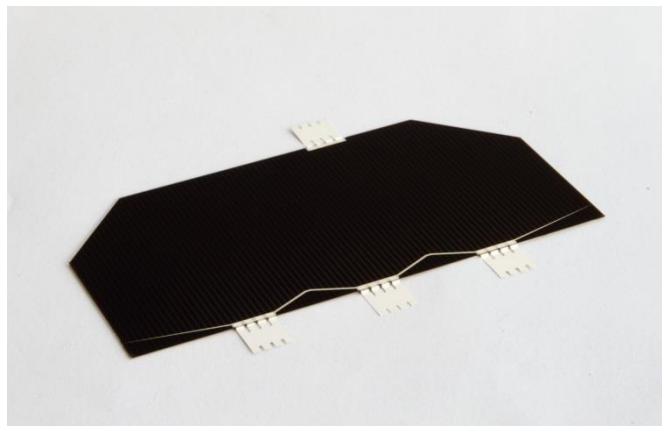


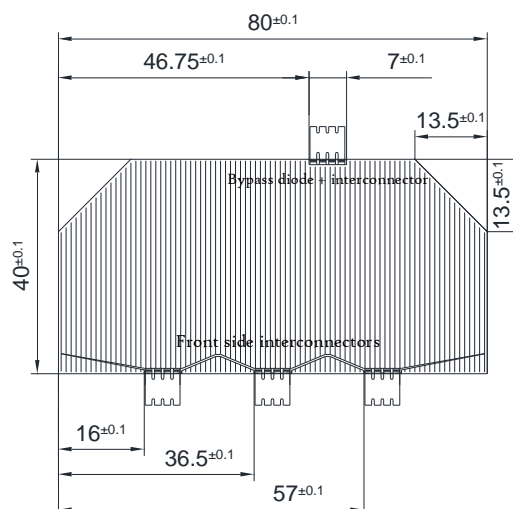
30% Triple Junction GaAs Solar Cell Assembly

Type: TJ Solar Cell Assembly 3G30A

Improved Voltage at Maximum Power Point



This cell type is an InGaP/GaAs/Ge on Ge substrate triple junction solar cell assembly (efficiency class 30%). The solar cell assembly has an improved grid-design and is equipped with an integral bypass diode, interconnectors and cover glass.



30% Triple Junction GaAs Solar Cell Assembly

Type: TJ Solar Cell Assembly 3G30A



Design and Mechanical Data

Base Material	GaInP/GaAs/Ge on Ge substrate
AR-coating	TiO ₂ /Al ₂ O ₃
Dimensions	40.15 x 80.15 mm ± 0.1 mm
Cell Area	30.18 cm ²
Average Weight	≤ 118 mg/cm ²
Thickness	280 ± 25 µm
Coverglass	CMX 100
Coverglass thickness	100 µm
Interconnectors (3x front side/ 1x diode)	Kovar coated with Ag
Dimensions (interconnector)	6.5 x 7.53 mm
Interconnector thickness	25 µm



Electrical Data (SCA)

		BOL	2.5E14	5E14	1E15
Average Open Circuit V _{oc}	[mV]	2690	2606	2554	2512
Average Short Circuit I _{sc}	[mA]	519.6	517.9	513.4	501.3
Voltage at max. Power V _{mp}	[mV]	2409	2343	2288	2244
Current at max. Power I _{mp}	[mA]	502.9	501.7	499.1	485.1
Average Efficiency η _{bare} (1367 W/m ²)	[%]	29.3	28.4	27.6	26.3
Average Efficiency η _{bare} (1353 W/m ²)	[%]	29.6	28.7	27.9	26.6

Standard: CASOLBA 2005 (05-20MV1, etc); Spectrum: AMO WRC = 1367 W/m²; T = 28 °C

@fluence 1 MeV [e/cm²]

Acceptance Values (SCA)

Voltage V _{op}	2350 mV
Min. average current I _{op avg} @ V _{op}	500 mA
Min. individual current I _{op min} @ V _{op}	470 mA

Shadow protection

Integrated protection diode	V _{forward} (620 mA) ≤ 2.5 V
T = 25°C ± 3°C	I _{reverse} (2.8 V) ≤ 100 µA



Temperature Gradients

		BOL	2.5E14	5E14	1E15
Open Circuit Voltage	ΔV _{oc} /ΔT↑ [mV/°C]	- 6.2	- 6.5	- 6.6	- 6.7
Short Circuit Current	ΔI _{sc} /ΔT↑ [mA/°C]	0.36	0.33	0.35	0.38
Voltage at max. Power	ΔV _{mp} /ΔT↑ [mV/°C]	- 6.7	- 6.8	- 7.1	- 7.2
Current at max. Power	ΔI _{mp} /ΔT↑ [mA/°C]	0.24	0.20	0.24	0.28

@fluence 1 MeV [e/cm²]



Threshold Values

Absorptivity	≤ 0.91 (with CMX 100 AR)
Pull Test	> 7 N at 0° (with standard Kovar interconnector)