



**OPTIMIZED
HIGH
RESISTIVITY
SILICON WAFERS
FOR IPD, BAW,
TF-SAW...**

HIGH RESISTIVITY RFSI® WAFERS FOR SUPERIOR RF DEVICE PERFORMANCE

RFSI® WAFERS - optimized for RF devices

High Resistivity wafers (Low loss RF IPD or Integrated RFFE / RFIC substrate)

Engineered High Resistivity wafers (Extremely low loss substrate with > 7 kOhm-cm resistivity and trap-rich layer 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 with advanced stress management (substrate for GaN-on-Si epitaxy)

SUPERIOR PERFORMANCE AND LOWER TOTAL COST OF OWNERSHIP

- Production proven solutions at leading RF device manufacturers, over 2 million shipped RFSI® wafers
- Optimized solutions for BAW and TF-SAW filters, IPD devices, power amplifiers, RFIC and silicon interposers
- Superior performance in 2nd harmonics, insertion losses, IMD3 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 200 mm diameter (> 10 kOhm-cm resistivity wafers only in 200 mm) and also in <111> crystal orientation

| DOPANT | ORIENTATION | THICKNESS | RESISTIVITY | OXYGEN CONTENT (ASTM F121-83) |
|------------|--------------|------------------|---------------------------------|----------------------------------|
| Boron | <100>, <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® |

