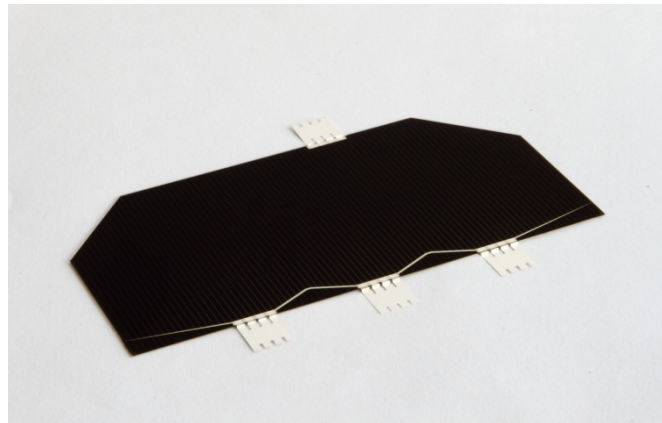
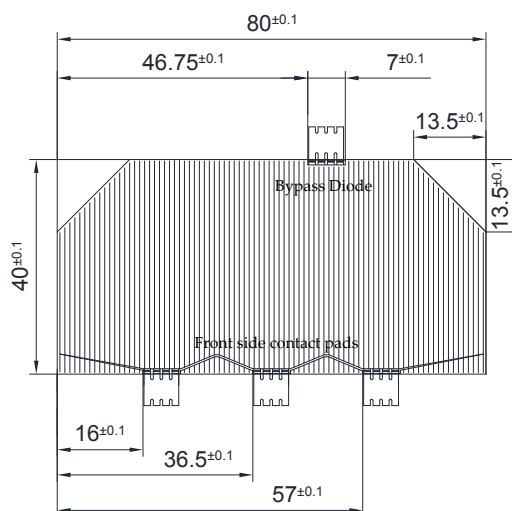


34% Triple Junction GaAs Solar Cell Assembly Type: TJ Solar Cell Assembly 3T34A



This cell type is an InGaP/GaAs/Ge on Ge substrate triple junction solar cell (efficiency class 34%) with attached interconnectors and cover glass. The solar cell assembly has an improved grid-design and is equipped with an integrated bypass diode, which protects the adjacent cell in the string. Based on our space solar cell assemblies, the whole design of the 3T34A assembly was further developed and adapted to terrestrial application.



34% Triple Junction GaAs Solar Cell Assembly

Type: TJ Solar Cell Assembly 3T34A



Design and Mechanical Data

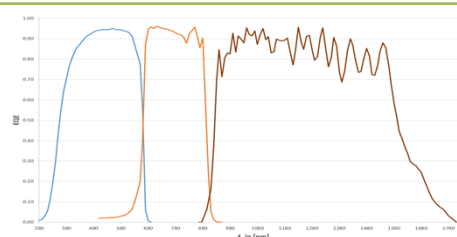
Base Material	GaInP/GaAs/Ge on Ge substrate
AR-coating	TiO _x /Al ₂ O ₃
Dimensions	40.15 x 80.15 mm ± 0.1 mm
Cell Area	30.18 cm ²
Average Weight	≤ 116 mg/cm ²
Thickness	280 ± 25 µm
Cover glass	CMX 100
Cover glass thickness	100µm
Interconnectors (3 x front side/ 1x diode)	Kovar, Ag
Dimensions (interconnector)	6.5 x 7.53 mm
Interconnector thickness	25 µm



Electrical Data (SCA)

		BOL
Average Open Circuit V _{oc}	[mV]	2679
Average Short Circuit I _{sc}	[mA]	441
Voltage at max. Power V _{mp}	[mV]	2440
Current at max. Power I _{mp}	[mA]	424
Power at MPP point P _{mp}	[mW]	1035
Average Efficiency η _{bare}	[%]	34.3

EQE chart



Spectrum: AM1.5g ASTM-G173-03; 1000 W/m²; T=25°C

Acceptance Values (SCA)

Voltage V _{op}	2300 mV
Min. average current I _{op avg} @ V _{op}	435 mA
Min. individual current I _{op min} @ V _{op}	420 mA
Min. averaged efficiency (lot) eta _{avg}	34.0 %

Shadow protection (SCA)

Integrated protection diode	V _{forward} (500 mA) ≤ 2.5 V
T = 25°C ± 3°C	I _{reverse} (2.8 V) ≤ 1.0 mA



Temperature Gradients (25°C - 80°C)

			BOL
Open Circuit Voltage	ΔV _{oc} /ΔT↑	[mV/°C]	- 6.0
Short Circuit Current	ΔI _{sc} /ΔT↑	[mA/°C]	0.32
Voltage at max. Power	ΔV _{mp} /ΔT↑	[mV/°C]	- 6.1
Current at max. Power	ΔI _{mp} /ΔT↑	[mA/°C]	0.28



Threshold Values

Absorptivity	≤ 0.91 (with CMX 100 AR)
Pull Test	> 1.6 N with 12.5µm Ag stripes by pulling at 45°