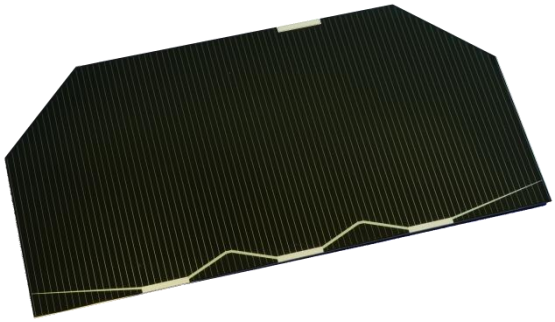
AZURSPACE
SOLAR POWER GMBH

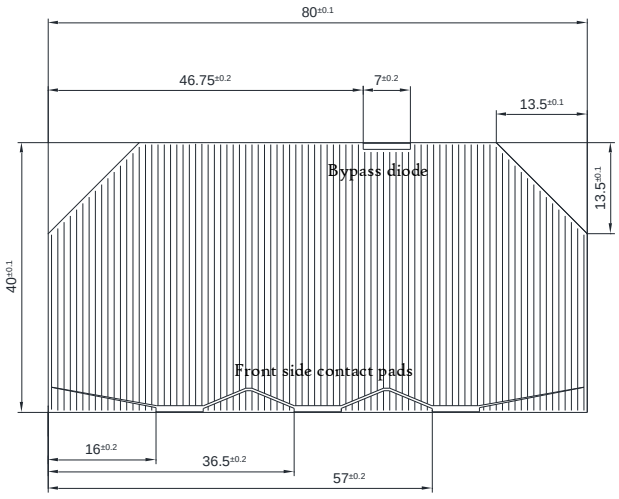
30% Triple Junction GaAs Solar Cell

Type: TJ Solar Cell 3G30C - Advanced

Best in Class EOL-Values!



This cell type is an InGaP/GaAs/Ge on Ge substrate triple junction solar cell (efficiency class 30% advanced). The cell has an improved grid-design and is equipped with an integrated bypass diode, which protects the adjacent cell in the string. The advanced version of the 3G30C offers best EOL-values.



3G30C - Advanced

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30% Triple Junction GaAs Junction Solar Cell
Type: TJ Solar Cell 3G30C - Advanced

Design and Mechanical Data

Base Material	GaInP/GaAs/Ge on Ge substrate
AR-coating	TiO_x/Al_2O_3
Dimensions	40 x 80 mm ± 0.1 mm
Cell Area	30.18 cm^2
Average Weight	≤ 86 mg/cm^2
Thickness (without contacts)	150 ± 20 µm
Contact Metallization Thickness (Ag/Au)	4 – 10 µm
Grid Design	Grid system with 3 contact pads

Electrical Data

		BOL	2,5E14	5E14	1E15
Average Open Circuit V_{oc}	[mV]	2700	2616	2564	2522
Average Short Circuit I_{sc}	[mA]	520.2	518.5	514.0	501.9
Voltage at max. Power V_{mp}	[mV]	2411	2345	2290	2246
Current at max. Power I_{mp}	[mA]	504.4	503.2	500.6	486.6
Average Efficiency η_{bare} (1367 W/m^2)	[%]	29.5	28.6	27.8	26.5
Average Efficiency η_{bare} (1353 W/m^2)	[%]	29.8	28.9	28.1	26.8

Standard: CASOLBA 2005 (05-20MV1, etc); Spectrum: AMO WRC = 1367 W/m^2; T = 28 °C @fluence 1MeV [e/cm^2]

Acceptance Values

Voltage V_{op}	2350 mV
Min. average current $I_{op\ avg}$ @ V_{op}	505 mA
Min. individual current $I_{op\ min}$ @ V_{op}	475 mA

Shadow protection

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

Temperature Gradients

			BOL	2E14	5E14	1E15
Open Circuit Voltage	$\Delta V_{oc}/\Delta T\uparrow$	[mV/°C]	- 6.2	- 6.5	- 6.6	- 6.7
Short Circuit Current	$\Delta I_{sc}/\Delta T\uparrow$	[mA/°C]	0.36	0.33	0.35	0.38
Voltage at max. Power	$\Delta V_{mp}/\Delta T\uparrow$	[mV/°C]	- 6.7	- 6.8	- 7.1	- 7.2
Current at max. Power	$\Delta I_{mp}/\Delta T\uparrow$	[mA/°C]	0.24	0.20	0.24	0.28

@fluence 1MeV [e/cm^2]

Threshold Values

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

3G30C - Advanced

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Certified Company

ISO 9001
ISO 14001
OHSAS 18001

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