

NEWSPACE MARKET · COMPANY PROFILE

SPECTROLAB
A Boeing Company

Spectrolab

United States · founded 1956 · spectrolab.com

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WITH DATASHEETS

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as of 26 August 2026



Spectrolab

Spectrolab, a wholly-owned subsidiary of Boeing, is the world's leading manufacturer of high-efficiency multi-junction solar cells and concentrator solar cells for spacecraft. Founded in 1956 and headquartered in Sylmar, California, Spectrolab has produced space solar cells that have powered more than 500 satellites and spacecraft. The company's XTJ Prime and XTE+ multi-junction solar cells achieve efficiencies exceeding 30%, setting industry benchmarks for space photovoltaic power generation. Spectrolab also develops terrestrial concentrator photovoltaic (CPV) systems and Nightsun searchlights used by law enforcement and military aircraft worldwide. Spectrolab's products power a wide range of missions from commercial geostationary satellites to planetary science spacecraft, including numerous NASA, ESA, and commercial operator platforms. The company holds numerous world records for solar cell efficiency and continues to advance III-V multi-junction technology for both space and ground-based applications.

This profile is generated from the live NewSpace Market catalogue. Specifications are as published by the manufacturer; every product links to a page where a request for quotation reaches the company directly.

Services

Engineering Services Spectrolab offers engineering services, providing expertise in design, analysis, and optimization for customer projects.	Environmental Testing Spectrolab offers environmental testing services to ensure products can withstand various operational conditions.
FAA Repair Services Spectrolab offers FAA repair services, indicating their capability to repair and maintain aviation-related components.	Foundry Services Spectrolab offers foundry services, which typically involve the manufacturing of components or devices based on customer designs.
Packaging Services Spectrolab offers packaging services, which involve the enclosure and protection of electronic components or systems.	

Product catalogue



SPECTROLAB

2V GaAs Laser Power Converter

Dual-junction GaAs photovoltaic converter optimized for 810 nm laser light, achieving 50–55% conversion efficiency for power-over-fiber and laser power beaming applications.

Output voltage	2 V
Junction configuration	Dual junction
Material	GaAs
Optimized wavelength	810 nm
Active area diameter	1.5 mm
Conversion efficiency	50–55%
Available forms	Chip or packaged

price on request



SPECTROLAB

77cm 2 Class (SuperCell) Triple Junction Solar Cell

Spectrolab's heritage 3J product, the XTJ Prime, offers 30.7% average BOL efficiency and is qualified under AIAA-S111 & AIAA-S112 standards.

Average BOL efficiency	30.7%
EOL efficiency (1E15 1MeV electron)	26.7%
Sizes available	26-84 cm2

price on request

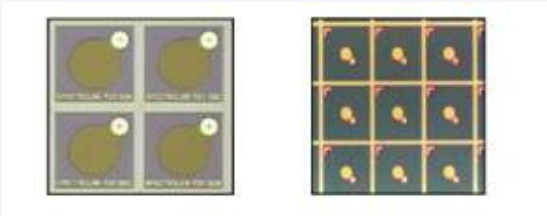
SPECTROLAB

GaInP/GaAs/Ge Lattice Matched 3J Solar Cells

Lattice-matched triple-junction (GaInP/GaAs/Ge) space solar cells reaching up to 32% efficiency, also offered as fully assembled space solar panels.

Cell type	GaInP/GaAs/Ge lattice matched 3J
Efficiency	up to 32%

price on request



SPECTROLAB

InGaAs PIN Photodetector Die

Telcordia-qualified InGaAs P-I-N photodetector device dies for telecom, laser power monitoring, and test systems, available in 25 µm to 1 mm active area sizes on 2", 3", and 4" InP

Material	InGaAs P-I-N on InP substrate
Active area sizes	25 µm to 1 mm diameter
Wafer sizes	2", 3", and 4" InP substrates
Key characteristics	Low dark current, low capacitance, high quantum efficiency
Qualification	Telcordia qualified
Applications	Telecom, laser power monitoring, distributed sensing, test systems
Available forms	Device dies

price on request



SPECTROLAB

Laser Power Converters

Spectrolab offers a variety of laser power convertors (LPC) optimized for maximum conversion of monochromatic laser light, including multijunction GaAs and metamorphic InGaAs PV co

2V LPC Wavelength	810 nm
2V LPC Active Area	1.5 mm diameter
2V LPC Conversion Efficiency	50-55%
6V LPC Configuration	Two cells in series
6V LPC Active Area	3 mm diameter
6V LPC Conversion Efficiency	30-35%
InGaAs PV Wavelength Range	900-1600 nm

price on request



SPECTROLAB

Nightsun® SXP-10

The Nightsun® SXP-10 is Spectrolab's latest and most advanced searchlight, building on over 50 years of high-intensity searchlight design and manufacturing heritage.

Mass	12.5 lbs.
Operating temperature	-55° C to +71°C
Power	180 Watts Total
Supply voltage	+28Vdc
Interface	Quick Disconnect Connector
Dimensions	H = 12.7 cm, W = 18.5 cm, L = 34.0 cm
Max Airspeed	200 KNOTS

price on request

[datasheet](#)



SPECTROLAB

Space Solar Arrays

Fully integrated and tested space solar arrays delivered to satellite primes for direct spacecraft integration, manufactured with Spectrolab's advanced multijunction cells and 70+

Integration	Fully integrated and tested – delivered assembly-ready
Cell technology	XTE and XTJ family multijunction cells
Test capability	LAPSS II large area pulsed solar simulator (up to 12 ft diameter panels)
Flight heritage	500+ spacecraft including GEO, LEO, scientific, and defense missions
Flight heritage (2)	70+ years of Spectrolab space solar array manufacturing

price on request



SPECTROLAB

Space Solar Panels

Fully assembled space solar panels built to customer specifications, integrating Spectrolab's multijunction solar cells for maximum EOL performance across all orbital environments.

