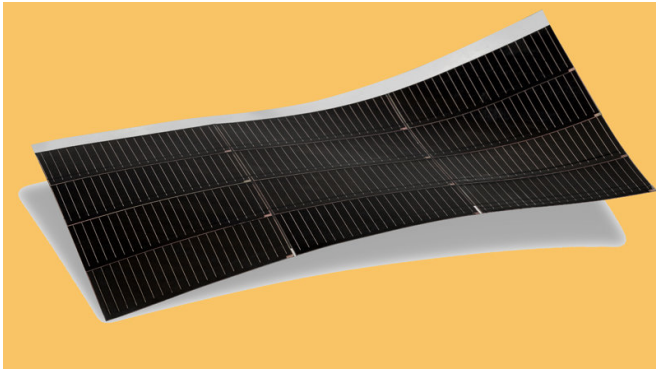


Hanergy announces Fraunhofer lab rating for solar production module with record conversion efficiency

18 February 2018, by Nancy Owano



Credit: Hanergy / Alta Devices

In solar industry news, there have been a number of conversations surrounding the Gallium Arsenide (GaAs) thin film solar panels from Hanergy Thin Film Power Group's US subsidiary Alta Devices, based in Sunnyvale California.

This month Hanergy announced Alta Devices' newest module won a rating "as the highest efficiency single-junction solar module ever produced."

Hanergy said it broke a world record.

A single-junction solar module? The term single-junction refers to "conventional [solar cells](#) being used in solar [power](#) plants" of the single-junction type, generating electricity using the single p-n junction.

The rating is from a solar energy testing laboratory, namely Germany's Fraunhofer ISE CalLab PV Modules. (Fraunhofer ISE has a staff of 1200, and it is described on its site as the largest solar research institute in Europe.)

The rating is 25.1% conversion efficiency.

What the CalLab PV Modules unit actually measures are (1) measurements under standard test conditions for determining V-I and electrical output characteristics (2) measurement of temperature dependence (3) irradiance dependence and measurement of output at [NOCT](#) (Nominal Operating Cell Temperature).

The press announcement said, "Alta's innovative GaAs modules are at the vanguard of thin-film solar technology. The modules perform at up to 2 times that of ordinary [flexible solar cells](#), making them the current world leader in terms of module efficiency for thin film solar technology."

Alta's GaAs single-junction cells broke conversion efficiency records four times since 2010, it added.

GaAs has been described as "the backbone" of its technology. "We begin by growing a thin layer of GaAs on top of a single crystal GaAs wafer using a high throughput metalorganic chemical vapor deposition (MOCVD) process. We then remove this thin layer via an epitaxial lift-off (ELO) [process](#) which leaves a thin, flexible, and lightweight solar cell."

GaAs strong points, according to Alta Devices: (1) it's "robust" to moisture and UV radiation; it's durable. (2) the wide, direct [band](#) gap allows for more efficient photon absorption and high output power density (3) it has a low temperature coefficient and strong low light performance.

The module can be used to power products such as unmanned aerial vehicles (UAV), electric vehicles, and smart sensors, "previously limited by low efficiency solar solutions."

"Our goal with this module was to demonstrate world-record efficiency in mass production at commercial scale," said Dr. Jian Ding, CEO of Alta Devices. He said applications for thin and flexible solar power were becoming broader and more critical.

The news release spoke about transportation and UAVs:

"On the transportation side, Alta Devices has worked with European car maker to integrate solar cells into panoramic glass automobile roofs. In terms of UAVs, Alta Devices has made strides toward solving one of the biggest 'pain points' of traditional [unmanned aerial vehicles](#) by applying the highest-efficiency gallium arsenide thin-film solar cell to develop a UAV with the longest flight time in the world."

The release added, "Extremely light and flexible, the thin-film panels were easily integrated into the drone without altering its aerodynamic profile."

More information: — hanergy.en.made-in-china.com/
— [www.prnewswire.com/news-releases ... dules-300592510.html](http://www.prnewswire.com/news-releases/300592510.html)

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