

# PM SOLAR

New Power.  
New Thinking.

## PM CIGS SERIES HIGH-EFFICIENCY CIGS SOLAR MODULE

140 W / 145 W / 150 W / 155 W

### Features

- Advanced proprietary CIGS thin-film technology
- Plus sorting at +5 W to -0 W
- Up to 3% additional energy yield due to light soaking effect
- Low temperature coefficient provides energy yield benefits
- Aesthetically appealing all-black appearance
- Framed module designed for easy use with industry-standard mounting systems
- Etched, unchangeable serial numbers for full traceability of each module

### Quality and Safety

- IEC, MCS and UL certified
- Rated for snow and wind loads up to 2,400 Pa
- Free of potential induced degradation (PID) effects
- Manufactured at an ISO 9001: 2008, ISO 14001 and OHSAS 18001 certified facility
- Certified for harsh environments: Salt mist corrosion (IEC 61701) and Blowing sand resistant (DIN EN 60068-2-68)

### Warranty

- Product warranty\*: 10 years for material and workmanship
- Power output warranty\*: 90% at 10 years and 80% at 25 years of minimum rated power output



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\* This datasheet is for informational purposes only. No rights can be derived from the information contained herein.  
For detailed warranty information, please consult PM Solar's module warranty, which is available upon request.

# PM CIGS SERIES

## HIGH-EFFICIENCY

## CIGS SOLAR MODULE

### Electrical Characteristics

Standard Test Conditions (STC)

PM CIGS Series		PM-140CIGS	PM-145CIGS	PM-150CIGS	PM-155CIGS	
Maximum power	$P_{max}$	140	145	150	155	$W_p$
Factory binning		+5/-0	+5/-0	+5/-0	+5/-0	W
Open-circuit voltage	$V_{oc}$	63.1	63.4	63.8	64.3	V
Short-circuit current	$I_{sc}$	3.50	3.51	3.52	3.52	A
Maximum power voltage	$V_{mpp}$	45.3	46.6	47.9	49.2	V
Maximum power current	$I_{mpp}$	3.09	3.11	3.13	3.15	A
Module efficiency	Eff%	12.9	13.3	13.8	14.3	%
Power tolerance <sup>1</sup>		+/-5%				
Maximum reverse current	$I_R$	8 A				
Maximum system voltage		1000 Vdc (IEC), 600 Vdc (UL)				
Operating temperature		-40°C to 85°C				

IV Parameters measured at STC: 1000 W/m<sup>2</sup>, module temperature 25°C, AM 1.5 after factory light soaking. All IV ratings are +/- 10%.

<sup>1</sup> Pre-binning power tolerance as certified by UL/TÜV-SÜD, TSMC Solar only delivers modules with greater than or equal to nameplate power.

### Normal Operating Cell Temperature Conditions (NOCT)

Maximum power	$P_{max}$	106.3	110.1	113.9	117.7	W
Open-circuit voltage	$V_{oc}$	59.2	59.4	59.8	60.3	V
Short-circuit current	$I_{sc}$	2.80	2.81	2.82	2.82	A
Maximum power voltage	$V_{mpp}$	43.0	44.2	45.5	46.7	V
Maximum power current	$I_{mpp}$	2.47	2.49	2.50	2.52	A

Conditions at NOCT: 800 W/m<sup>2</sup>, ambient temperature 20°C, AM 1.5

### Thermal Characteristics

NOCT	46.5 ± 1°C
Temperature Coefficient of $P_{max}$	-0.31% / °C
Temperature Coefficient of $V_{oc}$	-0.29% / °C
Temperature Coefficient of $I_{sc}$	0.01% / °C

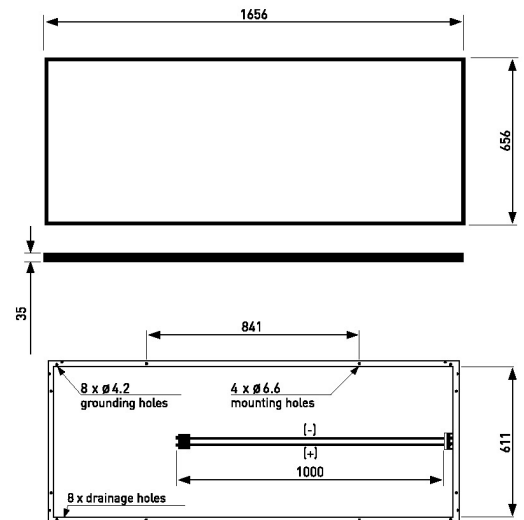
### Mechanical Characteristics

Snow/wind load (IEC)	2,400 Pa
Dimensions in mm	1656 x 656 x 35
Weight in kg	17.5
Frame	Black anodised aluminum
Front cover	Textured, white tempered front glass
Junction box, connector	IP 67, MC-4 compatible
Output cable cross section and length	2.5 mm <sup>2</sup> , 1000 mm
Cell type	100 CIGS cells
Safety class	II
Fire rating	Class C

The information contained herein is subject to change without notice.

Caution: Read the installation guidelines before using, handling, installing or operating PM Solar modules.

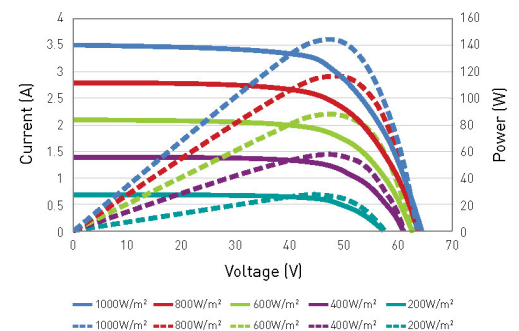
### Physical Specifications



All measurements in mm

### I-V and P-V Curve

PM-145CIGS



### Performance at Low Irradiance

Typical relative efficiency reduction of maximum power from an irradiance of 1,000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> at 25°C is 5%.

### Certifications

