



HIGH RESISTIVITY RFSI® WAFERS – SUPERIOR RF DEVICE PERFORMANCE

RFSI® WAFERS - HIGH RESISTIVITY FOR RF FILTER AND DEVICE NEEDS

- **High Resistivity wafers** (Low loss RF IPD or Integrated RFIC / RFIC substrate)
- **Engineered High Resistivity wafers** (Added trap-rich layer for extremely low loss substrate for RF filters)
- **UF-RFSI®** (Engineered low loss substrate with Ultra Flat geometries for e.g. Thin Film SAW)
- **Engineered Ultra High Resistivity wafers** (close to zero loss substrate with > 10 kOhm-cm resistivity and trap-rich layer)
- **High Resistivity BSOI** (Bonded - BSOI or suspended cavity C-SOI® low loss structures per Customer design, e.g. BAW resonator)
- **RF GaN wafers** typically extra thick <111> wafers (GaN-on-Si RF Power device substrate with advanced stress management)

SUPERIOR PERFORMANCE AND LOWER TCO

- Production proven solutions at leading RF device manufacturers, over 2 million shipped RFSi® wafers
- Optimized solutions for BAW and SAW filters, IPD devices, Power Amplifiers, RFIC & PA and Silicon Interposers
- Superior performance in 2nd Harmonics, Insertion losses, Intermodular Distortion and Q-values
- MCz enables high resistivity by lower Oxygen concentration compared to standard Cz
- Better slip resistance, mechanical properties and radiation hardness compared to FZ
- Available in 150 and 200mm diameter (> 10 kOhm-cm resistivity wafers only in 200mm) and also in <111> crystal orientation

DOPANT	ORIENTATION	THICKNESS	RESISTIVITY	OXYGEN CONTENT (ASTM F121-83)
Boron	<100>	380 – ≥ 1,150 µm	>5,000 Ohm-cm >10,000 Ohm-cm	<10 ppma, MCz <5 ppma, A-MCz®
Boron	<111>	380 – ≥ 1,150 µm	>5,000 Ohm-cm >10,000 Ohm-cm	<10 ppma, MCz <5 ppma, A-MCz®
Phosphorus	<100>	380 – ≥ 1,150 µm	>5,000 Ohm-cm >7,000 Ohm-cm	<10 ppma, MCz <5 ppma, A-MCz®

