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| Lp. | Parameter | Structure  (enlisted from top to bottom) | Evaluation  metod | result |
|  | GaAs lattice matched |  |  |  |
| 1 | GaAs(ud) background doping | GaAs(nd), buffer, d≥10μm  GaAs:Si substrate 4” | Hall | Concentration <5e14cm-3  If p-type  µ = 400 cm2/V/s in RT  if n-type  µ ≥ 700 cm2/V/s in RT  µ ≥ 104 cm2/V/s in 80K |
| 2 | Si doping uniformity and carrier cconcentration (cc) in the range 1x1017 cm-3 & 1x1018 cm-2 | GaAs(Si), d=1000nm  GaAs(nd), buffer, d=500nm  GaAs(SI), substrate 4” | CV or Hall | (ccmax-ccmin)/ccmean < 3% |
| 3 | Zn doping uniformity and carrier cconcentration (cc) in the range 1x1017 cm-3 & 1x1018 cm-2 | GaAs:Zn , d=1000nm  GaAs(nd), buffer, d=500nm  GaAs(SI) substrate 4” | CV or Hall | (ccmax-ccmin)/ccmean <3% |
| 4 | 2DEG mobility in HEMT structure | Struktura typu HEMT:  GaAs:Si, cc ~1e18 cm-3, d=10nm  AlxGa1-xAs:Si, x=0.27, cc~1e18 cm-3, d=50 nm  AlxGa1-xAs(nd), x=0.27, d=150nm  GaAs(SI) substrate 4” | Hall | µ = 6500 w 300K  µ = 100 000 w 80K |
| 5 | GaAs/AlAs on GaAs superlattice thickness (d) and composition (x) uniformity | GaAs(nd), d=10nm  SL: 30x(10nm GaAs/ 15 nm AlGaAs)  GaAs(nd), buffer, d=500nm  GaAs:Si substrate 4” | HRXRD | (dmax-dmin)/dmean < 2%  (xmax-xmin)/xmean < 1% |
| 6 | Microcavity | 69.5nm GaAs  14.5x (82.2nm AlGaAs, x=0.95 / 70.2nm nm AlGaAs x=0.05)  278nm GaAs  14.5x (82.2nm AlGaAs, x=0.95 / 70.2nm nm AlGaAs x=0.05)  GaAs(n+) substrate 4” | Reflectivity | 100nm broad plateau of R>0.98, resonance width FWHM < 1.5nm  Wavelength dispersion on the wafer  (λmax-λmin)/ λmean < 1% |
| 7 | MQW | 100nm GaAs  5x(8nm InxGa1-xAs, x=0.15-0.20  20nm GaAs)  500nm GaAs  GaAs(n+), substrate 4” | HRXRD PL | (dQW,max-d QW,min)/dmean < 2%  (x QW,max-x QW,min)/x QW,mean < 1%  PL  (λ QW,max- λ QW,min)/ λQW,mean < 0.5%  FWHM<25nm |
| 8 | MQW | 5x(8nm InGaP  50nm {Ga0.67Al0.33)52In47P}  500nm GaAs  GaAs(n+), substrate 4” | HRXRD PL | HRXRD no alloy ordering  (dQW,max-d QW,min)/dmean < 2%  (x QW,max-x QW,min)/x QW,mean < 1%  PL FWHM < 30nm  (λ QW,max- λ QW,min)/ λQW,mean < 0.5% |

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|  | InP lattice matched |  |  |  |
| 9 | InP(undoped) | 10μm InP  InP substrate 4” | Hall  HRXRD | Concentration <2e15cm-3  If p-type  µ = 400 cm2/V/s in RT  if n-type  µ ≥ 700 cm2/V/s in RT  µ ≥ 104 cm2/V/s in 80K  HRXRD – single peak FWHM <20” |
| 10 | InP:Fe | 10μm InP:Fe  InP, substrate 4” | Hall  HRXRD | ρ>1e8 Ωcm  HRXRD – single peak FWHM <20” |
| 11 | InxGa1-xAs on InP thickness (d) and composition (x) uniformity | InxGa1-xAs, layer, x~0.47, d=1μm  InP, substrate 4” | HRXRD | (dmax-dmin)/dmean <2%  (xmax-xmin)/xmean <1% |
| 12 | double superlattice InGaAs/InAlAs | SL2: 40x (6nm InxGa1-xAs / 5nm InyAl1-yAs)  SL1: 40x (12nm InxGa1-xAs / 5nm InyAl1-yAs)  buffor InxGa1-xAs (nd), d=500nm  InP:Fe(S), substrate 4”  x=0.53-0.55, y=0.50-0.52 | HRXRD | Satelite peaks for SL1 -/+ 2 and 1, respectively  Satelite peaks SL2 -/+ 3 and 2, respectively  xSL1-xSL2<1%,  ySL1-ySL2<1% |



