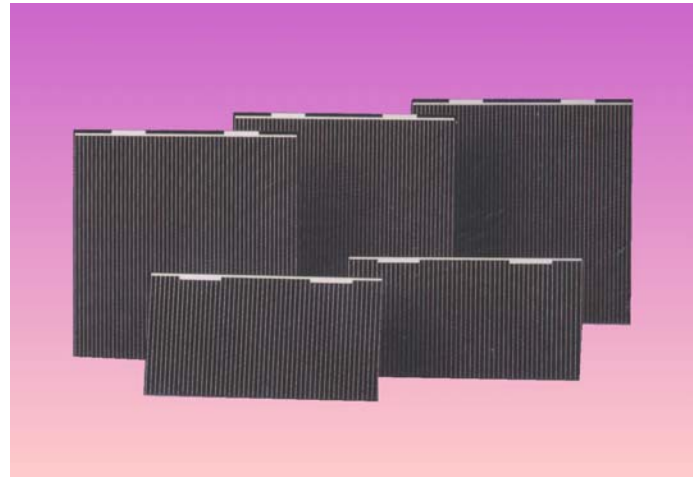


GaAs/Ge Single Junction Solar Cells

Features

- High efficiency
 - Beginning of life
 - End of life
- High reliability
 - Transparent insertion into existing systems
 - Rugged reinforced thin cell (RTC) design
 - Integral bypass diode
 - No degradation with multiple assembly methods
- Availability
 - In high volume production

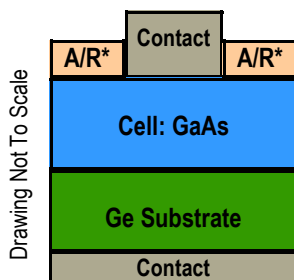


Product Description

Substrate	Germanium
Method of GaAs Growth	Metal Organic Vapor Phase Epitaxy
Polarity	p/n
Thickness	175 μm 140 μm (Mass Equivalent) RTC
Sizes	Up To 7 cm x 7 cm
Weldable/Solderable	Yes
Note: Other Variations Are Available Upon Request.	

Typical Qualification Test Results (Nominal Degradation)

Test	Description	Results
Humidity	+45°C, 90% RH Minimum 30 days	<1%*
Thermal Cycle	1600 Cycles -180° To 95°C	<2%*
Radiation	Characterized Through 1×10^{15} MeV	—
Pull Test	Parallel Gap Welded Tabs (Ag, Ag Plated Kovar)	2N (Typical)
*CIC Assembly		



*A/R: Anti-Reflective Coating

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Typical Electrical Parameters

(AMO Sunlight (135.3 mW/cm²), 28°C, Bare Cell)

$$J_{sc} = 30.5 \text{ mA/cm}^2$$

$$J_{mp} = 28.6 \text{ mA/cm}^2$$

$$P_{mp} = 25.7 \text{ mW/cm}^2$$

$$V_{oc} = 1.025 \text{ V}$$

$$V_{mp} = 0.900 \text{ V}$$

$$C_{ff} = 0.82$$

$$\text{Efficiency} = 19.0\%$$

Radiation Degradation

(Fluence 1MeV Electrons/cm²)

Parameters	1x10 ¹³	1x10 ¹⁴	1x10 ¹⁵
I _{mp} /I _{mp0}	0.99	0.95	0.83
V _{mp} /V _{mp0}	0.98	0.95	0.90
P _{mp} /P _{mp0}	0.97	0.90	0.75

Thermal Properties

Solar Absorptance= 0.89 (Ceria Doped Microsheet)

Solar Absorptance= 0.88 (Fused Silica)

Emittance (Normal)= 0.85 (Ceria Doped Microsheet)

Emittance (Normal)= 0.81 (Fused Silica)

Weight

100 mg/ cm² (Bare) @ 175 μm Thickness

80 mg/ cm² (Bare) @ 140 μm Thickness

Temperature Coefficients

(1x10¹⁵ 1 MeV e/cm²)

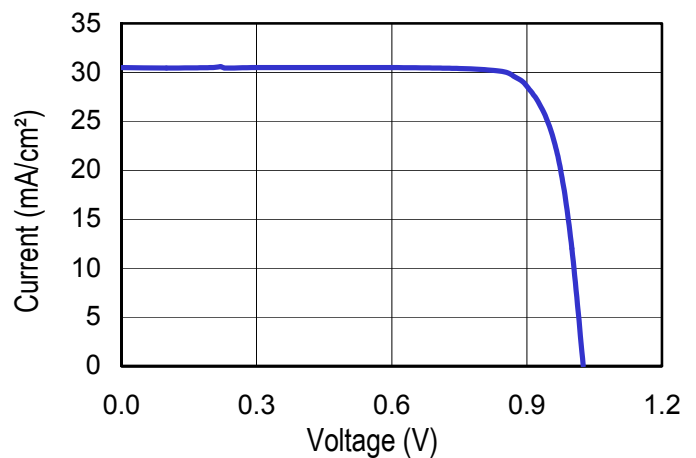
$$I_{sc} = + 20 \text{ } \mu\text{A/cm}^2/\text{ }^\circ\text{C}$$

$$V_{mp} = -1.90 \text{ mV/ }^\circ\text{C}$$

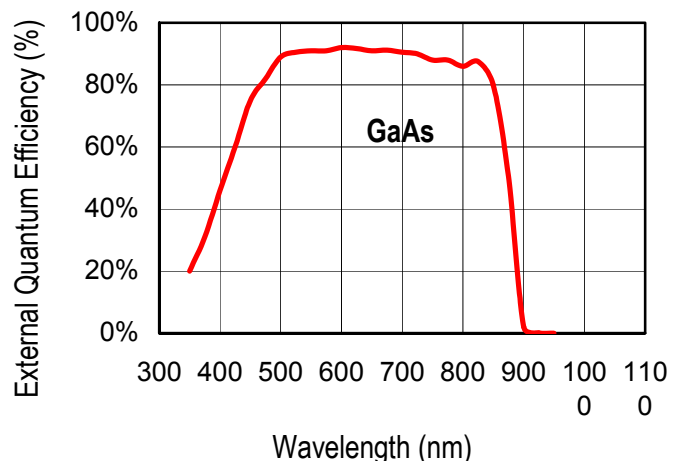
$$V_{oc} = -1.80 \text{ mV/ }^\circ\text{C}$$

Typical I-V Characteristic Curve

AMO (135.3 mW/cm²), 28°C Bare Cell



Quantum Efficiency



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The information contained on this sheet is for reference only. Specifications subject to change without notice. 09/04/1997