

# The Sun Simba™ CPV system

## The next generation in solar energy technology.

With the low cost, injection-moulded Light-guide Solar Optic (LSO) as its building block, we've developed a lightweight, low cost solar module that achieves over 29% active-area efficiency.

### Highest energy yield.

The Sun Simba™ delivers the highest kWh/ kW installed in moderate to high DNI environments – due to its high efficiencies, sun-tracking and better performance in high heat.

### Lowest cost of electricity generation.

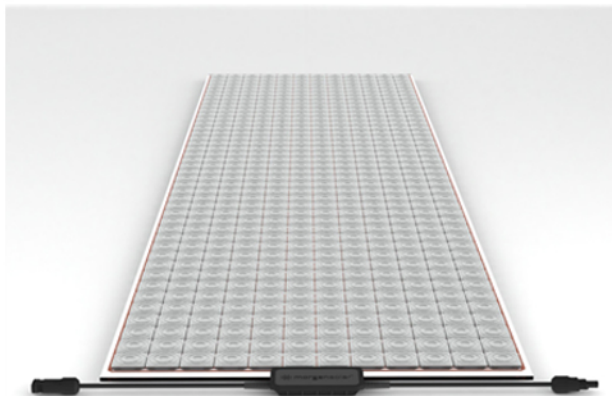
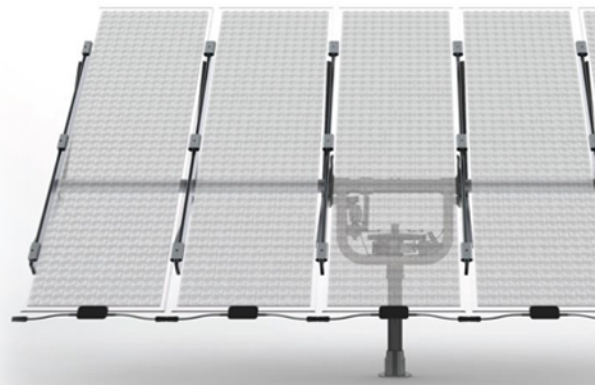
Engineered for high performance, and unprecedented low costs across its entire lifecycle – from manufacturing, shipping, installation, to O&M Sun Simba™ projects will compete favourably with other solar energy technologies, and conventional generation sources, on LCOE, kWh per kW installed, kWh per acre or any other performance metric; the Sun Simba™ delivers higher performance at lower costs.

### Competitive cost per Watt.

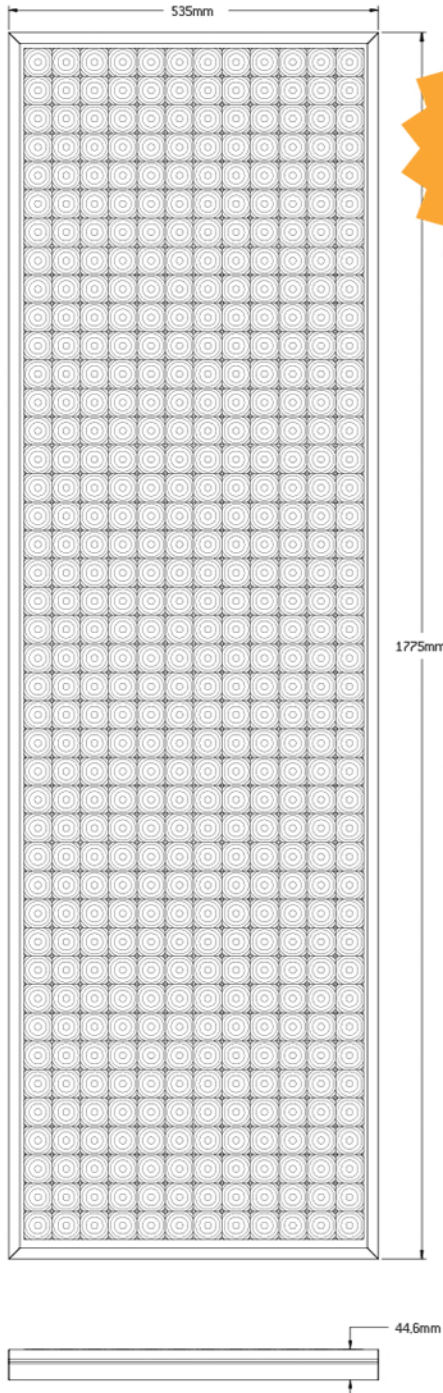
Sun Simba™ modules are built with commodity materials, and at approximately the same thickness as a silicon PV module – less materials per Watt peak. They do not require breathing systems, and utilize an integrated heat dissipation method, simple manufacturing methods and high packing density for transportation. resulting in a high-efficiency module with low upfront cost to silicon PV.

