
# MBF-GG60 ViPER series 250-270Wp*

## High Efficiency Bifacial Multicrystalline P-type Photovoltaic Module

* 250-270Wp only front at STC
** 315-338Wpe (Watt peak equivalent) with Bifacial gain

## Key Product Features

MegaCell introduces the new MBF modules born from the 30+ years long experience in photovoltaic manufacturing. Highest level of efficiency, quality and reliability are guaranteed from the ViPER cell technology, the Bifacial cell up to 18,6% front efficiency (23,3% with 30% back side contribution) developed in collaboration with the RCT Konstanz.

### Highest Bifacial factor
85% of bifaciality factor ($\varepsilon_{ff\ rear} = \varepsilon_{ff\ front} \times 0{,}85$), thanks to the patented ViPER technology.

### P-Type
Module made with 60 high efficiency Bifacial monocrystalline P-type cells made in Italy.

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

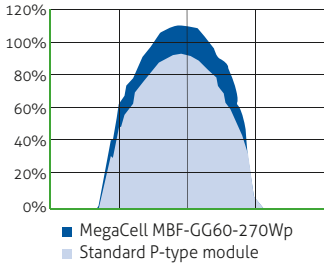
### Electrical Performance
Lower power reduction <0,3%/year, compared to common 0,8%/year of Monofacial P-type modules

### High Performance
Up to 270 Wp on front side only, equivalent up to 338 Wpe (Watt peak equivalent) with back side contribution

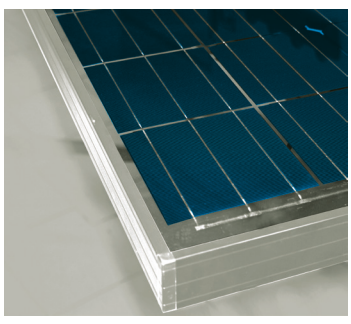
### Durability
Longterm stability due to special new modules technology design and the strictest test program

### Engineered in Italy

### Power Output as % of Peak Power




Engineered with ViPER



### HIGH EFFICIENCY
From 15% (Monofacial) to over 19,5% (with Bifacial gain) of module efficiency

### WARRANTY
12 years of Product Warranty
30 years of Linear Power Warranty

MegaCell™ NEXT SOLAR GENERATION

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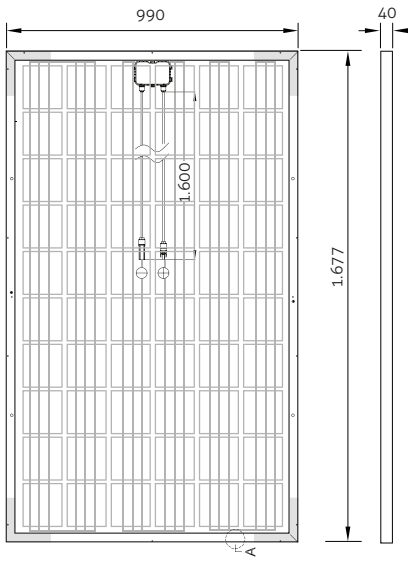



## Electrical Specifications MBF-GG60-250

| | | | Only front (STC [1]) | Irradiance % on back side (depending on ground reflection) 15% | 20% | 25% | 30% |
|---|---|---|---|---|---|---|---|
| **Equivalent peak power (Bifacial gain)** | Pmpp | Wpe | **250,00** | **281,9** (+12,8%) | **292,5** (+17,00%) | **303,1** (+21,3%) | **313,8** **(+25,50%)** |
| Short Circuit Current | Isc | A | 8,50 | 9,58 | 9,95 | 10,31 | 10,67 |
| Open Circuit Voltage | Voc | V | 37,90 | 38,84 | 38,90 | 38,96 | 39,02 |
| Current at Pmpp | Impp | A | 8,00 | 9,02 | 9,35 | 9,67 | 10,02 |
| Voltage at Pmpp | Vmpp | V | 31,35 | 31,45 | 31,46 | 31,48 | 31,49 |
| Efficiency (Nominal P) | η | % | 15,0% | 16,9 | 17,5 | 18,2 | 18,8 |

