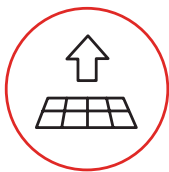
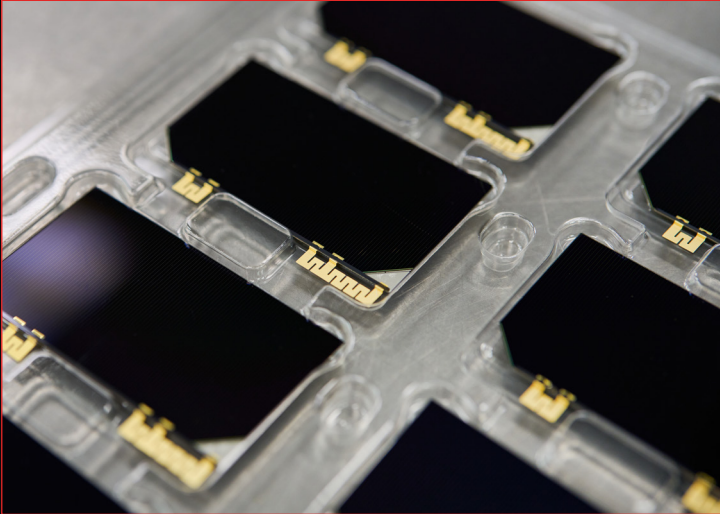


# ZTJ-Ω

## SPACE SOLAR CELL

Triple-Junction Solar Cell Optimized for LEO Environments



# 30.2%

## Minimum Average Efficiency

Space Qualification and Characterization  
to the AIAA-S111-2014 Standards.

### FEATURES

- › Triple-Junction, n-on-p solar cell lattice matched on germanium substrate
- › ZTJ cell optimized for LEO missions in environments dominated primarily by charged protons
- › Extensive flight heritage with more than 600 kW delivered to multitude of LEO missions
- › Compatible with corner-mounted silicon bypass diode for individual cell reverse bias protection
- › Excellent mechanical strength for reduced attrition during assembly and laydown
- › Weldable or solderable contacts
- › Custom sizes available

# ZTJ-Ω SPACE SOLAR CELL

## BOL Performance

Typical Parameters @ AMO (135.3 mW/cm<sup>2</sup>), 28°C

Typical Values	
BOL Efficiency at Maximum Power Point (%)	30.2
Voc (V)	2.73
Jsc (mA/cm <sup>2</sup> )	17.41
Vmp (V)	2.43
Jmp (mA/cm <sup>2</sup> )	16.8

## Remaining Factors after exposure to 3-MeV Proton Irradiation

Annealed to ECSS-E-ST-20-08C Rev.1 post-radiation annealing procedure

Fluence (p+/cm <sup>2</sup> )	Voc	Jsc	Vmp	Jmp	Pmp
4.5E9	0.99	1.00	0.98	0.99	0.97
2.3E10	0.98	0.99	0.97	0.99	0.96
8.8E10	0.95	0.97	0.94	0.97	0.91
3.4E11	0.91	0.91	0.90	0.90	0.81

\*0.975 Pmp remaining factor for a typical 3 yr LEO mission at 650km and 30 degrees inclination with typical back-side shielding and 4 mil CMG/AR coverglass

## Temperature Coefficients

BOL & EOL (1-MeV electron irradiation)

1-MeV Electron Fluence Group (e/cm <sup>2</sup> )	Approx. 3-MeV Proton Fluence Equivalent (p+/cm <sup>2</sup> )*	Voc (mV/°C)	Jsc (μA/cm <sup>2</sup> /°C)	Vmp (mv/°C)	Jmp (μA/cm <sup>2</sup> /°C)	Pmp (μW/cm <sup>2</sup> /°C)
0	0	-6.7	8.5	-7.1	5.2	-108.0
6.5E+13	3.5e+10	-7.1	10.1	-7.5	7.8	-106.5
2.0E+14	1.2e+11	-7.2	11.3	-7.7	9.3	-102.0
1.0E+15	5.9e+11	-7.5	12.4	-7.9	12.2	-85.3

\*Conversion to approximate 3-MeV proton fluence calculated using damage-displacement-dose fitting parameters for Pmp



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