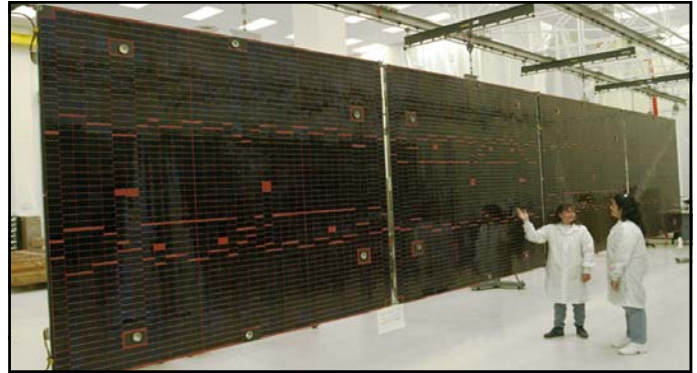


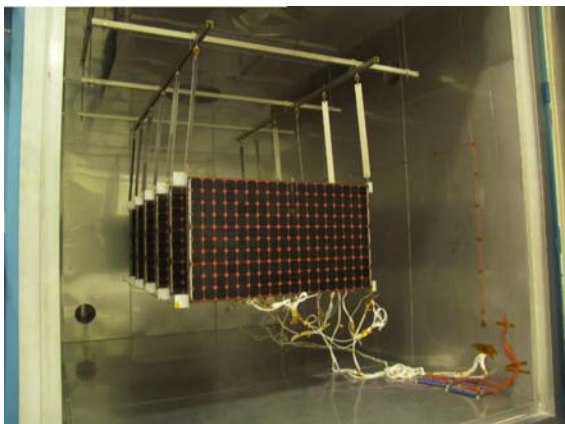
Space Solar Panels

Features

- Large area (> 50 cm²) and small area (< 30 cm²) CIC sizes available
- Panel assembly material and processing qualified to low earth orbit (LEO) 66,060 cycles and geostationary (GEO) 15,550 cycles
- ESD survivability tested to ISO standard
- In-house thermal cycle chamber available for testing
- Laydown capability for both rigid and flexible substrates



	Improved Triple Junction (ITJ): GaInP ₂ /GaAs/Ge	Ultra Triple Junction (UTJ): GaInP ₂ /GaAs/Ge	NeXt Triple Junction (XTJ): GaInP ₂ /GaAs/Ge
Power (28°C, Beginning Of Life) • Panel Area > 2.5 m ² • Panel Area < 2.5 m ²	330 W/m ² 316 W/m ²	350 W/m ² 330 W/m ²	366 W/m ² 345 W/m ²
Mass (add-on to substrate) • 3 mil Ceria Doped Coverslide • 6 mil Ceria Doped Coverslide	1.76 kg/m ² (5.5 mil thick cell) 2.06 kg/m ² (5.5 mil thick cell)	1.76 kg/m ² (5.5 mil thick cell) 2.06 kg/m ² (5.5 mil thick cell)	1.76 kg/m ² (5.5 mil thick cell) 2.06 kg/m ² (5.5 mil thick cell)
Thermal Control • Front: Ceria Doped Coverslide* • Rear	Absorptance ≤ 0.92 Emittance ≥ 0.84	Absorptance ≤ 0.92 Emittance ≥ 0.84	Absorptance ≤ 0.90 Emittance ≥ 0.84
Magnetic Dipole Moment	< 0.01 Am ²		
Reliability	Demonstrated 0.999 for 20kW Array		



*Spectrolab has demonstrated full scale environmental testing capability: vibroacoustic, thermal vacuum, thermal cycling.
* Lower absorptance values can be obtained using special coatings*

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Specifications Subject to Change Without Notice

Revised 5/20/10

ISO 9001:2000
REGISTERED

ENVIRONMENTAL MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 14001

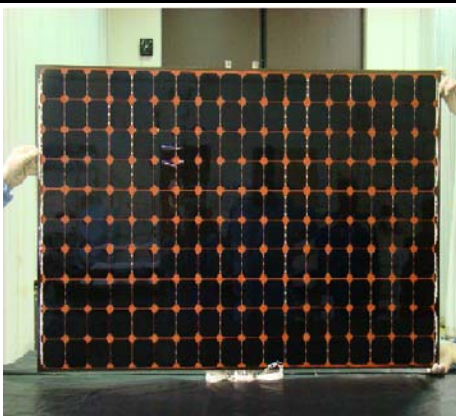
AS9100
REGISTERED

Space Solar Panels



Flight Hardware Heritage

Panel Manufacturing Assembly:	Processes qualified, more than 1,500 Multi-Junction Solar Panels delivered for LEO, GEO and interplanetary missions								
Mission Environments:	<table> <tr> <td>Low Earth Orbit:</td> <td>15 Years</td> </tr> <tr> <td>Mid Earth Orbit:</td> <td>10 Years</td> </tr> <tr> <td>Geosynchronous Orbit:</td> <td>20 Years</td> </tr> <tr> <td>Planetary:</td> <td>Mars, Jupiter, Asteroid</td> </tr> </table>	Low Earth Orbit:	15 Years	Mid Earth Orbit:	10 Years	Geosynchronous Orbit:	20 Years	Planetary:	Mars, Jupiter, Asteroid
Low Earth Orbit:	15 Years								
Mid Earth Orbit:	10 Years								
Geosynchronous Orbit:	20 Years								
Planetary:	Mars, Jupiter, Asteroid								
Circuit Configuration: (As qualified on Aluminum and Composite Substrate Face-Sheets)	Series Connections, Wire Terminations: <ul style="list-style-type: none"> • Soldered (Standard, High Temperature) • Welded 								
Component Integration:	<table> <tr> <td>Interconnects:</td> <td> <ul style="list-style-type: none"> • Fatigue Resistant • Magnetic or Non-Magnetic </td> </tr> <tr> <td>Wiring:</td> <td> <ul style="list-style-type: none"> • Radiation Tolerant • Low Magnetic Moment </td> </tr> <tr> <td>Connectors:</td> <td> <ul style="list-style-type: none"> • Crimped • Flex Print • Subminiature Shell </td> </tr> </table>	Interconnects:	<ul style="list-style-type: none"> • Fatigue Resistant • Magnetic or Non-Magnetic 	Wiring:	<ul style="list-style-type: none"> • Radiation Tolerant • Low Magnetic Moment 	Connectors:	<ul style="list-style-type: none"> • Crimped • Flex Print • Subminiature Shell 		
Interconnects:	<ul style="list-style-type: none"> • Fatigue Resistant • Magnetic or Non-Magnetic 								
Wiring:	<ul style="list-style-type: none"> • Radiation Tolerant • Low Magnetic Moment 								
Connectors:	<ul style="list-style-type: none"> • Crimped • Flex Print • Subminiature Shell 								
Thermal Control:	Paint Second Surface Mirrors								
Electrostatic Discharge:	Differential Voltage, Grouting, Conductively Coated Coverglass and Wiring, Equipotential Cell Laydown								
Atomic Oxygen Protection:	Fully Grouted								



Intellectual Property

This product is protected by Spectrolab's portfolio of patents including the following:

- 6,150,603
- 6,255,580
- 6,380,601
- 7,119,271
- 7,126,052