*[1] 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 change by ±5% and power by -0/+5W.*

## Electrical Specifications MBF-GG60-270

| | | | Only front (STC[1]) | Irradiance % on back side (depending on ground reflection) 15% | 20% | 25% | 30% |
|---|---|---|---|---|---|---|---|
| **Equivalent peak power (Bifacial gain)** | Pmpp | Wpe | **270** | **304,43** (+12,8%) | **315,90** (+17,00%) | **327,38** (+21,3%) | **338,85** **(+25,50%)** |
| Short Circuit Current | Isc | A | 8,85 | 9,98 | 10,35 | 10,73 | 11,11 |
| Open Circuit Voltage | Voc | V | 38,80 | 39,74 | 39,80 | 39,86 | 39,92 |
| Current at Pmpp | Impp | A | 8,40 | 9,47 | 9,82 | 10,16 | 10,52 |
| Voltage at Pmpp | Vmpp | V | 32,15 | 32,25 | 32,26 | 32,28 | 32,29 |
| Efficiency (Nominal P) | η | % | | 18,2 | 18,90 | 19,60 | 20,30 |

*[1] 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 change by ±5% and power by -0/+5W.*

Warning: Read the Installation and User Manual before handling, installing, and operating MegaCell modules.

## Warranties, Qualifications and Certificates

**IEC 61215 -ed2 / IEC 61730**
**Salt mist atmosphere** (IEC 61701: 2011, Salt mist corrosion testing of photovoltaic (PV) modules)
**Certificates of production** ISO 9001
**Product Warranty** 12 years
**Output Power Warranty** Linear 30 years at 86,55%

## Operating Conditions

| | |
|---|---|
| **Max system Voltage Vsys** | 1000 VDC<br>Safety Class II |
| **Max reverse Current Ir** | 15A<br>Fire rating C |
| **Wind / Snow Load** | up to 5400 Pa<br>Permitted module temperature -40°C/+85°C |

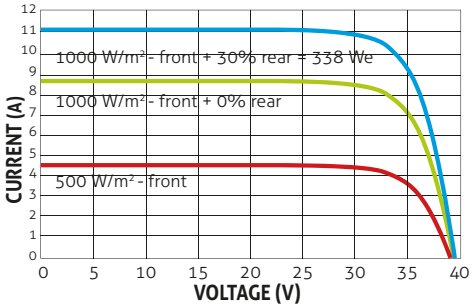
## Output Power Advantages

| | | Std | MegaCell |
|---|---|---|---|
| **LID** | after first week of installation | 3,0% | 2,0% |
| **Power degradation** | from first to 12th year | 0,6% | 0,25% |
| **Power degradation** | from 13th to 25th year | 0,75% | 0,4% |

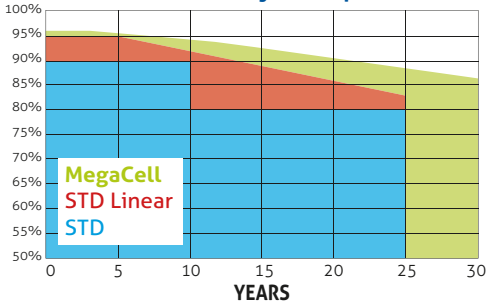
## Construction Specifications

| | |
|---|---|
| **Format** | 1677 mm x 990 x 40 mm (module with frame) |
| **Weight** | 22,5 kg |
| **Front Glass** | Heat strengthened according to DIN EN 1863 with AR Technology |
| **Back Glass** | Heat strengthened according to DIN EN 1863 |
| **Frame** | 40mm anodized Al frame |
| **Cell** | 6 x 10 P-type multicrystalline solar cell |
| **Junction box** | 1 JB, 3 bypass diodes, IP 65, TUV certified |
| **Cable** | 2 x 4 mm 2, 1600 mm solar cable. |
| **Connector** | MC 4 compatible, IP 65, 30A current rate |

## Typical I-V curve 270W




## Power Warranty comparison



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