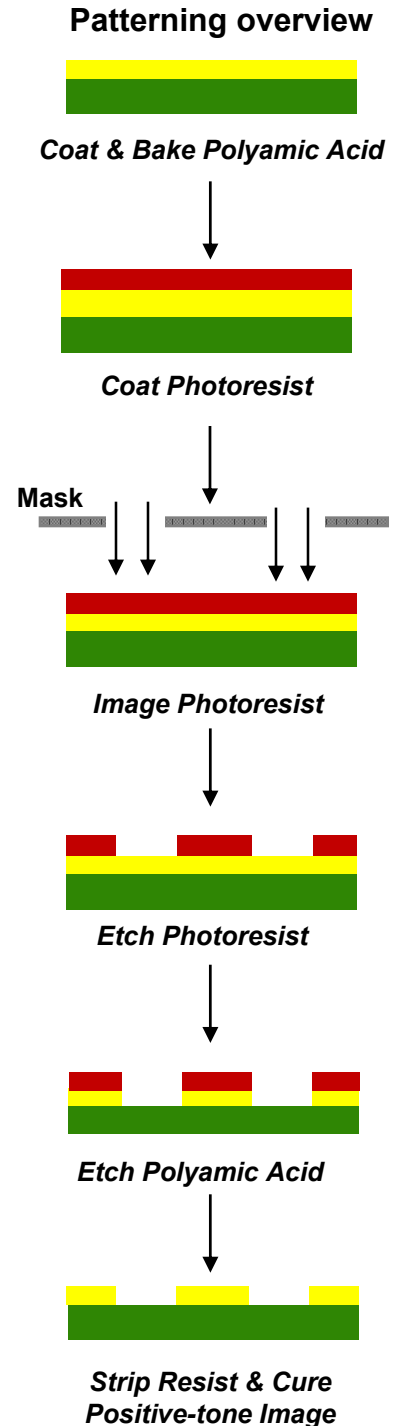


## LTP 10-18A Low Temperature Cure Polyamic Acid

LTP10-18A is a new self-priming, non-photosensitive polyamic acid formulation which becomes a fully stable polyimide coating after thermal curing. Unlike earlier generation polyamic acids that require temperatures of up to 400°C to cure, LTP10-18A completely imidizes at 250°C. (See cure curve on the following page) Films can be photo-imaged using a positive photoresist mask. Softbaked polyimide films are coated with photoresist, softbaked, exposed and post exposure baked. When the photoresist is developed, the polyimide is etched, transferring the pattern from the photoresist into the polyimide. The photoresist is then removed with a solvent rinse and polyimide cured. The minimum geometry which can be achieved by this method depends on the thickness of the polyimide at softbake. The smallest resolvable feature is approximately four times the softbake thickness.

### Characteristic Film Properties

Property	Unit	Typical Value
Tensile Strength at break	MPa	176
Young's Modulus	GPa	2.75
Elongation at break	%	75
Glass Transition Temperature	°C	265
Coefficient of Thermal Expansion	ppm/°C	46
Refractive Index (cured)	633nm	1.72



