

Low Temperature Cure LTC 9300(-E07)

Photosensitive Polyimide Precursor

- NMP / NEP and halogen free formulation.
 - LTC 9300(-E07) series are suitable for low temperature cure between 200 and 250°C.
 - Standard cure conditions between 350°C and 420°C can also be applied.
 - LTC 9300(-E07) series are designed to provide the following characteristics:
 - Copper compatible polyimide
 - Wide process latitude
 - Self priming – no external adhesion promotor
 - Very good adhesion
 - Good mechanical property retention after extended pressure cooker test (> 1000 hours)
 - Large cured film thickness ranges.
- | Type | Viscosity* | Cured Film Thickness |
|--------------|------------|----------------------|
| LTC 9305 | 1200 cSt | 2 – 5 µm |
| LTC 9310-E07 | 3300 cSt | 4 – 15 µm |
| LTC 9320-E07 | 6100 cSt | 8 – 25 µm |
- (* 1 cSt = 1 mm²/s)
- Ideal for standardization purposes and minimizing the number of polyimide materials in production.

Compatible Ancillary Products:

Developer/Rinse Combinations: HTR-D2 / RER 600

Back Side Rinse: HTR-D2

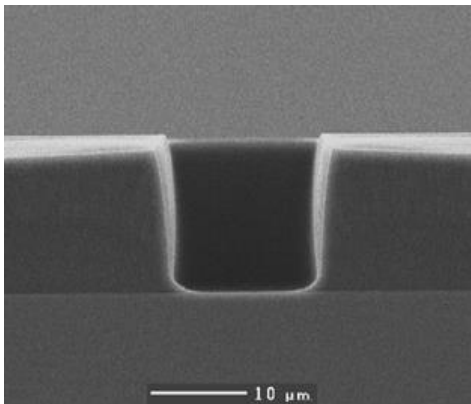
Edge Bead Remover: HTR-D2

Stripper Product: MS 3001 (NMP free)

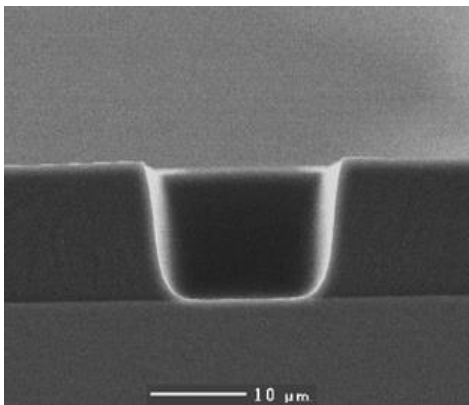
Typical cured Film Properties of LTC 9300(-E07)

Material property	Unit	Cured @ 230°C	Cured @ 350°C
Modulus	GPa	2.5	2.2
Elongation at break	%	83	> 85
Tensile strength	MPa	181	202
Tg	°C	229	237
CTE	ppm	55	53
Weight loss Temp (2%)	°C	309	382
Weight loss Temp (5%)	°C	340	409

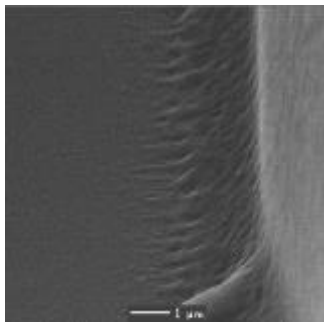
After development



After cure



Limited footing



Process Window

Substrate: All types
Silicon, SiO_xN_y,
epoxy, Al, Cu, Ag,
Au,...

PI Thickness: 2 to 35+ μm

Soft Bake: Depending film
thickness range
100°C / 4-6 min

Exposure Tool: Mask aligner
Stepper
BB or I-line

Exp. Range: 150-600 mJ/cm²

Focus Range: 3-8 μm into PI film

Post Exposure Delay: 30 min @ RT
or
Post Exposure Bake: 60 sec @ 50°C

Dev. process: Atomized spray,
continuous spray or
multiple puddle
development

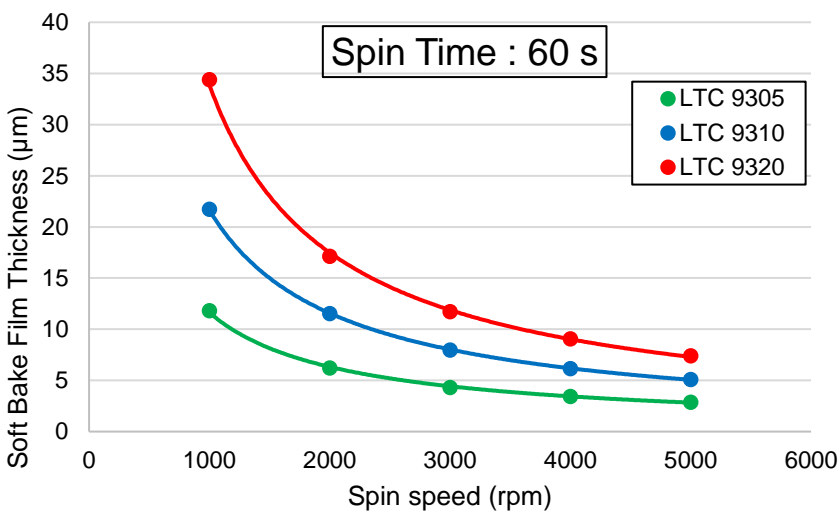
Developer/Rinse: HTR-D2/RER 600

Final cure conditions:

- 1. **Low temperature cure:**
Cure temp: 200 to 240°C for 180 min
- 2. **Medium temperature cure:**
Cure temp: 250 to 300°C for 90 min
- 3. **Standard temperature cure:**
Cure temp: 350 to 420°C for 60 min

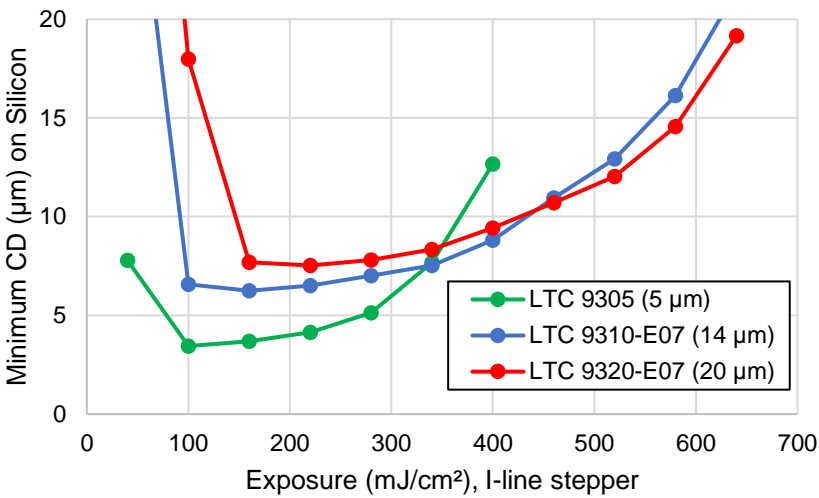
Descum:
Short O₂-plasma

Soft Bake Film Thickness vs. Spin Speed



Recommended spin time is 30-60 seconds. Film thickness can be varied by changing the spin-time and spin-speed.

Minimum Dimension vs. Exposure Dose



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