

(Soft molding)

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2.

1

polydimethylsiloxane(PDMS, Sylgard 184, Dow

corning)

PDMS

novolac resin

propylene glycol mono ether acetate (PGMEA)

20~30%

3000rpm

15

1.5 2.5

가

가

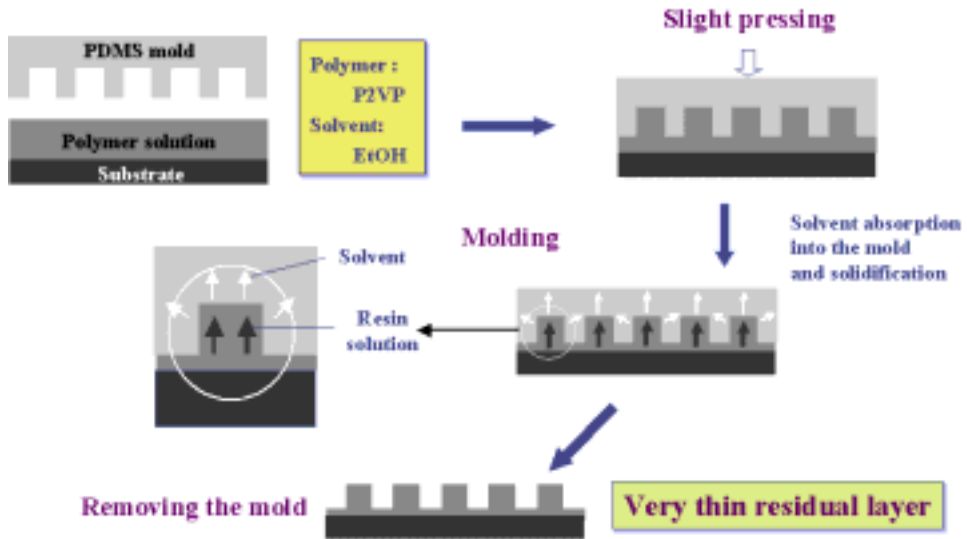
novolac resin

PGMEA

polystyrene

가 poly(vinyl alcohol) /

연성 성형(Soft Molding)



Patterning by solvent-directed capillarity

1.

2

SEM

PDMS

fidelity가

30%

PGMEA

PDMS

가

PDMS

가

20

가

baking

가

가

가

novolac resin

100

1

kinetics가

가

$$\frac{\alpha}{kM_0} \gg 1$$

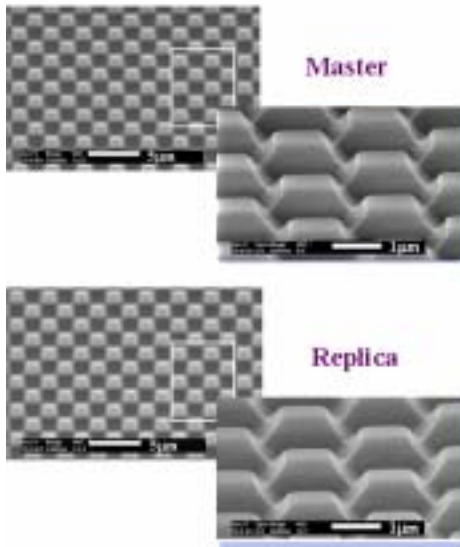
α

, k

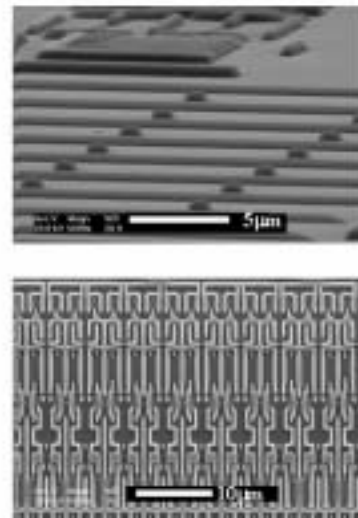
, M_0

1

Master vs Replica



Complex and Large-area patterning



2.
가

SEM

가

3

가

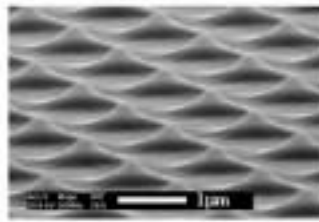
20

3

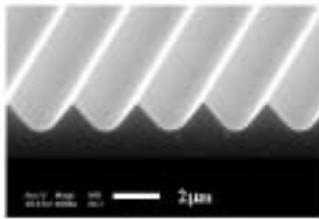
가

3

Three-dimensional pattern

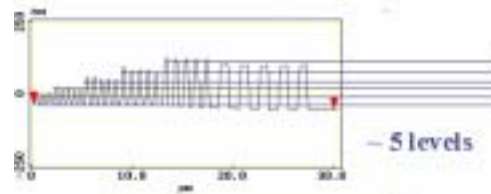
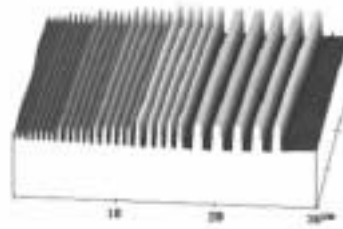


Cone-shaped pattern



Saw-shaped pattern

Multi-level structures



One-step processing

3. 3
가

3.

PDMS

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PDMS

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4.

[1] Y. S. Kim, K. Y. Suh, and H. H. Lee, *Appl. Phys. Lett.*, 79, 2285 (2001).

[2] Y. S. Kim, J. Park, and H. H. Lee, *Appl. Phys. Lett.*, 81, 1011 (2002).