YUN CHUL CHUNG

MESA DEVELOPEMENT

Cleaning : **TCA, ACETON, METHANOL(100℃, 5min, repeat 3min)**

Positive Resist : S**1805, 5000rpm, 40sec** (400nm)

Soft baking : **80℃, 5min**

MASK Cleaning : **50℃ REMOVER, 5min, Rinse DI water**

Expose : **6sec**

Developer : **MF319, 40sec**

Hard baking : **120℃, 60sec, Only if necessary**

Etchant **: Phosphoric Acid : H_2O_2 : DI Water 1 : 1 : 50**

Etch rate: 850Å /min (exact)

IMAGE REVERSAL

Cleaning : **TCA, ACETON, METHANOL(100℃, 5min)**

Resistor : Image Reversal : **AZ5214E 5000rpm, 40sec (1.2mm)**

Soft baking : **100℃, 45sec (USE Vacuum hole)**

Exposal : **3sec, For Delicate Process 3sec**

Hard baking : **120℃, 45sec (USE Vacuum hole)**

Flood exposal : **80sec** (**1.3min)**

Developer : **AZ726, 40sec**

plasma : **520mbar, 120W, 30sec**

Remove Oxide: **HCl: DI Water, 30sec (Mix the etchant well before process)**

OHMIC EVAPORATION

Ni 20~30Å(1Å /s) : Au 2000Å(3Å/s) : Ge 1000Å (3Å/s) : Ni 750Å(2Å/s):Au 300~500Å(3Å/s)

PR removing

PR remover 1165 50℃ 30mins and stir 15mins, ultrasonicate carefully (holding the sample with tweezer in the remover) and then fresh remover 60mins with stirring at **50℃.** Rinse with water

ANNEALING

Temperature : **450℃ ± 30℃, 50sec, Program NAPS, Process Type VDE1**

Plasma etching

Plasma**: 520mbar, 100W, 30sec**

Etching : **HCl: DI Water, 60sec (Mix the etchant well before process)**

e-beam Resist Spinning

Resist **: 200k, 3%, 5000RPM, 60sec**

Baking : **180℃ oven 1 hour**

Resist **: 495k, 5%, 8000RPM, 60sec (SPIN IMMEDIATELY AFTER DROPPING RESIST)**

Baking **180℃ oven 1 hour**

e-beam etching resist and thick e-beam gate : **950K 5%** single layer **5000rpm** Baking **180℃ oven 1 hour**

Low profile Bridge

Resist **495K, 5%, 8000RPM, 60sec (1400 Å)**

Resist **17.5, 9%, 6000RPM, 60sec (3200 Å)**

Resist **200K, 3%, 4000RPM, 60sec**

e-beam Developing

Developer : **MIBK (1:3)** (**not 1:2**) Isopropanol, **60sec** Rinse with Isopropanol

NO WATER!

GATE EVAPORATION

Normal Gate

Ti : 250Å : Au : 2500Å (Good For adhesion to Gold)

PdAu (Alloy) 250Å : Au : 2500Å

e-beam Gate : PdAu 150Å : Au : 150Å

e-beam Bridge : Ti 250 Å : Au 2900 Å

RCA PROCESS

RCA : H_2O_2 : Ammonia : DI Water **1: 1: 5, 70℃, 15min**

Acetone: **5min**

Methanol: **5min**

OHMIC PREPARATION

Surface Cleaning: **NH_3OH : DI Water, 1: 10, 10sec(Remove PR)**

Rinse: **Methanol**