### Advanced optical system.

The Sun Simba™ accepts the direct-beam portion of incident sunlight (Direct Normal Irradiance, or DNI) – of which higher proportions are typically found in hot, dry climates. The Sun Simba™ will offer a lower Levelized Cost of Electricity (LCOE) than any other PV technology in environments with DNI levels over 5.5 kWh/ square metre/ day.



# SUN SIMBA™ 4 MODULE SPECIFICATIONS



**FUTURE 3-J CELL  
OPTIMIZATION  
WILL ENABLE 36%  
APERTURE EFFICIENCY  
(CSTC)**

## Electrical Characteristics

	CSTC	CSOC	
Max. Power	250	216	Watts
Open Circuit Voltage (Voc)	38.5	37.2	Volts
Short Circuit Current (Isc)	7.79	7.01	Amps
Max. Power Voltage (Vmp)	32.7	31.4	Volts
Max. Power Current (Imp)	7.64	6.88	Amps
Max. System Voltage	1000	1000	Volts
Aperture Efficiency	31.0	29.8	%

## Temperature Coefficients

	CSTC	CSOC	
Current Temp. Coefficient	3.40	3.03	mA/°C
Voltage Temp. Coefficient	-0.05	-0.05	V/°C
Max. Power Temp. Coefficient (Relative)	-0.16	-0.16	%/°C
Operational Temperature		-20 to 50	°C

## Mechanical Characteristics

Connector Type	MC4
Module Dimensions (LxWxD)	1775 x 535 x 44.6 mm / 69.9 x 21.1 x 1.76 in
Module Weight	22 kg
Angular Acceptance	0.7° Half Angle

CSTC: 1000 W/m<sup>2</sup>, 25°C cell temperature. CSOC: 900 W/m<sup>2</sup>, 20°C ambient, 2m/s wind speed.

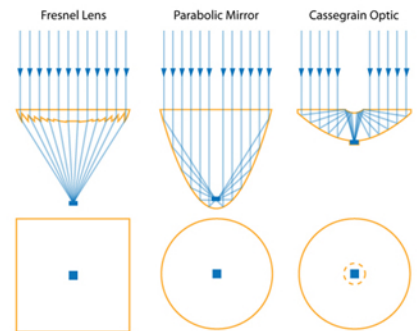


## The Sun Simba

Light-guide Solar Optic



## The Competition



■ PV cell

Finally, a high-efficiency CPV module as thin and inexpensive as a silicon solar panel.

The Sun Simba™ 4 CPV module achieves high efficiency in an ultra-thin, low-cost structure. The fundamental innovation behind the Sun Simba™ 4 is the patented optic, the first concentrating optic to eliminate the depth of focus and associated complexity of traditional lens and mirror-based CPV systems.

Each module consists of 504 PMMA optics bonded to a sheet of PV glass. Light is captured by the optics and concentrated over 1000 times onto a multi-junction cell at the optic's centre. The Sun Simba™ 4 achieves 31.0% aperture efficiency (CSTC), with a panel thickness of 16.2 mm.

The Sun Simba™ 4 is deployed on Morgan Solar's foundationless, human-scale Savanna™ CPV tracker, for a turnkey system that is rapidly deployed and modular to fit any project shape and size, anywhere from 10 kilowatts to multi-megawatts.

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