SPECTROLAB
A Boeing Company

32% XTE+ LEO
Space Qualified Triple Junction Solar Cell

- Based on 25+ years of heritage 3J devices
- Fully qualified under AIAA-S111 2014 Standard
- Targeting LEO missions
- 32.2% BOL efficiency
- 30.6% EOL, 1E14 1MeV electron**
- Multiple Sizes Available (<85-cm²)
- Currently in Production

Cell Thickness = 160 μm-240 μm
Cell Mass = 50-84 mg/cm²

XTE+ LEO Post 1 MeV e- Retention (US Standard AIAA S-111-2005)

Parameters*	BOL	3e13	1e14
$Efficiency_{mp}$	32.2%	0.95	0.93
V_{oc} (V)	2.807	0.94	0.92
J_{sc} (mA/cm²)	18.07	1.00	0.99
V_{mp} (V)	2.516	0.94	0.92
J_{mp} (mA/cm²)	17.33	1.01	1.01

* AM0 (135.3 mW/cm², 28ºC), for 27 cm² cell size

(Fluence of 1 MeV electrons/cm²)

XTE+ LEO Post 1 MeV e- Retention (European standard-ECSS**)

Parameters*	BOL	3e13	1e14
$Efficiency_{mp}$	32.2%	0.97	0.95
V_{oc} (V)	2.807	0.94	0.93
J_{sc} (mA/cm²)	18.07	0.99	0.99
V_{mp} (V)	2.516	0.95	0.94
J_{mp} (mA/cm²)	17.33	1.01	1.01

** 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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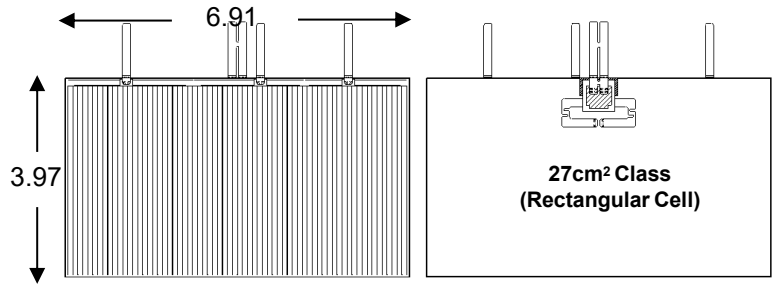
Temperature Coefficients (15ºC to 75ºC)

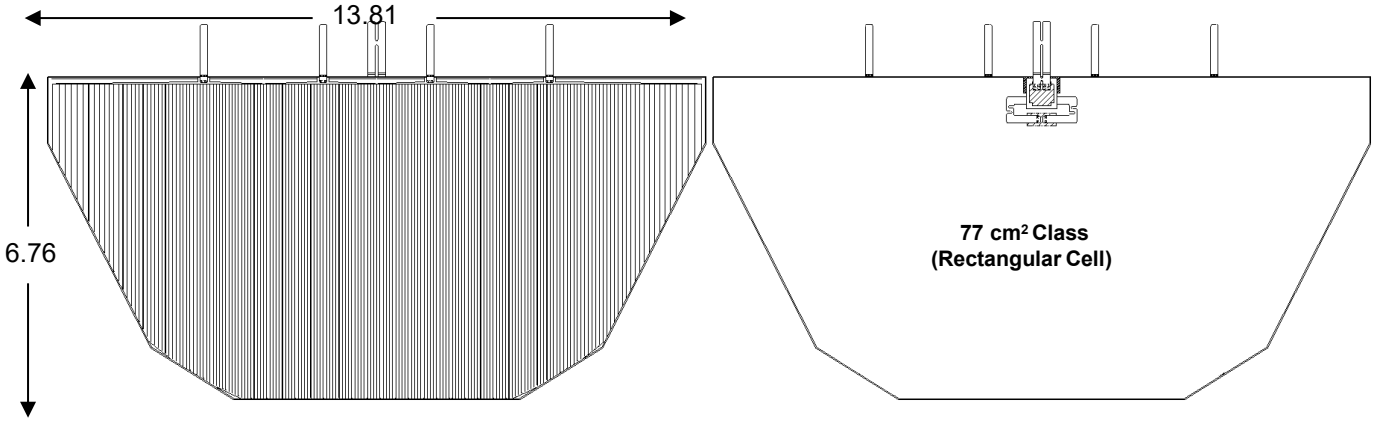
Parameters			BOL	1e14
Open Circuit Voltage	$\Delta V_{oc}/\Delta T$	[mV/ºC]	-5.5	-6.1
Short Circuit Current	$\Delta J_{sc}/\Delta T$	[μA/cm^2/ºC]	10	10
Maximum Power Voltage	$\Delta V_{mp}/\Delta T$	[mV/ºC]	-6.5	-6.5
Maximum Power Current	$\Delta J_{mp}/\Delta T$	[μA/cm^2/ºC]	7	8
Maximum Power	$\Delta P_{mp}/\Delta T$	[μW/cm^2/ºC]	-92	-94

Standard Cell Sizes

Other cell Sizes Available

Thermal Parameters	Value
Solar Absorptance	0.91
Emittance	0.85





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