

DATA SHEET – SILICON BLOCKS

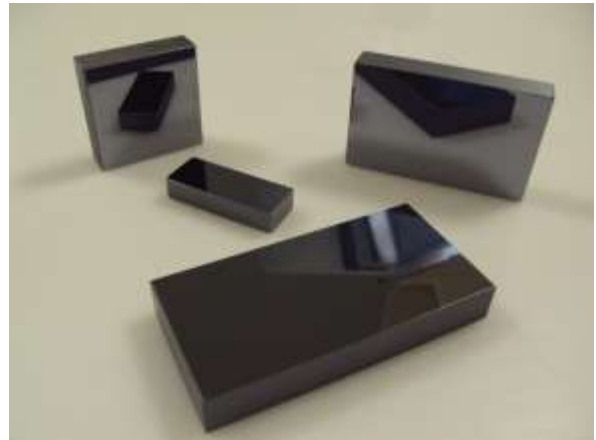
Main Applications:

Neutron Reflectivity
Neutron Backscattering Spectroscopy

Orientation

On standard:
(100) (111) (110)

On request:
(211) (311) (411) (511) (711) (911)
(210) (310) (510) (910)
(531) (731)



Standard Tolerance: $\pm 0.2^\circ$, on request: $\pm 0.02^\circ$

OFF Cut

Compared to ON axis (100), (111), (110), (112): Up to $14^\circ \pm 0.02^\circ$

Type

Undoped

P-type: Boron

N-type: Phosphorus, Arsenic, Antimony

Resistivity

Intrinsic: $> 200 \Omega \cdot \text{cm}$

Cz: from $1\text{m}\Omega \cdot \text{cm}$ to $150 \Omega \cdot \text{cm}$

FZ: up to $10\text{k} \Omega \cdot \text{cm}$

General specifications

Maximum Size: 120x60x30mm

Roughness: On polished surface: $< 2 \text{ \AA}$ (RMS)

Flatness: On polished surface: $< 1 \mu\text{m}$

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Laser marking

On Request

Thermal Oxidation

| Oxidation type | Thickness | Tolerance |
|---------------------------|---------------|-----------|
| Wet oxidation | 200 – 3000 nm | ±10 % |
| Standard dry oxidation | 15 – 100 nm | ±5 % |
| High purity dry oxidation | 20 – 350 nm | ±5 % |

Option: Only front side oxidation

Single layer deposition / metallization

| Layer | Method | Thickness | Tolerance |
|--|-------------|---|-----------|
| Silicon nitride | LPCVD | 200 – 500 nm | ±5 % |
| | PECVD | | |
| Oxide nitride | PECVD | | |
| Polysilicon | LPCVD | 200 – 600 nm | ±8 % |
| Cr, Ti, Au, Al, Pt, Mo, W | PVD | 200 – 1000 nm Depending on metals | ±10 % |
| Highly reflective silver coating | sputtering | | |
| Ni, Cu, Ir, Ta, Al ₂ O ₃ | evaporation | | |
| Cr/Au TiW with Ti : 10% W : 90% TiW /Au with Ti : 10% W : 90% Ti/Pt | PVD | | |

Multi layers deposition

On Request

Example:

