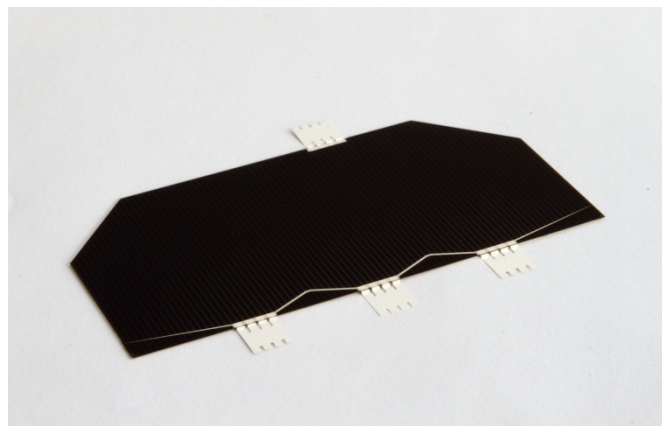


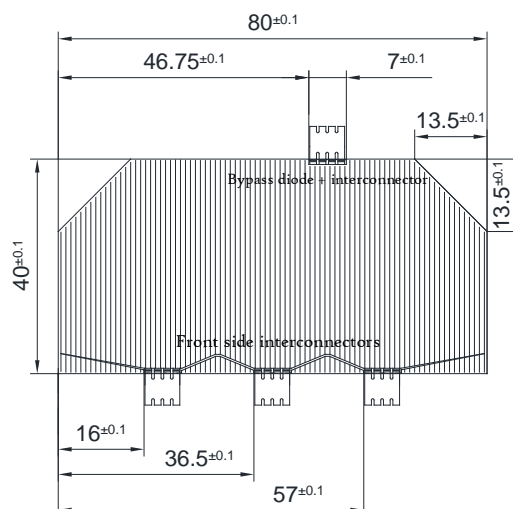
30% Triple Junction GaAs Solar Cell Assembly

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	≤ 116 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	2560	2514	2468
Average Short Circuit I _{sc}	[mA]	519.6	517.1	514.3	501.3
Voltage at max. Power V _{mp}	[mV]	2409	2277	2229	2191
Current at max. Power I _{mp}	[mA]	502.9	499.2	493.4	477.6
Average Efficiency η _{bare} (1367 W/m ²)	[%]	29.3	27.6	26.7	25.4
Average Efficiency η _{bare} (1353 W/m ²)	[%]	29.6	27.8	26.9	25.6

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

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 (25°C - 80°C)

		BOL	2,5E14	5E14	1E15
Open Circuit Voltage	ΔV _{oc} /ΔT↑ [mV/°C]	- 6.0	- 6.2	- 6.2	- 6.3
Short Circuit Current	ΔI _{sc} /ΔT↑ [mA/°C]	0.32	0.35	0.31	0.39
Voltage at max. Power	ΔV _{mp} /ΔT↑ [mV/°C]	- 6.1	- 6.3	- 6.3	- 6.4
Current at max. Power	ΔI _{mp} /ΔT↑ [mA/°C]	0.28	0.27	0.20	0.29



Threshold Values

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