Integration	Multijunction solar circuits bonded to customer-furnished substrate
Optimization	Engineered for maximum EOL performance per mission profile
Cell technology	XTE or XTJ family multijunction cells
Flight heritage	500+ spacecraft powered by Spectrolab panels

price on request



SPECTROLAB

XTE-HF Solar Cell

Spectrolab's XTE High Fluence 32% BOL triple-junction solar cell for MEO and very high radiation environments exceeding $1e15$ fluence, achieving 23.6% efficiency at $1e16$ fluence.

BOL efficiency	32%
EOL efficiency at $1e16$ fluence	23.6%
Cell technology	GaInP/GaAs/Ge lattice matched triple-junction (3J)
Qualification standard	AIAA-S111-2014
Target orbit	MEO ($>1e15$ fluence, Van Allen belt)
Available forms	Bare cells or CIC assemblies
Open Circuit Voltage Temperature Coefficient (BOL)	-5.7 mV/°C

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SPECTROLAB

XTE-LILT Solar Cell

Spectrolab's triple-junction solar cell optimized for Low Intensity Low Temperature conditions, achieving 37% efficiency at Jupiter for deep space missions to outer planets.

BOL efficiency (1 AU)	32%
Efficiency at jupiter lilt conditions	37%
Cell technology	GaInP/GaAs/Ge lattice matched triple-junction (3J)
Qualification standard	AIAA-S111-2014
Target missions	Deep space (Jupiter and beyond, LILT conditions)
Flight heritage	NASA New Horizons, Juno, Europa Clipper class missions
Available forms	Bare cells or CIC assemblies

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SPECTROLAB

XTE-LILT Triple-Junction Solar Cell

Spectrolab high-efficiency triple-junction solar cell optimized for low-intensity low-temperature (LILT) conditions, used on deep space missions including Juno and New Horizons.

Type	Triple-junction solar cell
Optimization	LILT (Low Intensity Low Temperature)
Flight heritage	Juno, New Horizons, 1000+ spacecraft
Manufacturer	Spectrolab (Boeing subsidiary)

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SPECTROLAB

XTE-SF Solar Cell

Spectrolab's XTE Standard Fluence 32% BOL triple-junction solar cell for GEO and LEO missions up to $1e15$ fluence, qualified under AIAA-S111-2014.

BOL efficiency	32%
EOL efficiency at $1e15$ fluence	27.9%
Cell technology	GaInP/GaAs/Ge lattice matched triple-junction (3J)
Qualification standard	AIAA-S111-2014
Target orbit	GEO and LEO ($\leq 1e15$ fluence)
Available forms	Bare cells or CIC assemblies
CIC Absorptance	0.90

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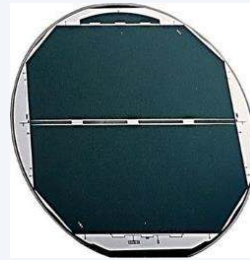
SPECTROLAB

XTE+ GEO Solar Cell

Spectrolab's latest 33% BOL efficiency triple-junction solar cell optimized for GEO and high-radiation missions ($>1e14$ fluence), fully qualified under AIAA-S111-2014.

BOL efficiency	33%
EOL efficiency at $1e15$ fluence	28.5%
Cell technology	GaInP/GaAs/Ge lattice matched triple-junction (3J)
Qualification standard	AIAA-S111-2014
Target orbit	GEO ($>1e14$ fluence)
Available forms	Bare cells or CIC assemblies
Cell Thickness	160 μm

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SPECTROLAB

XTE+ LEO Solar Cell

Spectrolab's 33% BOL efficiency triple-junction solar cell optimized for LEO missions with lower radiation fluence ($<1e14$), achieving 30.6% efficiency at $1e14$ fluence.

BOL efficiency	33%
EOL efficiency at $1e14$ fluence	30.6%
Cell technology	GaInP/GaAs/Ge lattice matched triple-junction (3J)
Qualification standard	AIAA-S111-2014
Target orbit	LEO ($<1e14$ fluence)
Available forms	Bare cells or CIC assemblies
Open Circuit Voltage (BOL)	2.807 V

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SPECTROLAB

XTJ Prime Solar Cell

Spectrolab's proven heritage triple-junction solar cell with 30.7% average BOL efficiency, dual-qualified under AIAA-S111 and AIAA-S112, available in sizes from 26 to 84 cm^2 .

BOL efficiency (average)	30.7%
EOL efficiency at $1e15$ fluence	26.7%
Cell technology	Heritage upright lattice matched XTJ triple-junction
Qualification standards	AIAA-S111 and AIAA-S112 (dual qualified)
Available sizes	26–84 cm^2
Flight heritage	Hundreds of satellites and spacecraft
Available forms	Bare cells or CIC assemblies

[price on request](#) [datasheet](#)

Contact Spectrolab

Open the company profile on NewSpace Market to see full specifications and datasheets, and to send a request for quotation that reaches the manufacturer directly.

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<https://www.spectrolab.com>