

Supporting Information

Fabrication of 2-inch free standing porous GaN crystal film and application in the growth of relaxed crack-free thick GaN

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Table S1 Parameter used in the Eqs. (1) and (2) for calculating stress.

Table S2 The average diameter and density of pores on the surface of GaN films under different annealing conditions.

Table S1 Parameter used in the Eqs (1) and (2) for calculating stress¹

	Sapphire	GaN
Thickness (μm)	430	5
Thermal expansion coefficient ($\times 10^{-6}/\text{K}$)	7.5	5.6
Young's modulus (GPa)	352	210

Table S2 The average diameter and density of pores on the surface of GaN films under different annealing conditions

	Average pore diameter (nm)	Average pore density (10^8 cm^{-2})
Unprocessing	0	0
1200°C	250	3
1215°C	380	4
1230°C	570	3.3

1245°C

790

1.9

Notes and references

- 1 A. D. Williams and T.D. Moustakas, *J. Cryst. Growth*, 2007, **300**,37–41.