SHIPLEY MICROPOSIT® LOL™1000 and LOL™2000 LIFTOFF LAYERS

Introduction

LOL1000 and LOL2000 are enabling solutions designed for submicron lift-off processes. These materials are ideally suited for MR thin film head, gallium arsenide, and a variety of semiconductor applications.

Features

- Submicron lift-off capability
- Excellent adhesion to thin film head and semiconductor substrates
- No interfacial mixing with photoresist
- DUV flood exposure not required
- Dissolution rate optimized for controlled undercut

Baseline Process Conditions

Coat LOL	700–3,000Å Thickness
Softbake LOL	150–170°C for 5 min. Hotplate or 30 min. Convection Oven
Coat Imaging Resist	Application specific Shipley positive photoresist
Softbake Imaging Resist	Per recommended imaging resist process
Expose Imaging Resist	g-Line, i-Line, or Broadband
PEB	Optional
Develop and Undercut	Application specific Shipley developer
Lift-off with NMP	MICROPOSIT® REMOVER 1165, 1 hour ultrasonic immersion at 50°C

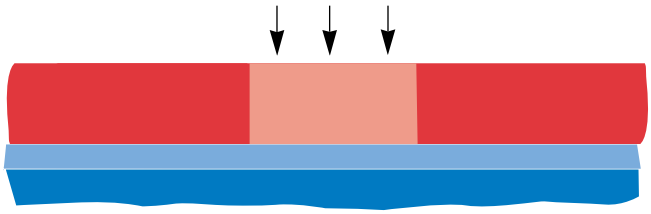
Cauchy Coefficients

n_1	n_2	n_3	Refractive Index
1.5810	-1.84e+06	8.13e+13	1.58 @ 632.8 nm

Schematic Lift-off Process Flow

Coat and Softbake LOL

Coat and Softbake Imaging Resist



Expose Imaging Resist

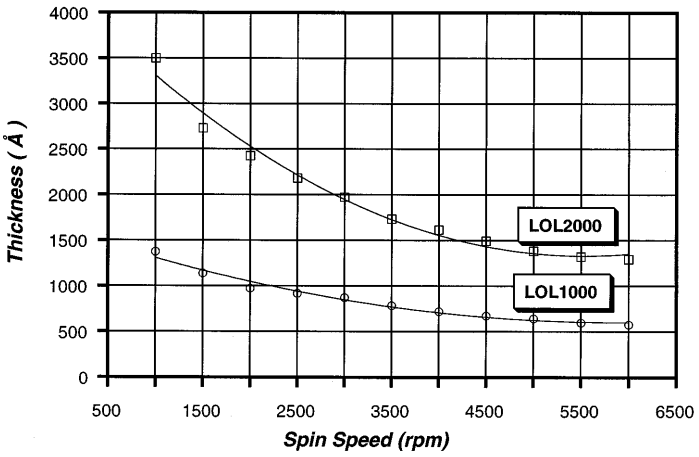
Over develop to Undercut

Sputter

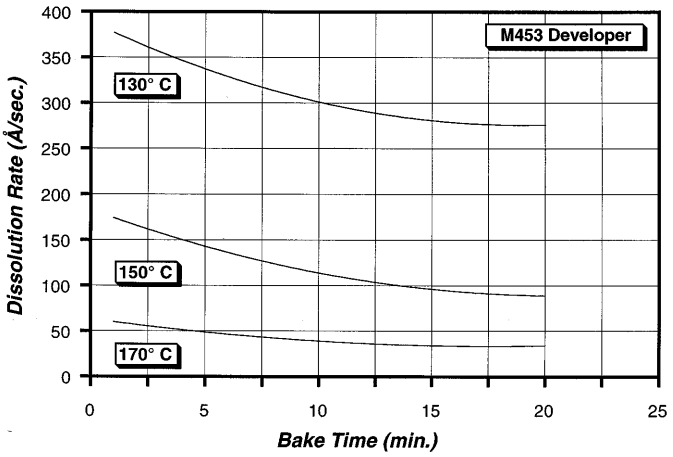
Lift-off

LOL™1000 and LOL™2000

Thickness vs. Spin Speed

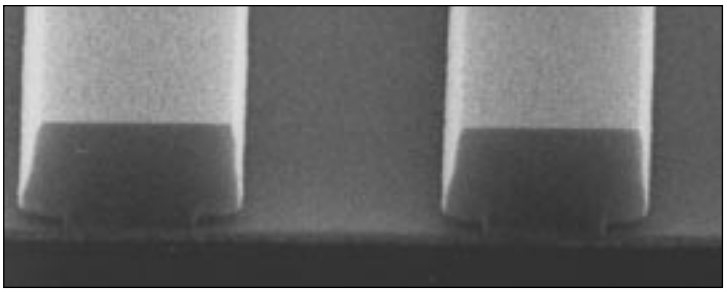


Dissolution Rate vs. Softbake



Lift-off Profile

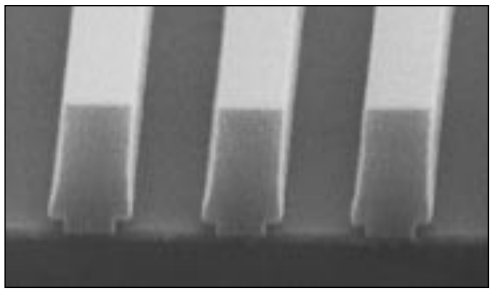
2.00 µm Lines/Spaces



Typical TFH Process

- NiFe seed layer
- 1 µm SJR®5138 over 900Å LOL1000
- Ultratech 1700 Stepper (1 µm)
- No PEB
- MICROPOSIT® 453 Developer

0.70 µm Lines/Spaces



Typical Submicron Process

- Ta seed layer
- 0.85 µm SPR®500-A over 900Å LOL1000
- GCA XLS i-Line Stepper (0.55 NA, 0.54σ)
- With PEB
- MICROPOSIT® 453 Developer