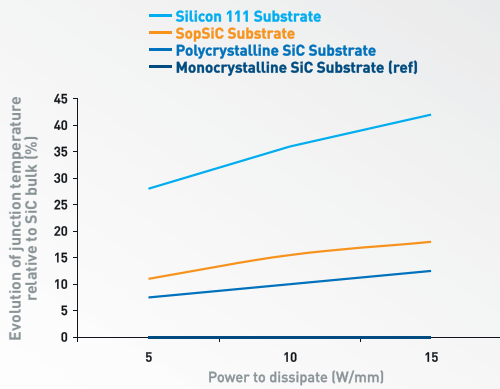
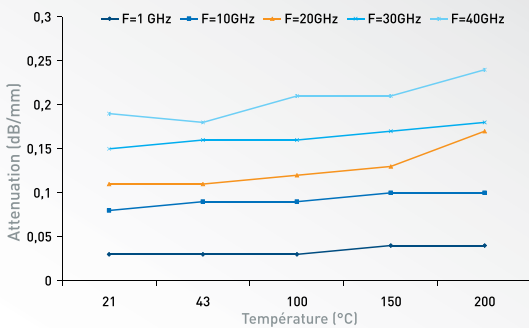


SopSiC™ Wafers

For power management ICs, RF components and discrete power devices

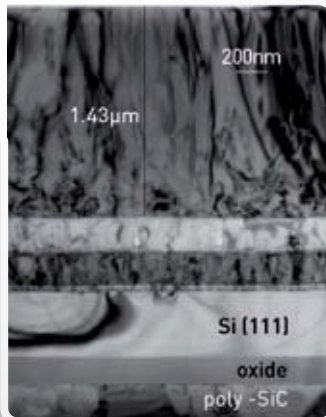


1. Comparison of the thermal dissipation between bulk Silicon, SopSiC™, polycrystalline SiC and monocrystalline SiC



2. RF characterization of the pSiC bulk from 25°C up to 200°C in a frequency range of 1 to 40GHz

3. Cross section of GaN epitaxy on SopSiC™ substrate



SopSiC™: Silicon layer transferred onto a polycrystalline Silicon Carbide substrate using the Smart Cut™ technology, which is compatible with current GaN HEMT manufacturing.



Features

- ▶ Combines the advantages of SOI with the thermal properties of Silicon Carbide
- ▶ GaN growth compatibility on silicon seed layer
- ▶ Scalability to 300mm

Benefits

Substrate properties

- ▶ Excellent thermal properties: 300W/m K (2x improvement vs. bulk silicon) (1)
- ▶ Low RF leakage over wide temperature range (2)
- ▶ Compatibility with both silicon and GaN epitaxies (3)

Manufacturing

- ▶ A proven, robust and high-volume process

Device applications:

- Discrete RF power
- RF MIMICs
- High power amplifier
- Discrete power device (Schottky diode, switch...)
- Power CMOS

System applications:

- Military-Defense: X and S band radar (4)
- Wireless: WiMAX base station (5)
- Industrial: power management, medical instrumentation (6)



General Product Characteristics

	Parameter	Value
General	Compatibility with	Epi GaN or Epi Silicon
	Wafer diameter	3" & 100mm
	Wafer thickness	525µm
	Metrology edge exclusion	5mm
	RF losses	0.1dB/mm (< 1GHz) 0.2dB/mm (< 5GHz) 1 dB/mm (< 20GHz)
	Site flatness	ITRS roadmap compatible
Top Silicon Layer	Thickness	70-500nm
	Thickness uniformity	+/-10%
	Resistivity	1 Ohm.cm to 20 KOhm.cm
	Crystal orientation	<111> or <100>
	Doping type and species	Intrinsic
	Surface roughness AFM (RMS)	
	1x1µm	60Å
	10x10µm	80Å
Buried Oxide (BOX)	Defectivity	< 0.15/cm ²
	LLS > 0.002mm ²	< 250/wafer
	0.002 < LLS > 0.005mm ²	< 250/wafer
	LLS > 0.005mm ²	< 250/wafer
Scratches	< 2/wafer	
Handle Wafer	Target thickness	100nm-400nm
	Thickness uniformity	< 90nm
	Dielectric breakdown voltage	> 9MV/cm
	Mechanical properties	SEMI or JEIDA standards
Handle Wafer	Doping type and species	Intrinsic
	Resistivity	1 Ohm.cm to 10 MOhm.cm
	Wafer crystal	polycrystalline Silicon Carbide

► Please note that these are typical specifications. Customized options are also available. Please contact your sales representative for more information.

► Definition **SopSiC™ wafer**: Product resulting from a silicon transfer onto polycrystalline Silicon Carbide