

SiC EPITAXIAL WAFERS

Coherent produces SiC epitaxy on up to 200 mm wafers with best-in-class uniformity. We offer a complete SiC materials solution with flexible specifications with the following capabilities:

- High quality and uniformity, low defects, high device yield
- Epilayers with or without buffer; low-doped layers of up to 250 μm
- Multilayer structures, various doping levels, including p-n junctions
- Embedded/buried structures and contact layers



COMPLETE RANGE OF SiC EPITAXY

- From R&D to volume production
- Flexible specification
- Multi-layer structures
- Epitaxially grown pn-junctions
- Regrowth Epi
- Thick Epi

EPI MANUFACTURING FACILITIES

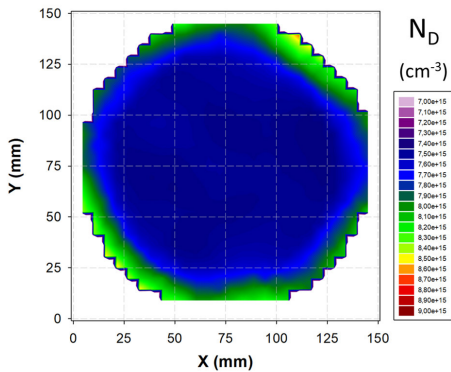
- Kista, Sweden
- Easton, USA

Key Epitaxy Parameters	
Wafer size	100, 150, 200 mm
Polytype	4H, 6H
n-doping	$10^{14} - 10^{19} \text{ cm}^{-3}$
p-doping	$10^{14} - 10^{19} \text{ cm}^{-3}$
Thickness	0.5 - 250 μm

Equipment	
SiC epitaxy	Single & Multi wafer reactors
Surface polishing	Surface grinding, Backside grinding Polishing, CMP
Characterization	Wafer geometry gauge, contactless CV, Microscope, AFM, SEM, SICA

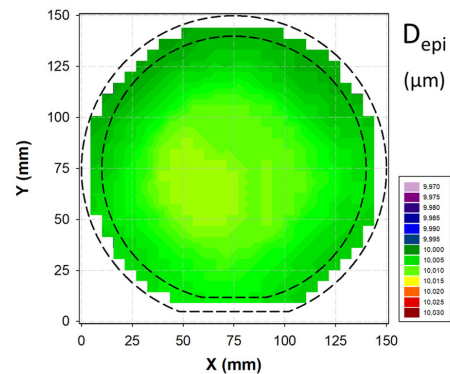
Standard specification	
N-type standard spec	5 – 30 μm
Thickness tolerance	$\pm 10\%$ /target
Thickness uniformity	3% σ /mean
Doping tolerance	$\pm 15\%$ /target
Doping uniformity	10% σ /mean

10 μm typical doping uniformity



Diameter (mm)	150	140	130
# meas. points	564	477	433
Mean Nd (cm-3)	7.66e15	7.60e15	7.54e15
Stddev/Mean (%)	3.43	2.72	1.88

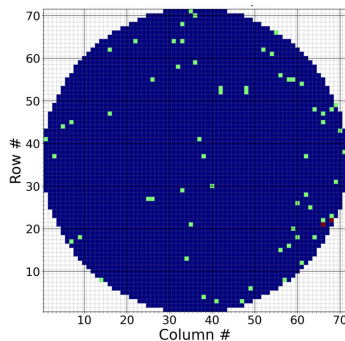
10 μm typical thickness uniformity



Diameter (mm)	150	140	130
# meas. points	570	511	440
Mean Nd (cm-3)	10.20	10.25	10.29
Stddev/Mean (%)	2.2	1.3	0.6

Typical chip yield

2x2 mm defect yield = 98.4%



5x5 mm defect yield = 90.8%

