

SiC Epitaxy Wafer for SBD/MOS

Item	650V	1,200V	1,700V	3,300V	6,500V
Substrate					
Crystal	4H				
Diameter	6" (150+/-0.5mm)				
Off angle	4deg Off-Axis				
Dopant	n-type (N)				
Resistivity	0.015~0.028ohm-cm				
Primary flat length	47.5+/-2.5mm				
Primary flat location	<1120>+/-5degree				
Thickness	350+/- 25um				
Epi-surface inspection					
Surface pits (size > 0.2um)	≦ 5000 ea		≦ 10000 ea		≦ 15000 ea
Surface defect (size > 10um)	≦ 1 ea/cm-2				
BPD counts	≦ 20 ea		≦ 50 ea	≦ 75 ea	
Total scratch length	≦ 25mm				≦ 75mm
Die yield (2*2mm, EE 5mm)	≧ 95%				NA
Die yield (5*5mm, EE 5mm)	NA				≧ 80%
Roughness (Ra)	≦ 0.15nm				≦ 0.5nm
Buffer layer					
Measured by control wafer					
Target thickness (avg.)	1.0um ±10%			3.0um ±10%	
Thickness uniformity (std/avg.)	≦ 4%				
Target doping concentration (avg.)	1.0E18/cm3 ±10%				
Doping uniformity (std/avg.)	≦ 10%				
Drift layer					
Target thickness (avg.)	5.5um ±6%	11um ±6%	15um ±6%	30um ±6%	60um ±6%
Thickness uniformity (std/avg.)	≦ 2%				
Target doping concentration (avg.)	1.0E16/cm3 ±10%	8.0E15/cm3 ±10%	5.3E15/cm3 ±10%	3E15/cm3 ±10%	1.2E15/cm3 ±10%
Doping uniformity (std/avg.)	≦ 4%				≦ 5%
Wafer shape					
TTV	≦ 15um				
Warp	≦ 50um				
Bow	± 40um				
Edge exclusion = 5 mm for 6"					
Surface scanning by customer requirements					