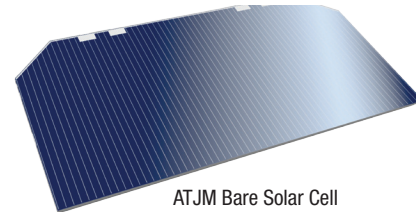


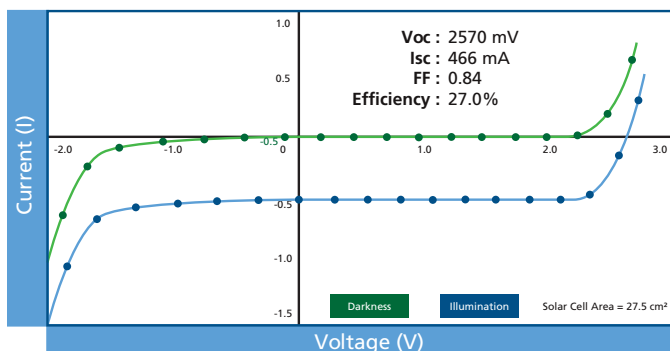
27.0% Minimum Average Efficiency



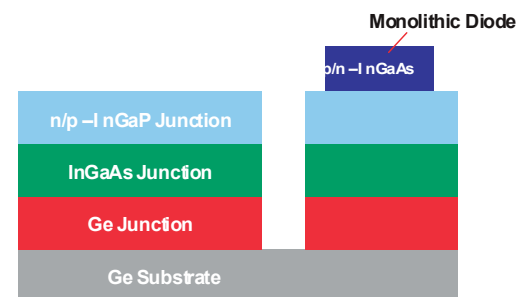
Features & Characteristics

- Solar cell mass of 84 mg/cm²
- Advanced triple-junction (ATJ) InGaP/InGaAs/Ge Solar Cells with n-on-p polarity
- Fully space-qualified monolithic bypass diode protection
- Excellent radiation resistance with P/Po = 0.89 @ 1-MeV, 5E14 e/cm² fluence
- Fully space-qualified with proven large volume manufacturing and flight heritage
- 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

Typical ATJM Illuminated I-V Plot



ATJM Solar Cell Structure



Schematic Cross-Sectional View

DATASHEET - MARCH 2015

Typical Performance Data

Electrical Parameters @ AM0 (135.3 mW/cm ²)	
BOL Efficiency at Maximum Power Point	27.5%
Voc (V)	2.60
Jsc (mA/cm ²)	17.1
Vmp (V)	2.30
Jmp (mA/cm ²)	16.2

Electrical Performance Data

Monolithic Diode Electrical Performance	
V _{RB} < 2.0V @ I _{RB}	500 mA, 28°C
I _{RB} < 50 μA @ V _{RB}	2.5V (Dark), 28°C
I _{RB} < 200 μA @ V _{RB}	2.5V (Illuminated), 28°C
I _{RB} < 10 μA @ V _{RB}	2.5V (Dark), -150°C
I _{RB} < 1 μA @ V _{RB}	2.5V (Dark), +120°C

Radiation Performance at 1 MeV Electron Irradiation, EOL/BOL Ratios

Fluence (e/cm ²)	Voc	Isc	Vmp	Imp	Pmp	Efficiency
5.00 E+ 13	0.97	1.00	0.97	1.00	0.97	0.97
1.00 E+ 14	0.96	1.00	0.96	1.00	0.96	0.96
5.00 E+ 14	0.92	0.98	0.92	0.96	0.89	0.89
1.00 E + 15	0.90	0.96	0.90	0.94	0.85	0.85
3.00 E +15	0.86	0.90	0.85	0.87	0.74	0.74

Temperature Coefficients

Fluence (e/cm ²)	Voc (mV/°C)	Jsc ⁽¹⁾ (μA/cm ² -°C)	Jmp ⁽²⁾ (μA/cm ² -°C)	Vmp (mv/°C)
0	-5.48	12.0	11.0	-5.93
5.00 E+ 13	-5.49	10.0	7.0	-5.68
1.00 E+ 14	-5.46	11.0	7.0	-5.66
5.00 E+ 14	-5.61	12.0	12.0	-5.92
1.00 E+ 15	-5.7	12.0	13.0	-6.14

(1) Jsc is the symbol for normalized Isc

(2) Jmp is the symbol for normalized Imp

Key Space Qualification Results

Test Performed	Industry Quality Standard	Typical Test Results
Metal Contact Thickness	4-10 μm	6 μm
Dark Current Degradation after reverse bias	ΔI _{spec} < 2%	< 0.4%
Electrical Performance after 2,000 thermal cycles -180°C to +95°C	< 2%	< 0.7%
High-Temperature Anneal at 200°C for >5,000 hours	< 2%	No Measurable Difference
Contact Pull Strength	> 300 grams	> 600 grams
Electrical Performance Degradation after 40 day humidity exposure at 60°C and 95% relative humidity	< 1.5%	No measurable difference

