



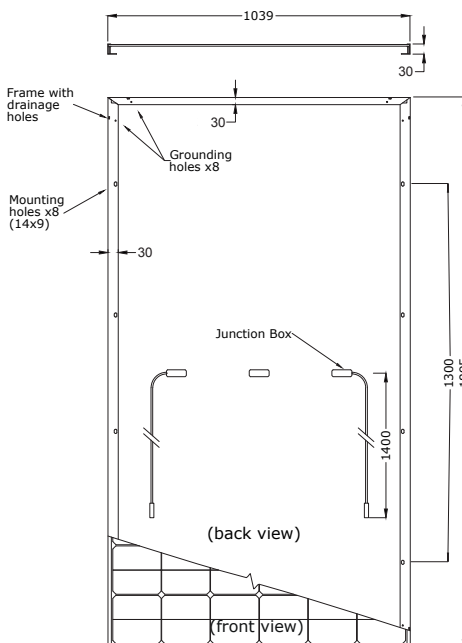
BACK CONTACT

FU 415 / 420 / 425 M ZEBRA Pro All Black Monocrystalline Photovoltaic Module - 132 half-cut IBC cells

ZEBRA technology developed in Europe



CE



Note: dimensions in mm tolerance +/- 2 mm

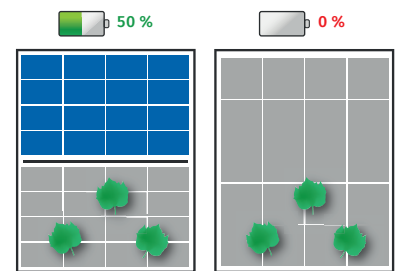
GENERAL FEATURES

- 25-year product & performance warranty
- 132 N-Type IBC Interdigitated Back Contact cells
- Total black look without ribbons on the cells
- Superior module efficiency up to 21.60%
- Excellent temperature coefficient $-0.29\%/^{\circ}\text{C}$
- Market leading power stability over time (93% at the 25th year)
- Low Hot-Spot risk thanks to the distributed junction of the ZEBRA cell
- Resistant to LID and LeTID
- Improved low light performance
- Better yield with various tilts
- 2 independent section design secures a higher energy yield under shaded conditions and **minimize the need of optimizers**
- Reduced carbon footprint

CERTIFICATIONS

- > IEC 61215:2016 - IEC 61730:2016 & Factory Inspection
- > Fire Resistance - Class C
- > Salt Corrosion Resistance IEC 61701

NEW



GUARANTEES

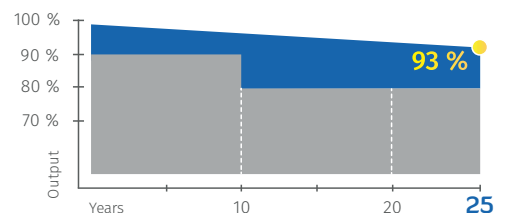
Product guarantee

25 YEARS

Performance guarantee

- Max power decrease **0.25 %/year**
- 1st year degradation < 1.0 %**
- 99 % at the end of first year
- 93 % at the end of 25th year**

- Market standard performances
- FuturaSun ZEBRA performances



ELECTRICAL DATA

MODULE ZEBRA Pro All Black	FU 415 M ZEBRA Pro All Black	FU 420 M ZEBRA Pro All Black	FU 425 M ZEBRA Pro All Black
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Standard Test Conditions STC: 1000 W/m² - AM 1.5 - 25 °C - tolerance: Pmax (±3%), Voc (±4%), Isc (±5%)

Module power (Pmax)	W	415	420	425
Open circuit voltage (Voc)	V	45.85	45.91	46.01
Short circuit current (Isc)	A	11.57	11.66	11.76
Maximum power voltage (Vmpp)	V	38.57	38.74	38.97
Maximum power current (Impp)	A	10.78	10.85	10.91
Module efficiency	%	21.10	21.30	21.60

Nominal Module Operating Temperature NMOT: 800 W/m² - T=42 °C - AM 1.5

Module power (Pmax)	W	312	316	320
Open circuit voltage (Voc)	V	43.90	44.00	44.1
Short circuit current (Isc)	A	9.33	9.41	9.49
Maximum power voltage (Vmpp)	V	36.00	36.2	36.40
Maximum power current (Impp)	A	8.67	8.73	8.80

TEMPERATURE RATINGS

Temperature coefficient Isc	%/°C	0.046
Temperature coefficient Voc	%/°C	-0.246
Temperature coefficient Pmax	%/°C	-0.290
NMOT *	°C	42 ± 2
Operating temperature	°C	from -40 to +85

*Certification on going

MECHANICAL SPECIFICATIONS

Dimensions	1895 x 1039 x 30 mm
Weight	20.9 kg
Glass	High transmission, Low iron, Tempered, ARC, Transparent, 3.2 mm
Cell encapsulation	POE (Polyolefin)
Cells	132 monocrystalline half-cut IBC cells 166 x 83 mm
Backsheet	Composite multilayer film
Frame	Black anodized aluminium frame with mounting and drainage holes
Junction box	Certified according to IEC 62790, IP 68 approved
Cables	Solar cable, length 1400 mm or customized assembled with MC4-compatible plugs
Maximum reverse current (Ir)	20 A
Maximum system voltage	1500 V (1000 V on request)
Mechanical load (snow)	Design load: 3600 Pa 5400 Pa (including safety factor 1.5)
Mechanical load (wind)	Design load: 1600 Pa 2400 Pa (including safety factor 1.5)
Protection Class	II - accordance to IEC 61730

Authorized Dealer



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