientation	Vertical or horizontal
Material	Aluminium (EN AW-6063 T66 / EN AW-6082 T6); EPDM
Dimensions MiniRail W x H x L [mm]	78.2 x 23 x 385
Elevation with MiniFive	approx. 5°



* The project-specific minimum high crest width dimension can be found in the Base report.