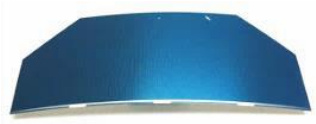
SPECTROLAB
A Boeing Company

30.7% XTJ Prime
Space Qualified Triple Junction Solar Cell

- **Best in Class - BOL & EOL**
- **AIAA-S111 & AIAA-S112 Space Qualified**
- **Heritage Upright Lattice-Matched XTJ Structure**
- **26.7% EOL, 1E15 1MeV electron****
- **Currently in Full Production**
- **Multiple Sizes Available (27cm² through 84cm²)**

Operates 2° C Cooler Than Other Space Grade Solar Cells



Cell Thickness = 80μm - 225 μm
Cell Mass = 50 - 84mg/cm²

XTJ Prime Post 1 MeV e- Retention (US Standard AIAA S-111-2005)

Parameters*	BOL	1e14 (10-yr LEO)	5e14	1e15 (15-yr GEO)	1e16
$Efficiency_{mp}$	30.7%	0.94	0.88	0.85	0.65
V_{oc} (V)	2.720	0.94	0.89	0.87	0.78
J_{sc} (mA/cm^2)	18.0	1.00	0.99	0.98	0.93
V_{mp} (V)	2.406	0.94	0.89	0.87	0.76
J_{mp} (mA/cm^2)	17.5	1.00	0.99	0.97	0.86

*** Production average of >100,000 cells; AM0 (135.3 mW/cm², 28ºC)** **(Fluence of 1 MeV electrons/cm²)**

XTJ Prime Post 1 MeV e- Retention (European standard-ECSS**)

Parameters*	BOL	1e14 (10-yr LEO)	5e14	1e15 (15-yr GEO)	1e16
$Efficiency_{mp}$	30.7%	0.94	0.90	0.87	0.70
V_{oc} (V)	2.720	0.94	0.90	0.88	0.80
J_{sc} (mA/cm^2)	18.0	1.00	0.99	0.99	0.94
V_{mp} (V)	2.406	0.94	0.91	0.89	0.80
J_{mp} (mA/cm^2)	17.5	1.00	0.99	0.98	0.88

**** Photon and temperature annealing according to ECSS-E-ST-20-08C** **(Fluence of 1 MeV electrons/cm²)**

QUALITY MANAGEMENT SYSTEM
AS9100
CERTIFIED

ENVIRONMENTAL MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 14001

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30.7% XTJ Prime

Over 320 kW of XTJ Prime Delivered!

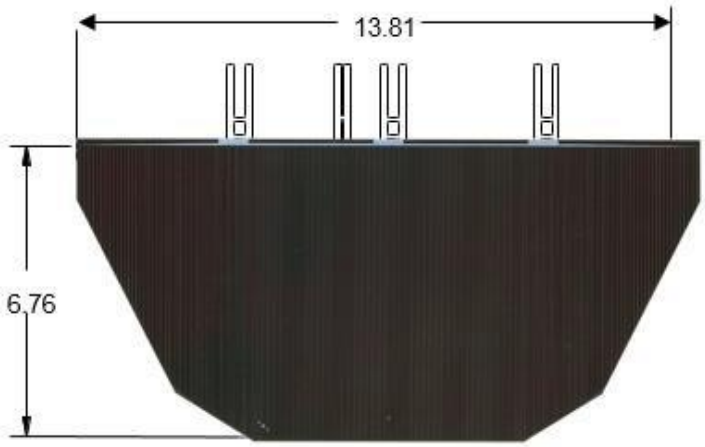
Temperature Coefficients (15ºC - 125ºC)

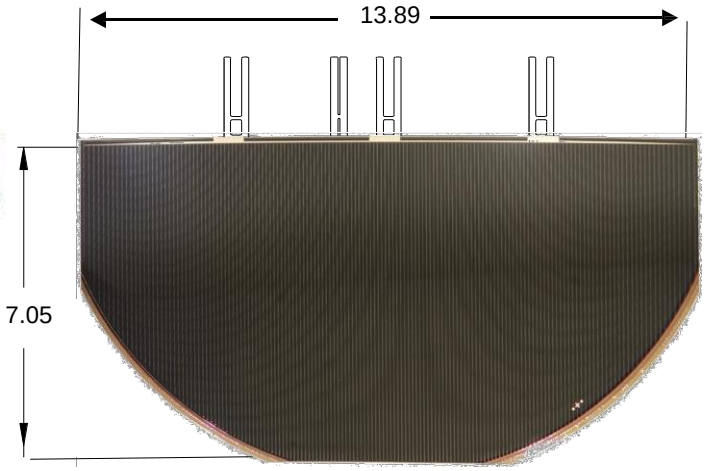
Parameters			BOL	1e14	5e14	1e15	1e16
Open Circuit Voltage	$\Delta V_{oc}/\Delta T$	[mV/ºC]	-5.6	-5.8	-6.2	-6.4	-6.6
Short Circuit Current	$\Delta J_{sc}/\Delta T$	[$\mu A/cm^2$/ºC]	10.0	10.0	10.3	10.8	11.8
Maximum Power Voltage	$\Delta V_{mp}/\Delta T$	[mV/ºC]	-6.3	-6.4	-6.5	-6.6	-6.6
Maximum Power Curren	$\Delta J_{mp}/\Delta T$	[$\mu A/cm^2$/ºC]	5.0	6.5	8.9	9.5	12.1

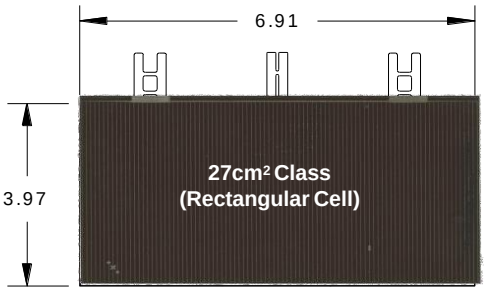
Standard Cell Sizes

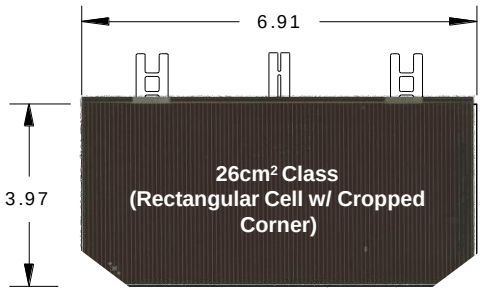
Other cell Sizes Available

Thermal Parameters	Value
Solar Absorptance	0.88
Emittance	0.85









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