iqesilicon.com

Product data sheet: **Germanium on Insulator (GeOI)**

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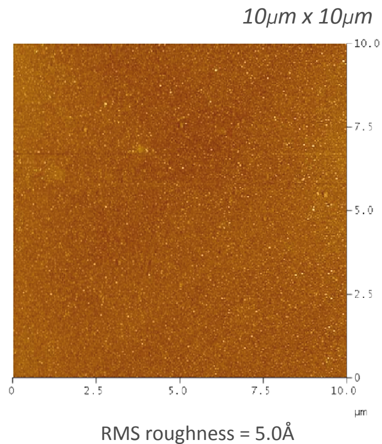
Atomic Force Microscopy (AFM)

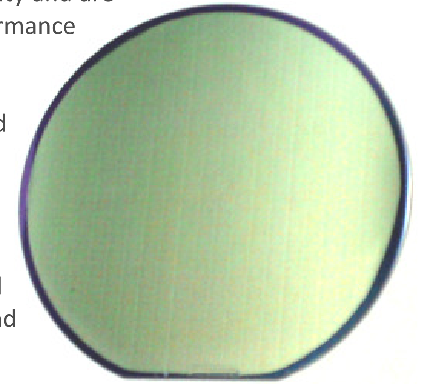
10μm x 10μm



RMS roughness = 5.0Å

IQE's new engineered GeOI substrates offer extremely high crystal quality and are available now, allowing device designers to look beyond the performance constraints imposed by existing silicon technologies.

IQE offers its new germanium on insulator (GeOI) substrates, produced using a unique patented process to manufacture in high volume Ge on Si/SiO2 substrates with extremely low threading dislocation defect density. Other technologies typically produce threading dislocation densities orders of magnitude higher than IQEs's proprietary technology, which also has the advantages of producing GeOI material with exceptionally smooth surfaces and very uniform film thickness and electrical properties.

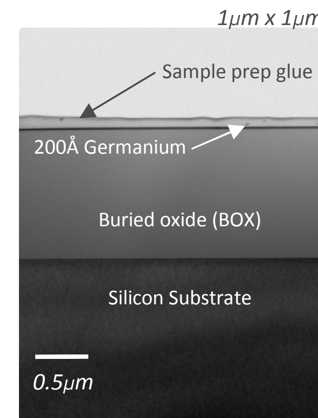


Parameter	*Method/tool*	*Target spec*	*Best achieved*
Wafer size		6 inch	6 inch
Required thickness	SE and TEM	To customer specification	
Ge Thickness uniformity	SE	<3%	4% across 6"
Surface roughness	AFM (10μm x 10μm)	<10Å	5Å
Threading dislocation density	TEM	$<1e5cm^{-2}$	$<1e5cm^{-2}$ *
Buried oxide thickness	200Å - 10,000Å	As required	As required
Thermal stability	Max temp	850°C	TBD
Metals	VPD	$<5e10cm^{-2}$	TBD
Dopant	SIMs	N-type	N-type
Coverage		100% (5mm edge)	~95%
Bow	Verified as per supplied wafer		
Warp	Verified as per supplied wafer		

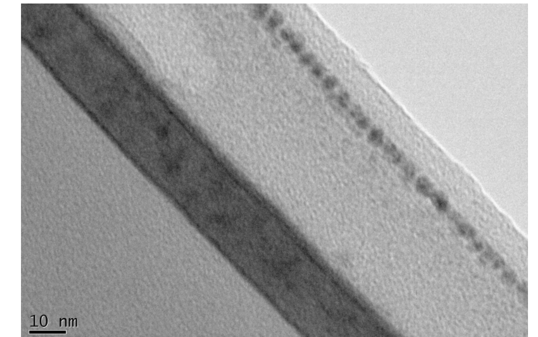
** below detection limits*

Cross Sectional Electron Microscopy (XTEM)

1μm x 1μm



GeOI development kits are available now in 6" (150mm) diameter wafer sizes.
8" (200mm) wafers will be available later this year.



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