# High-Volume Production of Lightweight Multijunction Solar Cells

# Reduces the cost of cells via a 6-inch gallium arsenide (GaAs) epitaxial lift-off and substrate reclaim process

MicroLink Devices, Inc., has transitioned its 6-inch epitaxial lift-off (ELO) solar cell fabrication process into a manufacturing platform capable of sustaining large-volume production. This Phase II project improves the ELO process by reducing cycle time and increasing the yield of large-area devices. In addition, all critical device fabrication processes have transitioned to 6-inch production tool sets designed for volume production. An emphasis on automated cassette-to-cassette and batch processes minimizes operator dependence and cell performance variability. MicroLink Devices established a pilot production line capable of at least 1,500 6-inch wafers per month at greater than 80 percent yield. The company also increased the yield and manufacturability of the 6-inch reclaim process, which is crucial to reducing the cost of the cells.

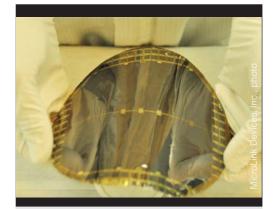
## Applications

#### NASA

 Solar electric propulsion programs

#### **Commercial and Military**

- Electric-powered unmanned aerial vehicles (UAVs)
- Commercial and military satellites
- Portable solar electric power chargers



# **Phase II Objectives**

- Improve the manufacturability and reduce the cost of the 6-inch ELO process for fabricating highefficiency, large-area multijunction solar cells
- Optimize the 6-inch ELO process for high throughput and yield (greater than 80 percent)
- Use automated process tool sets capable of more than 1,500 6-inch wafers per month
- Establish a production-ready 6-inch GaAs substrate reclaim process

#### **Benefits**

- Produces lightweight and high specific power multijunction solar cells
- Offers an inexpensive and streamlined manufacturing process

## **Firm Contact**

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