

COMMITMENT TO QUALITY

- Suniva's uncompromising commitment to process control drives our reputation for superior quality, cell precision, and the industry's best product performance.
- Rigorous quality management for maximum long-term performance and reliability
- Proprietary texturing process contributes to best in class performance
- Custom Manufacturing Execution System (MES) in-line process metrology for full traceability from wafer to finished cell

A TRADITION OF LEADERSHIP

Suniva is one of the United States' oldest solar manufacturers, with a rich heritage in groundbreaking solar cell process technology, first developed at one of the world's foremost photovoltaic research institutes, the US Department of Energy-sponsored *University Center for Excellence in Photovoltaics* at Georgia Tech. Building on that foundation, Suniva has consistently established itself as an innovation leader, having originated or licensed over 150 patents around solar cell development, over the company's 13-year life.

Suniva combines intellectual property with collaborative equipment developments to create a proprietary manufacturing process that makes Suniva America's leading solar cell manufacturer.

suniva.com

SUNIVA ARTisun[®] STAR BIFACIAL MONOCRYSTALLINE CELLS

ARTisun[®] Star bifacial: 22.6%

Suniva's ARTisun[®] Star monocrystalline cell series features our latest high-performance technology with bifacial light absorption. Suniva's innovative, proprietary cell processing techniques are used to achieve significantly higher cell efficiencies while maintaining affordability. Suniva differentiates from other manufacturers through its deep knowledge and experience in cell design and optimization of its cost-effective manufacturing processes.

SUNIVA'S AMERICAN INNOVATION



- ☀️ Delivers efficiencies over 22%
- ☀️ Provides added value with positive-only bin tolerance
- ☀️ Low series resistance five-bus design integrates well in both whole and cut-cell modules
- ☀️ Optimizes proprietary manufacturing processes while maintaining low production costs
- ☀️ Enables our customers to purchase an affordable, high-quality product that far surpasses the competition

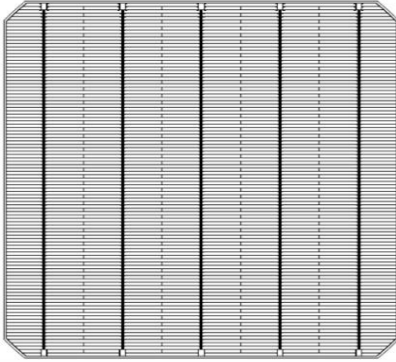
MANUFACTURED IN
Georgia



Suniva's headquarters and flagship cell manufacturing facility are located in metro-Atlanta, Georgia.

ARTisun® Star Bifacial Monocrystalline Cells

TYPICAL “FRONT-SURFACE” CELL ELECTRICAL PROPERTIES ¹



Efficiency (%)	21.60 – 21.80	21.80 – 22.00	22.00 – 22.20	22.20 – 22.40	22.40 – 22.60
Power Pmp (W)	5.58 – 5.63	5.62 – 5.68	5.68 – 5.73	5.73 – 5.78	5.78 – 5.84
Max Power Current Impp (A)	9.80	9.85	9.90	9.96	10.02
Short Circuit Current Isc (A)	10.56	10.59	10.62	10.65	10.74
Max. Power Voltage Umpp (V)	0.572	0.574	0.576	0.578	0.580
Open Circuit Voltage Uoc (V)	0.666	0.667	0.668	0.669	0.670

¹ All electrical parameters valid under Standard Testing Conditions (STC): Intensity: 1000 W/m²; Spectrum: AM1.5 Global; Temperature: 25°C

CELL SPECIFICATIONS AND GEOMETRY

Crystal Growth Technique	Czochralski
Crystal Type	Monocrystalline
Crystal Orientation	<100>
Cell Shape	Pseudo-square
Cell Size	161.70 ± 0.5mm cut from 211 diameter ± 0.5 mm
Cell Area	258.25 cm ²
Cell Thickness	170 ± 40 microns
Cell Configuration	Bifacial PERC: Front and Rear screen print; Local Aluminum Back Surface Field (LBSF)
Cell Visual Appearance	Tight color band; uniform dark blue (Silicon Nitride AR coating with fine pyramidal texture)

CELL TEMPERATURE COEFFICIENTS

Open Circuit Voltage	-0.30	%/°C
Short Circuit Current	+0.047	%/°C
Power	-0.38%	%/°C

Suniva® reserves the right to change the data at any time.

HEADQUARTERS

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Why Bifacial?

While the front surface of a solar module receives most of the available light, the rear surface also receives diffuse light from the sky and indirect light reflected from whatever ground, roof or other surface is behind the module. Bifacial solar cells and modules are designed to harvest that “extra” energy, in addition to conventional “front-surface” energy, to increase the power produced.

Bifacial gains of up to 25% of the front surface baseline may be possible. The table below shows how a baseline 22% cell improves with different levels of gain:

22% Cell	Gain	5%	15%	25%
5.68	Pmp (W)	5.99	6.56	7.13
9.90	Impp (A)	10.37	11.32	12.29
10.62	Isc (A)	11.13	12.15	13.17
0.576	Umpp (V)	0.577	0.579	0.580
0.668	Uoc (V)	0.670	0.673	0.675

Increased performance from light reaching the rear of a bifacial cell strongly depends on the module in which the cells are assembled and the site-specific configuration of the system developed from these modules.



PLEASE RECYCLE

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