

FPA-1200NZ2C Nanoimprint Lithography for High-Resolution Patterning



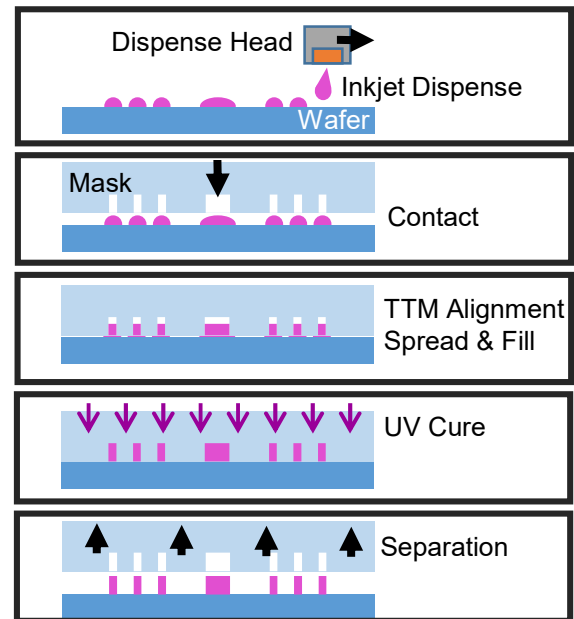
High-Resolution Nanoimprint Lithography Equipment

Canon's Nanoimprint Lithography (NIL) technology enables patterning with a minimum linewidth of 14 nanometers. Canon's FPA-1200NZ2C NIL systems are expected to enable circuit patterning with a minimum linewidth of 10 nm, which corresponds to 2-nm semiconductor process node.

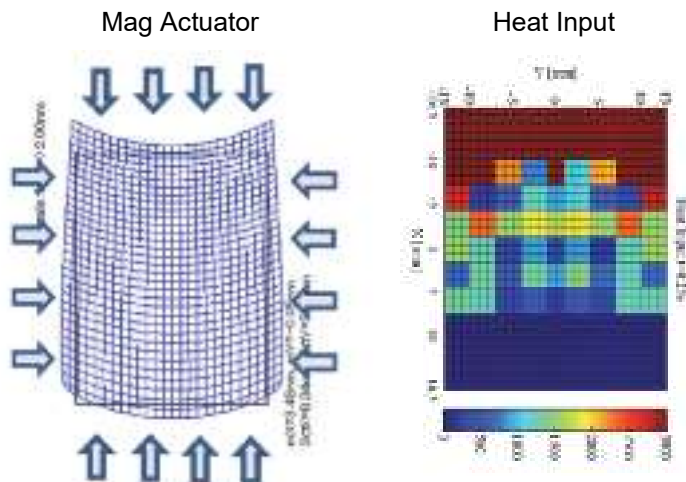
Nanoimprint patterns are formed by pressing a mask etched with the circuit pattern into photosensitive material on a wafer like a stamp. Because the NIL circuit pattern transfer process does not go through an optical mechanism, fine circuit patterns on the mask can be faithfully reproduced on the wafer.

FPA-1200NZ2C Features

- Canon NIL equipment can be used for a wide range of applications including logic, memory and metalenses for AR/VR displays
- NIL process can simplify existing multi-patterning processes and reduce Cost of Ownership (CoO)
- NIL resolution is primarily determined by the mask process
 - 14 LS and 16 nm contact hole patterning has been demonstrated
- NIL enables greater design freedom allowing complex 2- or 3-dimensional circuit patterns to be formed in a single imprint
- NIL processes offer low Linewidth Roughness (LWR). NIL LWR is related to mask etch



Canon Jet & Flash Imprint Lithography (J-FIL) Nanoimprint Process



NIL process equipment uses an array of Piezo actuators to apply mag correction and localized intra-field heat input to improve overlay matching accuracy

FPA-1200NZ2C Specifications

Technology	Nanoimprint Stepper
Resolution	≤ 15 nm (mask dependent)
Throughput	≥ 80 wph (4-station system)
Single Machine Overlay	≤ 4 nm
Mask Size	6"
Reduction Ratio	1:1
Field Size	26 x 33 mm
Substrate Size Options*	200, 300 mm
Dimensions (W x D x H)	2.7 x 6.6 x 2.83 m (2-station)

Canon Lithography System Lineup

Canon Photolithography equipment is designed to help provide exceptional quality, performance, and cost of ownership for your wafer imaging applications.

Canon FPA (Fine Pattern Aligner) Series Nanoimprint, i-line and Deep Ultraviolet (DUV) lithography systems are used in the fabrication and heterogeneous integration of high-tech devices including integrated circuits, hard disk read/write heads, microelectromechanical systems (MEMS) devices, image sensors, displays, power devices and light emitting diodes (LED).

Litho Product	Technology	Resolution	Lens Reduction Field Size [mm]	Substrate Options [mm]
FPA-6300ES6a	KrF (248 nm) Scanner	≤ 100 nm (≤ 90 nm 2/3 Ann)	4:1 26 x 33	200 300
FPA-6300ESW	KrF (248 nm) Scanner	≤ 130 nm	3.125:1 33 x 42.2	200 300
FPA-5550iZ2	i-line (365 nm) Stepper	≤ 350 nm (≤ 280 nm 2/3 Ann)	4:1 26 x 33	200 300
FPA-5520iV LF2	i-line (365 nm) Stepper	≤ 0.8 μm	2:1 52 x 68	300
FPA-5510iX	i-line (365 nm) Stepper	≤ 0.5 μm	2:1 50 x 50	300
FPA-8000iW	i-line (365 nm) Panel Stepper	≤ 0.8 μm	2:1 52 x 68	515 x 515 (panels)
FPA-3030EX6	KrF (248 nm) Stepper	≤ 150 nm	5:1 22 x 22	50, 75, 100, 125, 150, 200
FPA-3030i5a	i-line (365 nm) Stepper	≤ 350 nm	5:1 22 x 22	50, 75, 100, 125, 150, 200
FPA-3030iWa	i-line (365 nm) Stepper	≤ 0.8 μm	2:1 52 x 52	50, 75, 100, 125, 150, 200
FPA-1200NZ2C	Nanoimprint Lithography	≤ 15 nm	1:1 26 x 33	200 300
MS-001	Wafer Overlay Metrology System	----	----	300

All options may not be available on all models. Contact Canon for details
* = Options Required

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