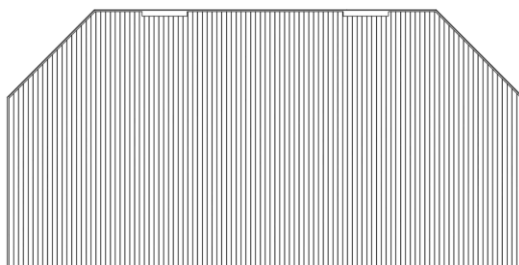
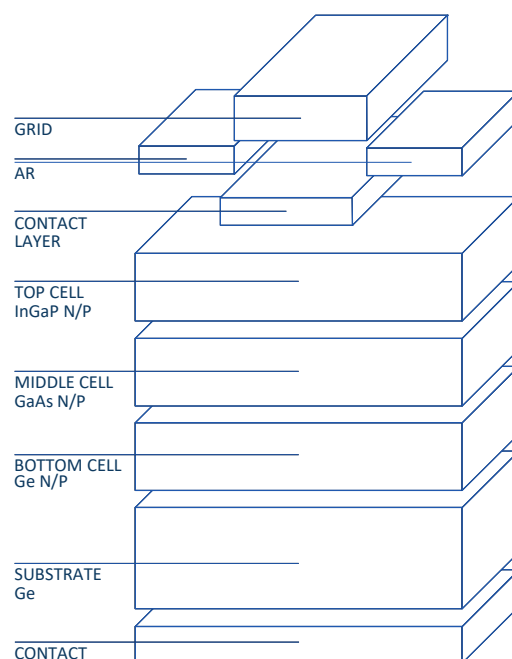


Low Cost Triple-Junction Solar Cell for Space Applications (CTJLC)



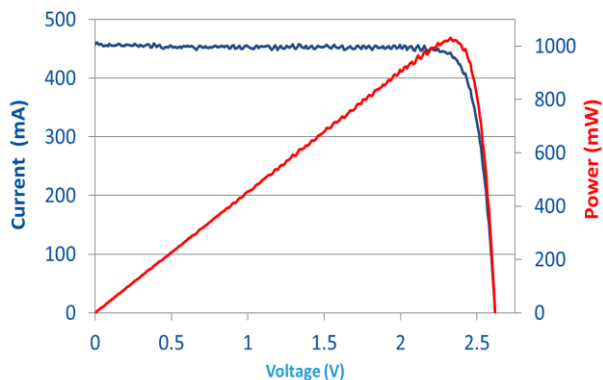
Features and characteristics

- > Efficiency 28%
- > Triple Junction Solar Cells InGaP/GaAs/Ge for Space Applications
- > Polarity N on P
- > Very low solar cell mass (81-89mg/cm²)
- > Standard thickness 150μm ± 20μm
- > Also available in thin version 80μm ± 20μm
- > Fully qualified according to ECSS E ST20-08C rev.1 for LEO and GEO orbit at bare level
- > External By-pass diode for reverse bias protection
- > Weldable Contacts, Front and Back, based on gold coated silver layers
- > Standard sizes 6.9x3.9cm², area 26.5cm²; 4x8cm² area 30.15cm²
6x12cm²; area 68.6cm²
- > High Radiation Resistance
- > Good mechanical strenght
- > High flexibility to customization (sizes, other)



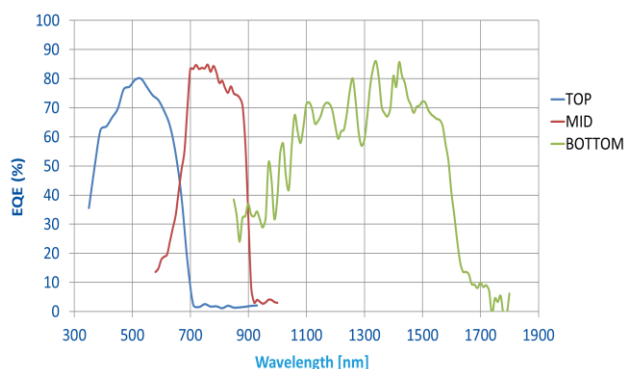
Typical Current-Voltage Characteristic

(CELL SIZE 26.5cm², EFFICIENCY 28.3% @ AM0, 25°C)



External Quantum Efficiency

(BOL AVERAGE EXTERNAL QUANTUM EFFICIENCY)



Performance Data

(AVERAGE ELECTRICAL OUTPUT PARAMETERS @AM0, 1367 W/m², T=25°C)

	J _{sc} (mA/cm ²)	V _{oc} (V)	J _m (mA/cm ²)	V _m (V)	P _{max} (mW/cm ²)	Eff (%)
BOL	17.3	2.62	16.7	2.3	38.7	28.3
EOL*	16.8	2.48	15.9	2.2	34.7	25.5

* After irradiation 1MeV electrons, dose 5E14 e/cm²

Temperature Coefficients

(@AM0, TEMPERATURE RANGE +15/+ 140 °C)

Electron Energy	Fluence (e/cm ²)	ΔI _{sc} /ΔT (μA/cm ² /°C)	ΔV _{oc} /ΔT (mV/°C)	ΔI _{pmax} /ΔT (μA/cm ² /°C)	ΔV _{pm} /ΔT (mV/°C)	ΔP _m /ΔT (μW/cm ² /°C)
0	BOL	11.4	-6.19	7	-6.31	-93
1MeV	3E15	10.0	-6.71	9	-6.93	-76

Radiation Degradation (Remaining Factors)

Electron Energy	Fluence (e/cm ²)	I _{sc}	V _{oc}	P _M
1MeV	1E14	0.99	0.98	0.96
1MeV	5E14	0.96	0.95	0.91
1MeV	1E15	0.91	0.94	0.85
1MeV	3E15	0.81	0.91	0.73

Proton Energy	Fluence (p/cm ²)	I _{sc}	V _{oc}	P _M
1MeV	2E10	0.99	0.97	0.94
1MeV	5E10	0.98	0.95	0.90
1MeV	1E11	0.97	0.94	0.87
1MeV	3E11	0.91	0.89	0.74
2MeV	1.5E11	0.98	0.94	0.89
10MeV	5E11	0.99	0.97	0.94
10MeV	5E12	0.92	0.89	0.75

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