



Unmatched Performance



Lightweight & Flexible



Seamless Integration

World Record Efficiency: 28.8% and 31.6%
Custom 4x3 (Series x Parallel) Solar Module

Fly Forever: Solar for HALE UAVs

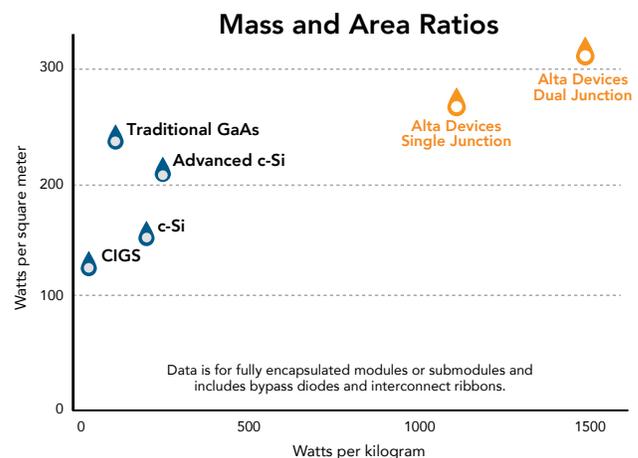
The Power & Weight Problem

Flying forever is the goal for designers of high altitude long endurance (HALE) UAVs. Batteries alone cannot enable continuous operations. As a result, renewable energy sources, such as solar, are needed to achieve multiple week and month operation. The optimal weight and power of Alta Devices' solar solution allow the aircraft to achieve the required altitude while operating its energy-hungry payloads. Designers seek to achieve the greatest packing density with the lowest weight. Alta Devices technology maximizes both benefits.

The Solar Solution

Solar technology has improved dramatically over the last decade, but not all solar is ideal for HALE aircraft. Solar should maximize power while minimizing weight to optimize power-to-weight. Typical low cost commercial solutions, such as silicon, are high in power, but heavy. Newer and lighter solutions, such as CIGS, are low in power. Very high power solar solutions used in space are costly and most are heavy. However, Alta Devices has developed an extremely lightweight, flexible, and powerful solution using gallium arsenide (GaAs).

Through a unique process Alta Devices has achieved world record single and dual junction efficiencies of 28.8% and 31.6% while achieving an aerial weight of 170 g/m².



Power Output	260 W/m ² (24 W/ft ²)
Weight (unencapsulated)	170 g/m ² (0.56 oz/ft ²)
Flexibility	2 cm (0.8 in) radius of curvature

Note: Numbers are for the Alta Devices single junction solar cell under AM1.5 standard test conditions. For information on performance under other conditions or on our dual junction product please visit www.altadevices.com or email us at info@altadevices.com.

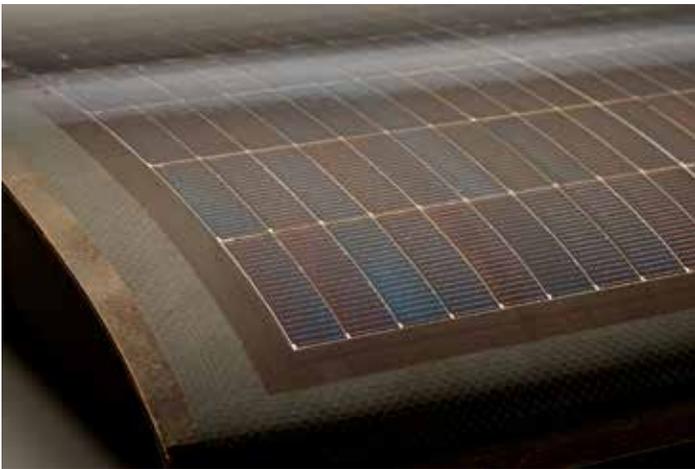
Fly Forever: Solar for HALE UAVs

The Benefits

Alta Devices solar cells offer an exceptional combination of high efficiency, flexibility, thinness, and low weight. In addition, the product is highly configurable to meet your physical, mechanical and electrical requirements. These attributes make Alta Devices solar ideal for HALE aircraft allowing them to fly longer, higher, and at more latitudes than competing solar technologies.

Limited Aerodynamic Impact

Because Alta Devices solar cells are so thin and flexible, they can easily be adhered directly to a wing or fuselage surface with negligible impact to aerodynamics. It is also possible to integrate the cells directly into carbon fiber or fiberglass resulting in a seamless structure.



Alta Devices solar cells integrated into carbon fiber on a curved wing.

Committed to the Future

Alta Devices continues to refine its product to meet the growing requirements of HALE aircraft manufacturers and operators. Over the last year, we have improved our single junction product power 5% and significantly decreased weight by almost 40%. We successfully passed reliability requirements for temperature and spectrum at high altitudes. We plan to roll out an even more powerful dual junction product which will increase our power another 10%. Simultaneously, Alta Devices has committed to a roadmap for volume production which will meet the demand from customers in various market segments.

Teamwork

When you buy Alta Devices solar, you don't just buy solar cells. Our highly skilled and knowledgeable team of application engineers works closely with each customer, providing technical support from beginning to end of each project to ensure customer success. Email us at info@altadevices.com

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