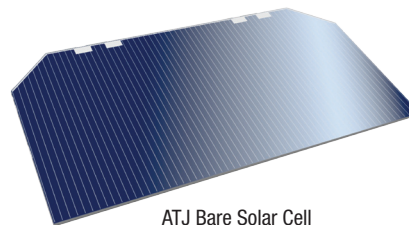


## 27.5% Minimum Average Efficiency

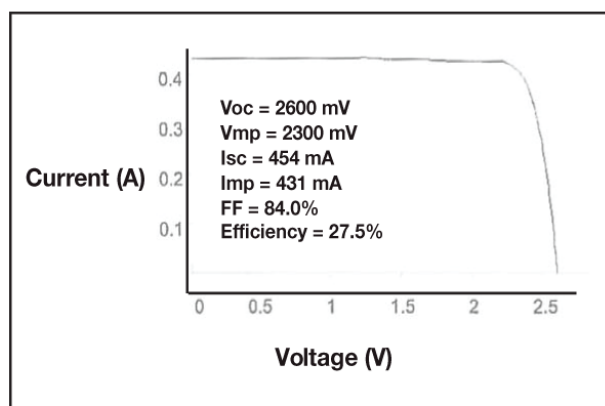


ATJ Bare Solar Cell

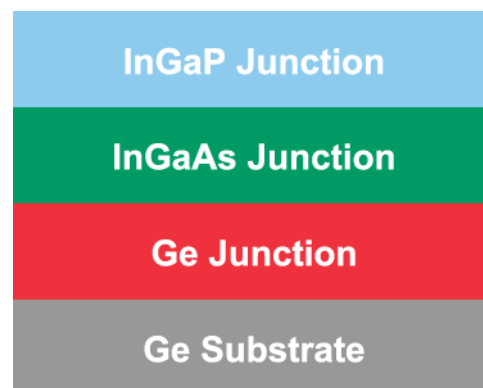
## Features & Characteristics

- Solar cell mass of 84 mg/cm<sup>2</sup>
- Advanced triple-junction (ATJ) InGaP/InGaAs/Ge solar cells with n-on-p polarity
- Fully space-qualified with proven large volume manufacturing and flight heritage
- Excellent radiation resistance with P/Po = 0.89 @ 1-MeV, 5E14 e/cm<sup>2</sup> fluence
- 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 ATJ Illuminated I-V Plot



## ATJ Solar Cell Structure

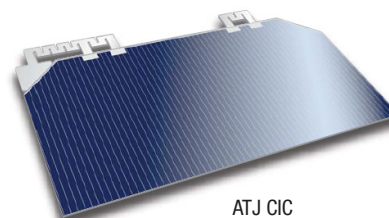


## DATASHEET - MARCH 2015

### Typical Performance Data

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

### Optional Covered Interconnect Cell (CIC) Configurations



ATJ CIC

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

Fluence (e/cm <sup>2</sup> )	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 <sup>2</sup> )	Voc (mV/°C)	Jsc <sup>(1)</sup> (μA/cm <sup>2</sup> -°C)	Jmp <sup>(2)</sup> (μA/cm <sup>2</sup> -°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	ΔIspec<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

