

CZ/MCZ-Si Ingot Specification

General

Crystal type	Monocrystalline
Growth method	CZ / MCZ
Type / Dopant	P-type / Boron/Gallium
Surface orientation	$\langle 100 \rangle \pm 2.5^\circ$
Sides orientation of pseudo-square	$\langle 001 \rangle$

Electrical characteristics

Resistivity ($\Omega \cdot \text{cm}$)	0.5-3.0, 3.0-6.0
Lifetime (μs)	> 10

Chemical characteristics

Carbon content (atoms/ cm^3)	$\leq 1.0 \times 10^{17}$
Oxygen content (atoms/ cm^3)	$\leq 1.0 \times 10^{18} \leq 8 \times 10^{17} (\text{MCZ})$

Dimensions

Ingot square side (mm)	$125 \times 125 \pm 0.5$	$156 \times 156 \pm 0.5$
Ingot diameter (mm)	150 ± 0.5	$200/195 \pm 0.5$
Square sides angle	$90^\circ \pm 0.3^\circ$	
Dislocations (cm^{-2})	≤ 3000	
Length (mm)	200-400	
Edge defect	not allowed	
Micro-cracks	not allowed	

Micellaneous

No scratches, chips, cracks, or customer request

No contamination no dirt / oil stain, remains of soap / glue