

NORSTEL[★]

*In its **SiC Perfection™** program Norstel dedicates efforts to the most important quality parameters highlighted by customers in today's SiC power industry. Defect densities, like micropipes, basal plane dislocations, threading screw dislocations, surface damages and epi defects are the most critical ones in order to achieve high device yields in high voltage designs. Besides MPD-free wafers X-ray topography has proven Norstel's consistent very low TSD and BPD densities.*

Only with such low defect densities also larger wafers are becoming economically viable. Therefore Norstel is also developing the best possible quality wafers with 150 mm diameter.

3" and 100 mm diameter wafers are available today in different MPD, TSD and BPD quality grades to fit customer's SiC device requirements.

STANDARD SPECIFICATION FOR 100MM DIAMETER OFF-AXIS N-TYPE CONDUCTIVE SiC SUBSTRATES:

Diameter:	100.0 +0.0/-0.5 mm
Polytype:	4H
Orientation:	4° ±0.2° toward <11-20>
Type:	n-type, nitrogen doped
Resistivity:	Min 16 mΩ.cm, Max 28 mΩ.cm
Thickness:	350 ± 25 μm
TTV (3mm edge exclusion):	≤ 10 μm
LTV:	≤ 4 μm
Warp (3mm edge exclusion):	≤ 45 μm
MPD grades:	≤ 1 cm ⁻² , ≤ 0.5 cm ⁻² , ≤ 0.1 cm ⁻²
TSD grades (mean):	≤ 500 cm ⁻² , ≤ 300 cm ⁻²
BPD grades (median):	≤ 1500 cm ⁻² , ≤ 1000 cm ⁻² , ≤ 500 cm ⁻²
Surface finish (Si-face):	Epi-ready (CMP) Rq ≤ 0.2 nm
Surface finish (C-face):	Mechanical Rq ≤ 3.0 nm

SIC EPITAXY

Equipment: Aixtron/Epigress VP-2400HW

Hot-wall technique

Radial flow type planetary reactor

Mechanical drive plus gas foil rotation

Capacity: Six wafers (3" / 100mm) per run

Doping: n-type and p-type

Typical process performance:

Thickness range: 5-30 μm

Within-wafer thickness uniformity (σ/mean): < 5%

Within-wafer n-type doping uniformity (σ/mean): < 10%

Within-wafer p-type doping uniformity (σ/mean): < 20%

Background doping: < 1e15

Epitaxial defects: < 1 per cm²

No backside deposition

For more information please contact Norstel Sales. email: sales@norstel.com

Ref: 254-B-Q 100mm N+, January 2016

255-B-Q SiC Industrial grade Epitaxy, January 2016

Conductive n-type SiC Epitaxial Substrates