Developmental Product

May 2025

HD MicroSystems™ going Green

Introducing HD4100GT: A Next Generation Eco-friendlier Polyimide

HD4100GT uses more environmentally friendly processes and raw materials to provide customers with a copy-exact HD-4100 negative-tone, solvent-developable photodefinable polyimide precursor product that is ideally suited for stress buffer, flip chip and fan-in packaging ensuring well-established highly reliable performance in your critical application.

Key Features:

- More Environmentally Friendly: NMP Free, Fluorine-free, and Methanol-free
- Same Outstanding Performance as HD-4100: Closely derived from trusted HD4100 technology, HD4100GT excels in maintaining the high reliability of our original product.

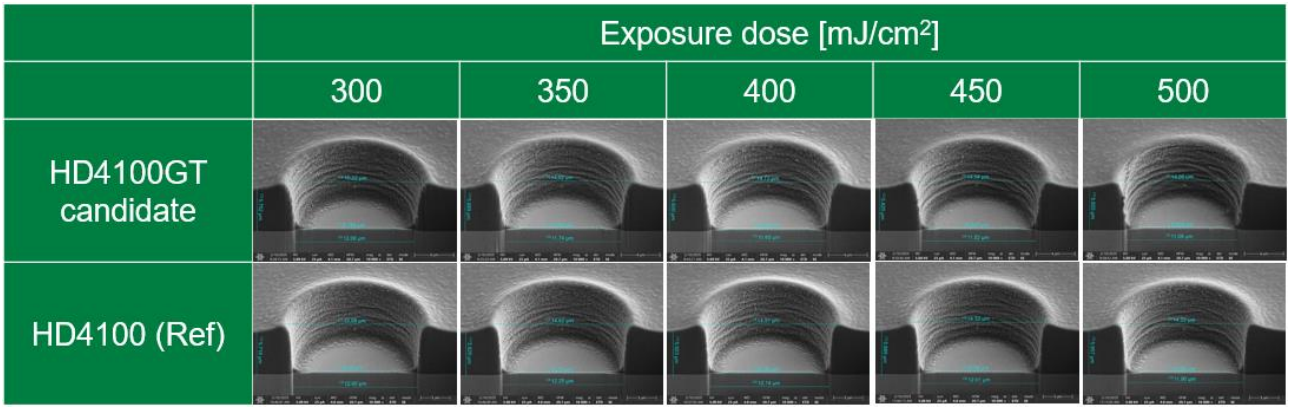
Discover how HD4100GT can meet your needs by contacting us for more information today!

Comparable Film Properties

(Typical data of films cured at 375℃ for 1hr)

	UOM	HD4100GT candidate	HD4100 (Ref)
Tensile Strength	MPa	210	205
Elongation	%	50	50
Young's Modulus	GPa	4.1	4.1
Tg (TMA)	°C	285	285
CTE (TMA, 50-100°C)	ppm/K	55	55
Td5	°C	435	430
Residual Stress	MPa	32	32
Dk @10 GHz	-	3.2	3.2
Df @10 GHz	-	0.011	0.011
Dielectric Strength	kV/mm	345	325

Equivalent Lithographic Performance



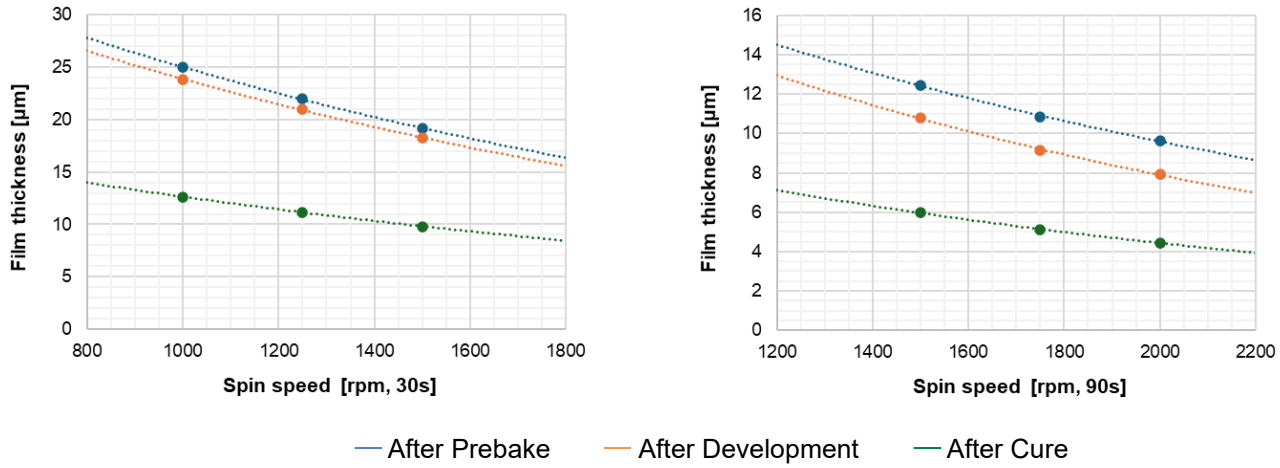
(10μm via @ 5μm thickness. Process conditions: Prebake: 100°C/120s+110°C/120s, Development: 30s x 2, Cure: 375°C/1h)

Typical Process Example

		UOM	HD4100GT candidate		Remarks
			5 µm	8 µm	
Coating		rpm/s	1800 / 90	2000 / 30	
Prebake		°C/s	100/120 + 110/120		
Exposure		mJ/cm^2	350	400	i-line
Development		s	30 + 30		Cyclopentanone
Cure		°C/h	375 / 1		Under N_2
Thickness	After Prebake	µm	10.0	15.7	
	After Develop		8.9	14.7	
	After Cure		5.0	8.0	

Note: Pre-baking conditions are slightly higher compared to standard HD-4100 to facilitate evaporation of a greener solvent substituted for NMP

Spin Curves



Handling precautions

Before using these products, consult the Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

Technical Service

HD MicroSystems has dedicated technical service facilities in Hitachi City, Japan and Parlin, New Jersey. Technical support personnel are available to work in-house on dedicated process tools, or on location throughout the world to assist in process development or help resolve technical problems. For more information, contact your regional HD MicroSystems Technical Representative

United States

HD MicroSystems L.L.C.
250 Cheesquake Road
Parlin, NJ 08859-1241
800-346.5656 ext.14/15
+1-732.694-3876

Japan

HD MicroSystems, Ltd.
JR Shinjuku Miraina Tower
1-6 Shinjuku 4-chome, Shinjuku-ku
Tokyo 160-0022
+81-3-3868.8121

Europe

HD MicroSystems GmbH
Hugenottenallee 175
63263 Neu-Isenburg
Germany
+49-6102-18.1823

www.hdmicrosystems.com