Recipes:

A. Resist Type: PMMA (+ve) e-beam resist

Supplier order code: Microchem
Resist name: NANO 950 PMMA A4 (4% solid contents)
Molecular weight: 950 K
Solvent: in Anisole
Dehydration bake: 5 minute at 170 deg.
Spinning details:
Speed: 4000rpm, Speed: 3000 rpm (for lift-off)

[Please check the data sheet if one needs some other resist thickness]

Pre bake: 90 sec at 180 deg.

Exposure:
Acc voltage: 10KV
Dose: 80uC/cm2- 200uC/cm2 as per your feature size and development time
Write field: 100um
Developer: IPA: MIBK::3:1, developing time: 30 s
Stopper: 2-propanol (IPA) pure, Stopping time: 15 s
Dry: with a low-nitrogen flow

B. Resist Type: (+ve) e-beam resist [Bilayer process]

Supplier order code: Microchem
Resist Name: NANO 950 PMMA A4 (4% solid contents) and CO-polymer EL9
Solvent: in Anisole
Dehydration bake: 5 minute at 170 deg.
Layer1: EL9, Spin @ 3200rpm for 60 Sec

Prebake: 7min @180'C

Layer2: PMMA950K 4%, Spin@2000rpm for 45 sec

Prebake: 2min@180'C

[Please check the data sheet if one needs some other resist thickness]

Exposure:
Acc voltage: 10KV, Apert- 20um
Dose: 100uC/cm2~160uC/cm2
Developer: IPA: MIBK::3:1, developing time: 20s ~90s
Stopper: 2-propanol (IPA) pure, Stopping time: 15s ~ 60s
Dose and development time can be varied depending on the feature sizes

Dry: with a low-nitrogen flow

C. Resist Type: (+ve) e-beam resist [Bilayer process]

Supplier order code: Microchem
Resist Name: NANO 950 PMMA A2 (2% solid contents) and CO-polymer EL9
Solvent: in Anisole
Dehydration bake: 5 minute at 180 deg.
Layer1: EL9, Spin @ 3500rpm for 60 Sec

Prebake: 7min @180'C

Layer2: PMMA950K 2%, Spin@4500rpm for 45 sec

Prebake: 2min@180'C

[Please check the data sheet if one needs some other resist thickness]

Exposure:
Acc voltage: 20KV, Apert-7.5um
Dose: 100uC/cm2~130uC/cm2
Developer: IPA: MIBK::3:1, developing time: 20s
Stopper: 2-propanol (IPA) pure, Stopping time: 15s
Dose and development time can be varied depending on the feature sizes

Dry: with a low-nitrogen flow

D. Resist Type: HSQ (-ve) e-beam resist
Supplier order code: Dow Corning XR -1541 - 6%
Solvent: MIBK
Dehydration bake: 15 minutes at 170 deg.
Speed: 4000rpm

Pre bake: 2 min at 250 deg.

Exposure:
Acc voltage: 10KV
Dose: 200uC/cm2
Write field: 100um
Developer: 25% TMAH , Developing time: 15s
Rinse: Flowing DI-Water, Rinsing time: 30s
Dry: with a low-nitrogen flow.

E. Resist Type: SU8-2000.5 (-ve) e-beam resist
Supplier order code: Microchem SU8-2000.5
Dehydration bake: 5 minutes at 95 deg.
Spinning: Speed: 6000rpm

Pre bake: 65 deg- 1min - ramp to - 95 deg- 1min

Exposure-
Acc voltage : 10KV
Aperture :7.5um
Dose :4 uC/cm2
Post Bake: 65 deg- 1min - ramp to- 95 deg- 1min

Developer: SU8 developer- Developing time: 1min
Rinse: IPA- Rinsing time: 1min
Dry: with a low-nitrogen flow.

SU8 Removal

- Soak in PG Remover @ 80 – 30min
- Change container : Again soak in PG remover @ 80 deg - 30min
- Ultra sonication @80deg in PG remover- 5~15 min

Time will depend on the pattern sizes

F. Resist Type: (+ve) e-beam resist

Supplier order code: Zeon Chemicals
Resist Name: ZEP
Solvent: Anisole
Dehydration bake: 2~5 minute at 170 deg.
Layer1: ZEP, Spin @ 2000rpm for 60 Sec

Prebake: 3min @170'C

[Please check the data sheet if one needs some other resist thickness]

Exposure:
Acc voltage: 20KV
Dose: 40uC/cm2
Aperture- 30
Developer: ZED N50, developing time: 60s
Rinse: 2-propanol (IPA) pure, Time: 30s
Post Bake - 100'C – 2 Mins

Dry: with a low-nitrogen flow

G. Resist Type: HSQ (-ve) e-beam resist (Low Temp)
Supplier order code: Dow Corning XR -1541 - 6%
Solvent: MIBK
Dehydration bake: 5 minutes at 170 deg.
Speed: 5000rpm @ 2500 for 60s

Pre bake: 5min at 90 deg.

Exposure:
Acc voltage: 15KV
Dose:1000 ~ 1500uC/cm2
Write field: 100um
Aperture – 20um
Developer: 25% TMAH , Developing time: 5s
Rinse: Flowing DI-Water, Rinsing time: 30s

Dry: with a low-nitrogen flow.
