

# MIDDLE

# a-si SOLAR MODULE

# Thin Film

Moser Baer ([www.moserbaer.com](http://www.moserbaer.com)) is a global leader in the development and high-volume manufacturing of technology products.

Our solar division was launched as a fully owned subsidiary of Moser Baer in 2005 with the primary objective of enabling reliable solar power as a competitive non-subsidised source of energy.



Moser Baer aims to distinguish itself as a significant player in the global photovoltaic market through leveraging its high-volume manufacturing expertise and investments of nearly US\$ 500 million in research, development and manufacturing of products dedicated to generating solar power.

Moser Baer realizes that PV markets have different needs and emerging technologies have to be developed today to realize the world's future energy needs. It has already announced investments in a mix of currently available and emerging technologies as follows:

- A first of its kind 80 MW, fully functional state-of-the-art fully automated in-line crystalline silicon cell manufacturing facility – to be scaled up to 240 MW.
- A 80 MW module manufacturing facility with expansion plans to scale it up to 200 MW.
- A 600 MW thin film module plant, capable of producing the world's largest non-flexible thin film modules, is under construction. 40 MW already operational.
- A high concentrator photovoltaic (CPV) module manufacturing facility and multi-million dollar investments in a US-based company – Solfocus, the developer of the CPV technology in partnership with the world renowned Palo Alto Research Center (PARC), California. The technology is based on gallium arsenide cells, originally developed for harsh extra-terrestrial solar applications and environments.



## SOLAR MODULE

- A significant equity stake in Solaria, a US-based technology company that has developed a unique form of low-concentration solar PV technology. It is capable of producing power equivalent to two to three times the power produced by conventional PV modules, using the same amount of silicon material.
- A significant minority stake in Stion Corporation, a nanostructures development company based in the Silicon Valley, California, for producing extremely low-cost solar power generating surfaces.
- Acquisition of 40% equity stake in Solarvalue, Proizvodnja d.d, a solar grade silicon production facility in Slovenia, to provide access and assurance of supply to low-cost solar grade silicon.
- An R&D centre dedicated for the improvement and rapid commercialization of solar technology products.

In addition to the above, Moser Baer has invested in strategic partnerships involving the entire value chain, particularly for strategic sources such as silicon ingots and wafers, glass, etc. through short-term and long-term supply agreements.

# MBTF-85

Quarter Size Amorphous Silicon  
Thin Film Solar PV Module

**moserbaer**<sup>TM</sup>

With Applied materials technology 'Sun Fab', a state of the art fully integrated and automated PV module manufacturing line, Moserbaer delivers leading edge solar manufacturing capability. This line provides the power of advanced technology, process equipment and automation which allows monolithic cell to cell serial connection with the help of cutting edge laser technology. This technology is the initiative to provide innovative PV products to significantly reduce the electric power and utility costs. The technology will prove to be a stepping stone towards cost effective option for clean and renewable energy.

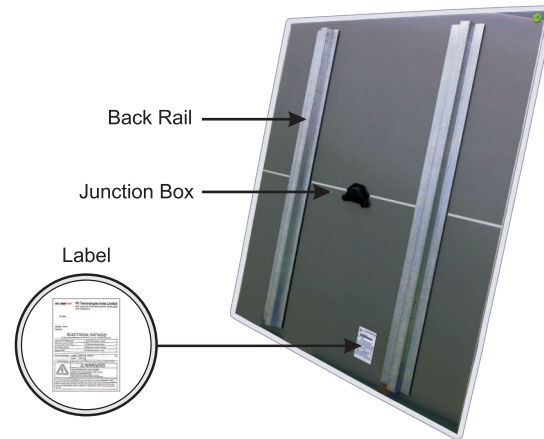


## Moser Baer Amorphous Silicon Single Junction Thin Film Solar PV Module

The MBTF-85 Quarter Size module is available with the back rail mounting solution for quick and easy installation.

Moser Baer a-Si thin film modules are frame less Glass-PVB-Glass modules and are available in quarter, half and full size configurations offering range of power outputs for customer applications. These modules are ideal for large grid connected Photovoltaic Systems and provide excellent performance.

Thin film solar PV modules are manufactured in-house in an integrated and fully automated factory at Greater Nodia, India. Automated inspection and inhouse technical expertise ensures tight tolerances and greater reliability with world class quality.



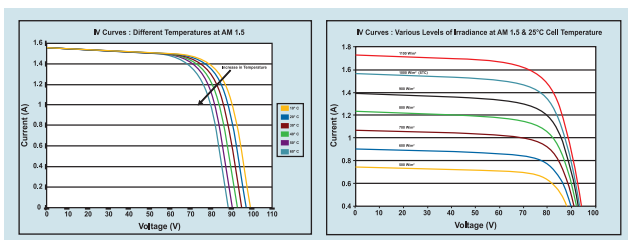
### Typical Electrical Characteristics - MBTF 85

Typical Electrical Data* (Initial/Stabilized)	Units	More than 88W <sub>p</sub>	86W <sub>p</sub> -88W <sub>p</sub>	84W <sub>p</sub> -86W <sub>p</sub>
Maximum Power	W	106/88	103/86	101/84
Power Output Tolerance**	[%]	±5	±5	±5
Open Circuit Voltage, V <sub>oc</sub>	V	95.70/93.80	95.20/93.30	94.40/92.50
Short Circuit Current, I <sub>sc</sub>	A	1.60/1.50	1.56/1.43	1.52/1.40
Maximum Power Voltage, V <sub>mp</sub>	V	77.07/74.10	75.19/72.3	77.77/74.80
Maximum Power Current, I <sub>mp</sub>	A	1.38/1.11	1.40/1.13	1.31/1.05
Maximum system Voltage	V	1000	1000	1000

\* At standard test conditions (STC) 25°C, AM1.5 & Irradiance 1000W/m<sup>2</sup>

\*\* Stabilized power is 16.5% lower than initial

\*\*\* Includes measurement uncertainty error



Temperature Coefficient	Units	
Maximum power	% / °C	-0.2
Open Circuit Voltage, V <sub>oc</sub>	% / °C	-0.33
Short Circuit Current, I <sub>sc</sub>	% / °C	0.09
Maximum Power Voltage, V <sub>mp</sub>	% / °C	-0.32
Maximum Power Current, I <sub>mp</sub>	% / °C	0.14

# Thin Film

### Product Features

- The MTBF 85 series modules are available from stabilized power of 78W to >88W in various bins.
- Frameless Glass-PVB-Glass modules with highly translucent and low iron front glass.
- Modules are fitted with CE and UL approved-MC Junction box with Schottky bypass Diode(Diode rating).
- Bonded rails comprised of galvanized aluminum and come with pre-drilled holes and brackets for ease of mounting.

### Quality

- High reliability and quality modules
- 100% inspection for mechanical and visual defects with continued monitoring of electrical performance.
- Six Sigma practices used in manufacturing line ISO 9001 certification underway.

### Performance

- Moser Baer Thin Film Modules deliver stabilized power enabled by a high efficiency process.
- Offer robust performance under a diverse set of climatic conditions.
- Better performance under diffuse (low) light and indirect sunlight conditions.

The information provided here is for general information purposes only and are subject to change without notice. obtain detailed specifications from a Moser Baer sales associate before making procurement decisions.







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