TCP 9400SE 多晶矽乾蝕刻機標準製程

20130418

- **Standard Process**

  Typical Structure: 0.35um Technology (0.7 µm pitch / 0.35 µm line / 0.35 µm spacing)
  Aspect Ratio 6 : 1
  0.8 ± 0.07 µm PR (I-line)
  3800 Å PR (NEB)
  0.1 ~ 2 um Polysilicon
  0.1 ~ 2 um Silicon
  500 ~ 10000 Å Oxide
  500 ~ 10000 Å Nitride

- **Recipe 內容說明**

本機台蝕刻 Poly-Si 採 multi-step（**B**reak **T**hrough, **M**ain **E**tch, **O**ver **E**tch）
BT: 10 秒可蝕刻 350-400 Å .
ME: 33-38 Å /s, Selectivity of Poly to oxide = 7 : 1.
OE: 23-25 Å /s, Selectivity Poly to oxide = 50 : 1.

標準製程

➢ Recipe #402：Poly 1000-1500 Å ,
BT 4 sec + ME (endpoint mode) + OE 20 sec.

➢ Recipe #602：Poly 1500-2500 Å , gate oxide ＞ 25 Å ,
BT 10sec + ME (endpoint mode) + OE 20sec.

➢ Recipe #603: Poly 2500-4000 Å , gate oxide ＞ 40 Å ,
BT 10sec + ME (endpoint mode) + OE 30sec.

較薄 poly

➢ Recipe #972: BT 10 sec + OE 20 sec, 適用 poly 500-600 Å .
➢ Recipe #973: BT 10 sec + OE 30 sec, 適用 poly 600-800 Å .
➢ Recipe #974: BT 10 sec + OE 40 sec, 適用 poly 800-999 Å .

沒有底層(Time mode)

➢ Recipe #1000: BT 10 sec + ME 15 sec + OE 30 sec, 適用 poly 1000 Å .
➢ Recipe #1500: BT 10 sec + ME 28 sec + OE 30 sec, 適用 poly 1500 Å .

- Recipe #2000: BT 10 sec + ME 41 sec + OE 30 sec, 適用 poly 2000 Å .
- Recipe #2500: BT 10 sec + ME 54 sec + OE 30 sec, 適用 poly 2500 Å .

超薄 oxide

- Recipe #703: BT 10 sec + ME (endpoint mode) + OE 30 sec.

(A/min)	Poly	Si3N4	SiO2
BT10	430	100	45
ME60	1042	22	12

E-BEAM ZERO MARK

- Recipe #001：BT 10sec + ME 300sec.

  可蝕刻 Si 15000 Å , Selectivity to of Poly to oxide = 17 : 1.