

INTRODUCING
INDOSOL
PURE™
G12R N TYPE MONO WAFER

PRECISION AT THE FOUNDATION.

Available with western origin polysilicon.
Ingot – Wafer line at Andhra Pradesh, India.

P

PROVENANCE



Documented origin and traceability of the polysilicon used in every wafer.

U

UNIFORMITY



Uniform resistivity, thickness and dimensional characteristics across wafer to wafer.

R

**RECOMBINATION
CONTROL**



High Minority Carrier Lifetime (MCLT) for reliable Cell performance.

E

EXCELLENCE



Low defect density, controlled geometry and consistent surface quality.

KEY SPECIFICATIONS

G12R

WAFER SIZE
210 x 182.3 mm

130 ± 8 μm

THICKNESS

0.9–1.6 Ω.cm

RESISTIVITY

≥ 1000 μs

MCLT (Minority
Carrier Lifetime)



**WESTERN ORIGIN
POLYSILICON**



**INDEPENDENT
INDIAN
MANUFACTURER**



**SUPPLIER
DOCUMENTATION**



**PARTNER FOR
PROGRESS**

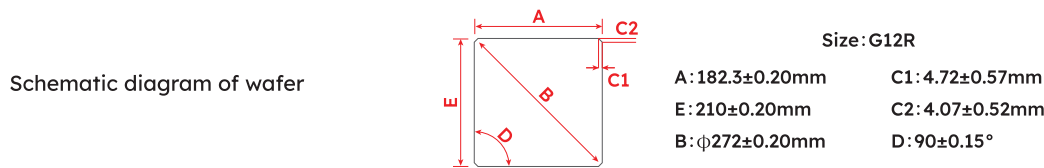
Monocrystalline Wafer Specification

N Type-G12R-Res 0.9~1.6

Key Parameters		
Conductivity type	N-Type	P/N type tester (DLY-2 P/N)
Dopant	Sb,P	--
Resistivity/ Ω .cm	0.9-1.6	Wafer inspection system
MCLT(Minority carrier lifetime)/ μ s	≥ 1000	QSSPC /Transient with injection level: $5E14\text{ cm}^{-3}$ (Sinton BCT-400)
Oxygen concentration $[O_i]/\text{at}/\text{cm}^3$	$\leq 6.0 \times 10^{-17}$	FTIR (ASTM F121-83)
Carbon Concentration $[C_s]/\text{at}/\text{cm}^3$	$\leq 5.0 \times 10^{-16}$	FTIR (GB/T 1558-2009)

Material Properties		
Growth method	CZ	--
Crystallinity	Monocrystalline	--
Etch pit density/ pcs/ cm^2	≤ 500	Preferential etch techniques (ASTM F47-88)
Surface orientation/ $^\circ$	$\langle 100 \rangle \pm 2$	X-ray Diffraction Method (ASTM F26-1987)
Orientation of pseudo square sides/ $^\circ$	$\langle 010 \rangle, \langle 001 \rangle \pm 2$	X-ray Diffraction Method (ASTM F26-1987)

Geometric Dimensions and Surface Properties		
Wafer model	G12R	--
Geometry	Rectangular	--
Bevel edge shape	Straight	--
Wafer side length/mm	Short 182.3 ± 0.20 ; Long 210 ± 0.20	Wafer inspection system
Wafer diagonal line/mm	$\phi 272 \pm 0.20$	Wafer inspection system
Chamfer projection/mm	C1: 4.72 ± 0.57 ; C2: 4.07 ± 0.52	Wafer inspection system
Angle between adjacent sides/ $^\circ$	90 ± 0.15	Wafer inspection system
Thickness/ μ m	130 ± 8	Wafer inspection system
Batch mean/ μ m	≥ 130	Wafer inspection system
Total thickness variation/ μ m	≤ 20	Wafer inspection system
Saw marks / μ m	≤ 13	Wafer inspection system
Warp/ μ m	≤ 40	Wafer inspection system
Cutting method	DW	--
Surface quality	As cut and cleaned, no visible contamination, slight color difference is allowed; (oil or grease, finger prints, spot stains, epoxy/glue residue are not allowed)	Wafer inspection system
Chip	Depth $\leq 0.3\text{mm}$ and length $\leq 0.5\text{mm}$, Max 1/pc; no V-chip	Naked eyes or wafer inspection system
Micro cracks / holes	Not allowed	Wafer inspection system



Specifications subject to technical changes and test, Indosol Solar reserves the right of final interpretation.



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