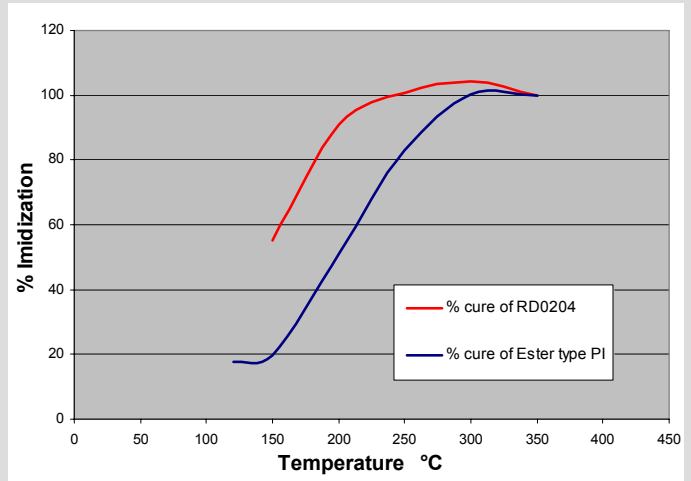
## Process Recommendation

### Coat LTP10-18A

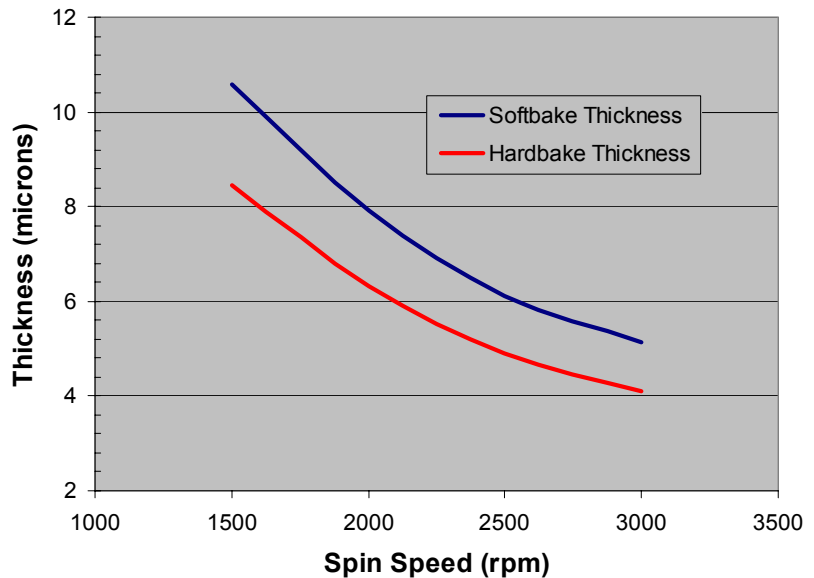
Spread	1000rpm/7sec
Spin	2000rpm/60sec
Softbake 1	90°C/3 min
Softbake 2	135°C/3min**
PI Softbake Thickness	6.4 µm
Photoresist Thickness	3.0µm
PR Softbake	90°C/3min
Exposure	300-400mJ/cm2
Post Exp Bake	115°C/60sec
Develop	0.262N TMAH Double puddle, 15" each
Strip PR	RER600 1000rpm/15sec, spin dry
Cure	250°C/60min
Cured Film Thickness	5.2µm

\*\*Hotplate Softbake 2 sets the etch rate for the polyimide pattern transfer. For example: a softbake of 140°C for 3 minutes requires two 60" puddles to completely develop out. Variations in softbake equipment, temperature or time will change the etch parameters of the polyimide and process will require re-optimization.

## Degree of Cure for LTP10-18A vs. a polyamic ester type polyimide



## Spin Speed Curve vs. Thickness LTP10-18A



The data contained in this technical bulletin is believed to be true and accurate, but is offered solely for your consideration, investigation, and verification. Nothing herein shall be construed to be a warranty or guarantee by the Fujifilm Electronic Materials manufacturer ("FFEM") or any of its affiliates, and all such warranties, implied or otherwise, including any express or implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed. You are fully responsible for any use and/or domestic or foreign sales of the product(s) described. Nothing in this technical bulletin shall be construed to constitute permission or a recommendation to use or practice any invention covered by a patent or patent application or know-how owned by FFEM, its affiliates, or others. Please refer to the material safety data sheet (MSDS) for complete information on storage and handling, toxicological properties, personal protective equipment, first aid, spill and leak procedures, and waste disposal. To order an MSDS, call your FFEM sales office. Before using or handling this product, review the MSDS information thoroughly.

### European Headquarters Fujifilm Electronic Materials (Europe) N.V.

Keetberglaan 1A  
Havennummer 1061  
B-2070 Zwijndrecht  
Belgium

Telephone : 32-3-250-0511  
Fax : 32-3-252-4631

### Fujifilm Electronic Materials U.S.A., Inc.

6550 South Mountain Road  
Mesa, Arizona 85212  
U.S.A

Telephone : 1-480-987-7536  
Fax : 1-480-987-7104

### Worldwide Headquarters Fujifilm Electronic Materials, Co., Ltd.

15th Arai-BLDG, 6-19-20  
Jingumae Shibuya-Ku  
Tokyo 150-0001  
Japan

Telephone : 81-3-3406-6911

### Fujifilm Electronic Materials U.S.A., Inc.

Quonset Point  
80 Circuit Drive  
North Kingstown, Rhode Island 02852  
U.S.A.

Telephone : 1-800-553-6546

# FUJIFILM

www.fujifilm-ffem.com