

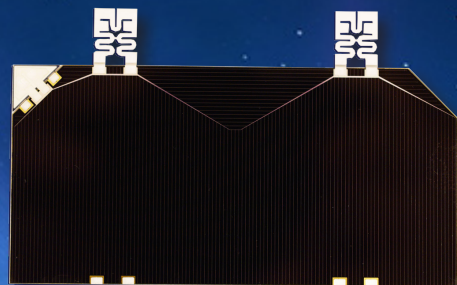
**The World Leader in
Space Power Solutions**

Over 4 million flight solar cells delivered!



IMM- α Space Solar Cell

Highest Efficiency Space Solar Cell in Production



IMM- α CIC
(Coverglass Interconnected Cell)

32.0%
Minimum Average Efficiency

Space Qualification & Characterization to the
AIAA-S111-2014 standards in progress

FEATURES & CHARACTERISTICS

- Inverted metamorphic n-on-p solar cell
- 150 μm thickness on rigid carrier substrate
- Solar cell mass of 49 mg/cm^2 which represents a 42% reduction as compared to the ZTJ solar cell
- Radiation hardened design @ 1-MeV, $1\text{E}15 \text{ e}/\text{cm}^2$ fluence $P/P_0 = 0.87$ (ECSS post-radiation annealing)
- For a typical GEO Telecom Mission, IMM- α produces 12% greater EOL power than ZTJ (1-MeV electron, $1\text{e}15 \text{ e}/\text{cm}^2$ @ 55°C)
- 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

IMM- α Space Solar Cell

Highest Efficiency Space Solar Cell in Production

BOL Performance

Typical Parameters @ AM0 (135.3 mW/cm²), 28°C

Typical Values	
BOL Efficiency at Maximum Power Point (%)	32.0
Voc (V)	4.77
Jsc (mA/cm ²)	10.72
Vmp (V)	4.23
Jmp (mA/cm ²)	10.24

EOL Remaining Factors after exposure to 1-MeV Electron Irradiation

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

Fluence (e-/cm ²)	Voc	Jsc	Vmp	Jmp	Pmp
3e13	0.98	0.99	0.99	0.99	0.98
1e14	0.96	0.99	0.97	0.99	0.96
5e14	0.92	0.98	0.92	0.99	0.91
1e15	0.90	0.97	0.90	0.97	0.87
3e15	0.86	0.90	0.86	0.87	0.75
1e16	0.81	0.82	0.80	0.74	0.60

Temperature Coefficients

BOL & EOL (1 MeV electron irradiation)

Fluence (e-/cm ²)	Voc (mV/°C)	Jsc (μ A/cm ² /°C)	Vmp (mv/°C)	Jmp (μ A/cm ² /°C)
BOL	-10.5	8.4	-11.4	12.9
1e14	-10.8	8.0	-11.6	12.1
1e15	-11.7	8.0	-12.0	11.3
1e16	-12.4	7.3	-12.7	9.8

*Projected temperature coefficients based upon data for similar materials and device structures

IMM- α CIC Mass

Coverglass Thickness (mil)	CIC Mass (mg/cm ²)
2	70.6
3	76.9
4	83.3
6	96.0

