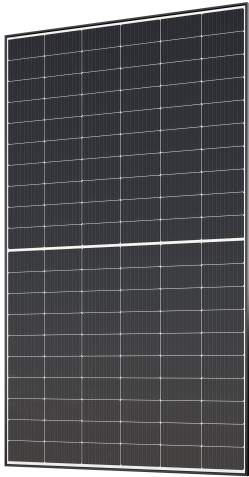


# PRODUCT DATASHEET

## M 450 P 60 LM-BF-F7

PV PANELS P-TYPE MONOFACIAL BLACK | PERC monofacial photovoltaic panels with black frame



### Areas of application

- Commercial and industrial installations
- Residential installations

### Product benefits

- 12-years of product guarantee, 25-years of linear power output guarantee
- Limited PID-effect (potential induced degradation) thanks to strict quality control in production process
- Very low yearly degradation of the cells thanks to the better resistance to high temperatures
- Durable design and highest production standards guarantees operational reliability and quality

### Product features

- Original Stäubli MC4 EVO 2 connectors
- Available in a long cable version
- Frame made of anodized aluminum alloy
- Multi-bus bar (MBB) technology
- Maximum static load up to 5400 Pa

## TECHNICAL DATA

### ELECTRICAL DATA STC

Maximum Power Pmax (STC)	450 W
Maximum Power Current Imp (STC)	12.98 A
Short Circuit Current Isc (STC)	13.87 A
Maximum Power Voltage Vmp (STC)	34.67 V
Open Circuit Voltage Voc (STC)	41.33 V
Module efficiency factor (STC)	20,79 %

### ELECTRICAL DATA NMOT

Maximum Power Pmax (NMOT)	340 W
Maximum Power Current Imp (NMOT)	10.38 A
Short Circuit Current Isc (NMOT)	11.10 A
Maximum Power Voltage Vmp (NMOT)	32.76 V
Open Circuit Voltage Voc (NMOT)	38.68 V

### ELECTRICAL DATA STC and NMOT

Power tolerance	3 %
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### MECHANICAL DATA

Type of Faciality	Monofacial
Cell material	Mono crystalline
Number of cells	120
Number of bypass diodes	3
With frame	Yes
Type of connection	Staubli MC4 EVO2
Width	1134 mm
Length	1909 mm
Height	35 mm
Product weight	24000.000 g
Cable length	1.2 m
Glass with anti-reflection coating	Yes
Colour backsheet	White
Colour cells	Dark blue
Colour frame	Black
Front Glass	Yes

### TEMPERATURE RATINGS

Nominal operating cell temperature	45 °C
Temperature coefficient Isc	0.045 %/K

Temperature coefficient P <sub>mpp</sub>	-0.335 %/K
Temperature coefficient U <sub>oc</sub>	-0.265 %/K



## OPERATING CONDITIONS

Maximum series fuse rating	25 A
Temperature range in operation	-40...+85 °C
Front Side Maximum Static Loading	5400 Pa
Rear Side Maximum Static Loading	2400 Pa
Reverse current load	25 A

## EQUIPMENT / ACCESSORIES

- Product is delivered as a whole, no assembly required from customer
- MC4 EVO 2 connectors are fitted to the panel
- 3 bypass diodes are already installed in the panel

## DOWNLOAD DATA

Documents and certificates	Document name
 User instruction / safety instructions	PV MODULE
 Declarations of conformity	CE Certificate PV Panels

## DISCLAIMER

Subject to change without notice. Errors and omission excepted. Always make sure to use the most recent release.