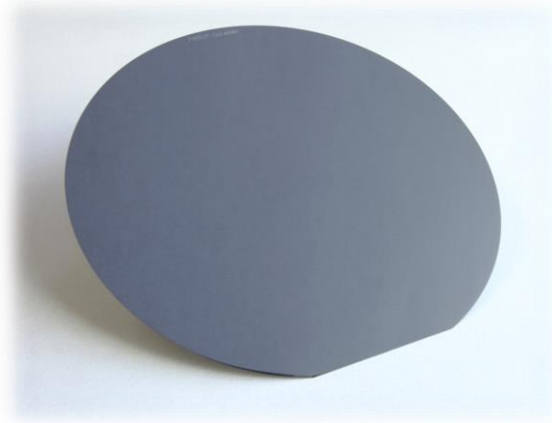
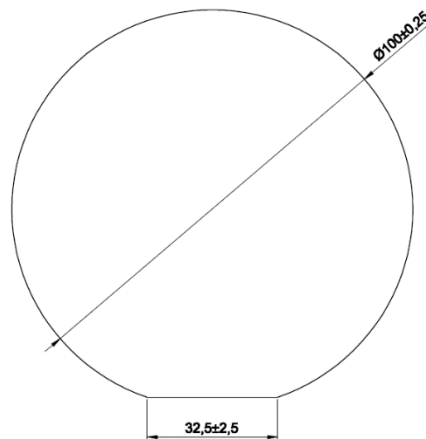




28% Triple Junction GaAs Epitaxial Wafer Type: TJ GaAs Epitaxial Wafer 3G28W



The AZUR SPACE unprocessed Epitaxial Wafers of class 28% contain our high-efficiency InGaP/GaAs/Ge based epitaxial layers on a Ge substrate. These epitaxial wafers can be used for any further processing and customized cell designs.



3G28W

28% Triple Junction GaAs Epitaxial Wafer

Type: TJ GaAs Epitaxial Wafer 3G28W



Design and Mechanical Data

Base Material	GalnP/GaAs/Ge on Ge substrate
Dimensions	100 mm ± 0.25 mm
Thickness	150 μm ± 20 μm (or 175 μm ± 20 μm)
Major Flat length	32.5 mm ± 2.5 mm
Major Flat orientation	<100> ± 2°
Average Weight	≤ 80 mg/cm ² (or ≤ 94 mg/cm ²)
Excluded area	2 mm rim from the outer wafer edge
Laser mark label	Alpha-numeric



Electrical Data*

		BOL	2,5E14	5E14	1E15
Average Open Circuit V_{oc}	[mV]	2667	2560	2534	2480
Average Short Circuit I_{sc}	[mA/cm ²]	16.7	16.6	16.6	16.0
Voltage at max. Power V_{mp}	[mV]	2371	2284	2229	2205
Current at max. Power I_{mp}	[mA/cm ²]	16.1	15.9	15.6	15.1
Average Efficiency η_{bare} (1367 W/m ²)	[%]	28.0	26.6	25.5	24.4
Average Efficiency η_{bare} (1353 W/m ²)	[%]	28.3	26.9	25.7	24.6

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

* Electrical data based on AZUR SPACE standard cell process for 4cm x 8cm dimension

Acceptance Values

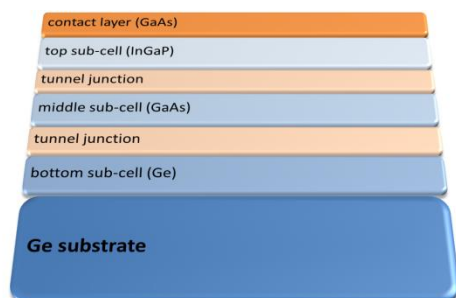
Averaged Efficiency per lot	28.0 %
Min. average Efficiency per wafer	26.0 %



Temperature Gradients (25°C - 80°C)

			BOL	2,5E14	5E14	1E15
Open Circuit Voltage	$\Delta V_{oc}/\Delta T \uparrow$	[mV/°C]	- 6.0	- 6.4	- 6.2	- 6.3
Short Circuit Current	$\Delta I_{sc}/\Delta T \uparrow$	[mA/°C]	0.32	0.33	0.31	0.39
Voltage at max. Power	$\Delta V_{mp}/\Delta T \uparrow$	[mV/°C]	- 6.1	- 6.8	- 6.3	- 6.4
Current at max. Power	$\Delta I_{mp}/\Delta T \uparrow$	[mA/°C]	0.28	0.36	0.20	0.29

Layer Structure



Typical IV-Curve

