

Table III. Sample structures of the high electron mobility transistors and Hall measurement.

| <b>Structure \ sample#</b>                                       | <b>(a)</b>            | <b>(b)</b>            | <b>(c)</b>            | <b>(d)</b>            |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| Ohmic layer/Schottky layer/ $\delta$ -doping/spacer              | 300/2000/30/60 (Å)    | 100/100/30/60 (Å)     | 100/100/30/60 (Å)     | 100/100/60/30 (Å)     |
| Ohmic layer thickness $\text{Al}_{0.06}\text{Ga}_{0.94}\text{N}$ | 300 (Å)               | 100 (Å)               | 100 (Å)               | 100 (Å)               |
| Schottky layer thickness   | 2000(Å)               | 100(Å)                | 100(Å)                | 100(Å)                |
| $\text{Al}_x\text{Ga}_{1-x}\text{N}$                             | x=0.15                | x=0.15                | x=0.2                 | x=0.2                 |
| $\delta$ -doping layer thickness                                 | 30(Å)                 | 30(Å)                 | 30(Å)                 | 60(Å)                 |
| Electron concentration ( $\text{cm}^{-3}$ )                      | $10^{19}$             | $10^{18}$             | $10^{18}$             | $10^{18}$             |
| Spacer thickness $\text{Al}_{0.1}\text{Ga}_{0.9}\text{N}$        | 60 (Å)                | 60 (Å)                | 60 (Å)                | 30 (Å)                |
| Channel layer (UID GaN)  | 2 $\mu\text{m}$       | 2 $\mu\text{m}$       | 2 $\mu\text{m}$       | 2 $\mu\text{m}$       |
| $\mu_{\text{H}}$ 300K/ 77K                                       | 1221/5613             | 1117/5506             | 1333/6530             | 564/NA                |
| Sheet N ( $\text{cm}^{-2}$ )                                     | $9.00 \times 10^{12}$ | $8.91 \times 10^{12}$ | $9.30 \times 10^{12}$ | $1.16 \times 10^{13}$ |