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 IQE’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
--- | ---
Wafer size | 150mm wafers
Thickness | SE 20 to 250nm
Thickness uniformity (Ge) | SE ±5%
Surface roughness | AFM 10μm x 10μm <1nm
Dislocation density | TEM <1e⁵cm⁻²
Thermal stability | Max temp up to 700°C
Dopant | SIMs <1e¹⁸ p-type or n-type
Coverage | 90% (5mm edge)
Bow | Verified as per supplied wafer
Warp | Verified as per supplied wafer

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Cross Sectional Electron Microscopy (XTEM)

Atomic Force Microscopy (AFM)

6” (150mm) GeOI development kits available now

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