iqesilicon.com

Product data sheet: **Germanium on Silicon (GeOSi)**

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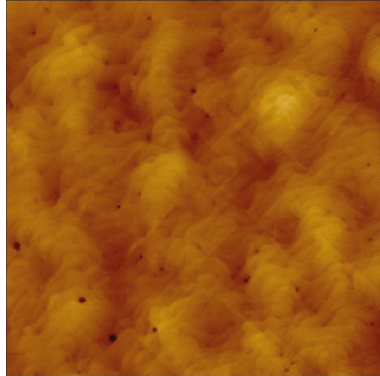
Atomic Force Microscopy (AFM)

20μm x 20μm



RMS roughness = 0.530nm

IQE's new engineered GeOSi 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 two types of Germanium on Silicon:

- a layer of germanium deposited straight onto a silicon substrate.
- a more advanced offering whereby we deposit a buffer SiGe layer between a layer of silicon and a layer of germanium, thus reducing the number of defects we introduce in the layers. [*see Strained Silicon, SiGe on Silicon and Ge on Silicon + SiGe buffer data sheet*]

Both of these materials have applications in the solar industry.

Parameter	
Wafer size	4”, 6” and 8” wafers
Material structure	Ge layer epitaxially deposited directly onto silicon substrate
Ge Thickness	Typically 1μm or less
Ge layer surface roughness	Less than 1.5nm as measured on a 20μm x 20μm AFM *
Thickness uniformity	±3%
Dopant	Both N and P type available up to 5e19 concentration as measured by SIMs in pure Ge
LPDs	<20 at 0.2μm for set-up wafer
Defectivity	Approx $2e^{7}$ dependent on material thickness and dopant: IQE utilises proprietary techniques to optimise
Metals	$<5e10cm^{-2}$ as measured by VPD
Substrate	IQE supplied <100> material

** substrate dependent*

GeOSi production wafers are available now in 4” (100mm), 6” (150mm) and 8” (200mm) diameter wafer sizes.

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