

UP to
350Wp

MBA270-280 BiSoN

High Efficiency Bifacial Photovoltaic Module

Production Technology and Properties

MegaCell introduces the new MBA modules born from the 30+ years long experience in photovoltaic manufacturing. Highest level of efficiency, quality and reliability are guaranteed from the BiSoN cell technology, the bifacial cell up to 20,4% front efficiency (25,6% with 30% rear side contribution) developed in collaboration with the ISC Konstanz.



Bifacial

85% of bifaciality factor ($\epsilon_{ff\ rear} = \epsilon_{ff\ front} \times 0,85$)



N Type

Module made with 60 italian high efficiency cells, monocrystalline N type



Zero PID

Anti PID (Potential Induced Degradation) technology using glass - glass modules and high quality encapsulation solution



LID near zero

It doesn't suffer LID-effect (Light Induced Degradation) that is near 0% instead of 2-3% occurring to all p-type cells



Electrical Performance

Lower power reduction (<0,3%) compared to standard 0,8%/year



Power Output

Up to 280 Wp in front side only, equivalent 320-350 Wp with rear side contribution



Rear face 18-80%

Rear face contributes to increase the energy production with a further contribution up to 60%. Expected increases of energy yield:
+ 18% with low-reflectance surfaces (grass)
+ 35% with high-reflectance surfaces (sand)
+ 60% with single-axis tracking system
+ 80% even with the surrounding snow



40 Years

Longterm stability due to special new modules technology design and the strictest test program



Self cleaning

Thanks to the frameless design



Made In Italy

Engineered and produced in Italy

MBA270-280 ^{BiSoN}

High Efficiency Bifacial Photovoltaic Module

Front STC* electrical characteristics

Nominal module I/V parameters at STC (front illumination)						
Pmpp [W]	Isc [A]	Voc [V]	Impp [A]	Vmpp [V]	FF	Efficiency
270	9,10	38,76	8,60	31,40	0,765	15,7
275	9,17	38,93	8,64	31,83	0,770	16,0
280	9,21	39,12	8,72	32,13	0,777	16,2

Measurement conditions: STC 1000 W/m² - AM 1.5 - Temperature 25 °C • Measurement uncertainty ≤ 3%
• Sun simulator calibration with modules calibrated by Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by -0/+5W.

Electrical characteristics of the front and rear side of the MBA 280W module

Rear irradiance		0%	+10%	+15%	+20%	+25%	+30%		
Corresponding bifacial gain		0%	8,50%	12,80%	17,00%	21,30%	25,50%		
Equivalent power		Pe	W	280	303,8	315,7	327,6	339,5	351,4
Short Circuit Current	Isc	A	9,21	9,99	10,38	10,78	11,17	11,56	
Open Circuit Voltage	Voc	V	39,12	38,94	39,12	39,18	39,24	39,3	
Current at Pmpp	Impp	A	8,72	9,37	9,73	10,04	10,36	10,74	
Voltage at Pmpp	Vmpp	V	32,13	31,85	31,86	32,05	32,23	32,28	
Efficiency	η	%	16,2%	17,6%	18,3%	19,0%	19,7%	20,4%	

Temperature Coefficients (at 1000W/m², 25°C, AM 1.5)

Temperature Coefficients of Isc	0,041	%/°C
Temperature Coefficients of Voc	-0,280	%/°C
Temperature Coefficients of Pmpp	-0,397	%/°C

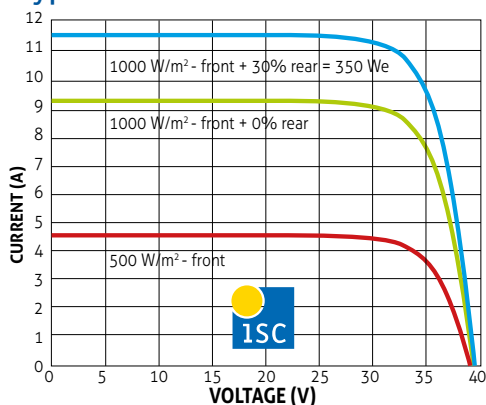
Properties for System Design

Max system Voltage Vsys	1000 VDC	Safety Class II
Max reverse Current Ir	20A	Fire rating C
Wind / Snow Load	up to 5400 Pa	Permitted module temperature -40°C/+85°C

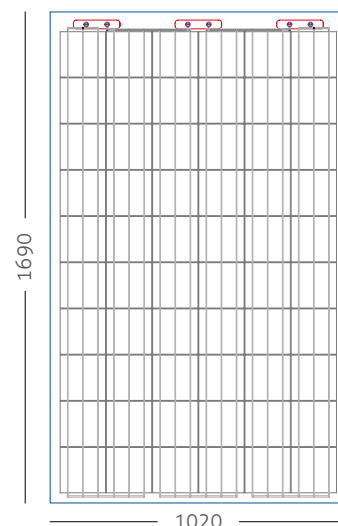
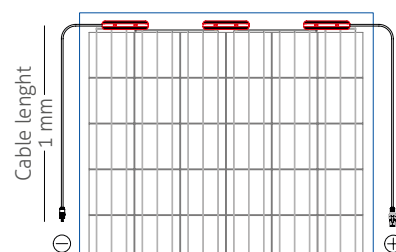
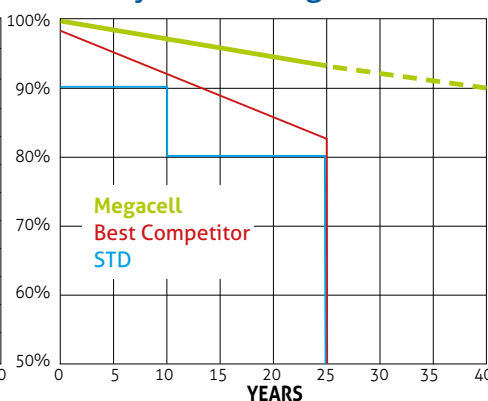
Energy increase

		Std	MegaCell
LID	after first week of installation	3,0%	0,3%
Power degradation	from first to 12th year	0,6%	0,2%
Power degradation	from 13th to 25th year	0,75%	0,35%
Years	Bifacial energy contribution	Total energy increase MegaCell vs Std	
25	15%	25%	
25	20%	30%	
25	25%	35%	

Typical I-V curve 280W



Expected glass-glass module warranty when using BiSoN cells



Qualifications and Certificates

IEC 61215 -ed2 / IEC 61730
Ammonia atmosphere (IEC 62716 Ed.1 - Draft C: April 2011, Ammonia corrosion testing of photovoltaic (PV) modules)
Salt mist atmosphere (IEC 61701: 2011, Salt mist corrosion testing of photovoltaic (PV) modules)
Sandstorm (CEI EN 60068-2-68: 1997 - Environmental testing - Part 2: Tests - Test L: Dust and Sand).
Certificates of production ISO 9001
Product Warranty 12 years
Power Warranty Linear 25 at 92% (extendable to 40 years). Expected life 50 years

Mechanical Specifications

Format	1690 mm x 1020 x 7 mm (frameless module)
Weight	27 kg
Front Glass	3 mm tempered glass with AR- technology
Back Glass	3 mm tempered glass
Edge protection	3M super Shell Tape for edge sealing and protection
Cell	6 x 10 N type monocrystalline solar cells
Junction box	3 boxes with bypass diodes (Irat = 20A), IP 67
Cable	2 x 4 mm 2, 1000 mm solar cable. Different lengths available
Connector	MC 4 compatible, IP 68

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