

Materials List for:

Real-Time DC-dynamic Biasing Method for Switching Time Improvement in Severely Underdamped Fringing-field Electrostatic MEMS Actuators

Joshua Small¹, Adam Fruehling², Anurag Garg³, Xiaoguang Liu¹, Dimitrios Peroulis³

¹Department of Electrical and Computer Engineering, University of California, Davis

²Digital Light Projection (DLP) Technology Development, Texas Instruments

³Birck Nanotechnology Center and the Department of Electrical and Computer Engineering, Purdue University

Correspondence to: Joshua Small at jasmall@ucdavis.edu

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Materials

Name	Company	Catalog Number	Comments
Chemicals			
Buffered oxide etchant	Mallinckrodt Baker	1178	Silicon dioxide etch, Ti etch
Acetone	Mallinckrodt Baker	5356	Wafer clean
Isopropyl alcohol	Honeywell	BDH-140	Wafer clean
Hexamethyldisilazane	Mallinckrodt Baker	5797	Adhesion promoter
Microposit SC 1827 Positive Photoresist	ShIPLEY Europe Ltd	44090	Pattern, electroplating
Microposit MF-26A developer	ShIPLEY Europe Ltd	31200	Develop SC 1827
Tetramethylammonium hydroxide	Sigma-Aldrich	334901	Bulk Si etch
Sulfuric acid	Sciencelab.com	SLS2539	Wafer clean
Hydrogen peroxide	Sciencelab.com	SLH1552	Wafer clean
Transene Sulfite Gold TSG-250	Transense	110-TSG-250	Au electroplating solution
Baker PRS-3000 Positive Resist Stripper	Mallinckrodt Baker	6403	Photoresist stripper
Gold etchant type TFA	Transense	060-0015000	Au etch
Equipment			
Mask aligner		Karl Suss MJB-3	Pattern photoresist
Sputter coater		Perkin Elmer 2400 Sputterer	Deposit metal
Thermal oxidation furnace		Pyrogenic Oxidation Furnace	Grow silicon dioxide
Reactive Ion Etch		Plasmatech RIE	Plasma ash
Xenon difluoride dry etcher		Xactix Xenon Difluoride Etcher	Selective dry isotropic silicon etch
Surface profilometer		Alpha-Step IQ	Step height measurement
Probe ring		Signatone	Holds DC probe manipulators
DC manipulators		Signatone S-900 Series Micropositioner	Applies potential difference to device
Laser doppler vibrometer		Polytec OFV-551/MSA-500 Micro System Analyzer	Switching time measurement
Digital function generator		Agilent E4408B Function Generator	Creates the DC-dynamic waveform
High voltage linear amplifier		Single channel high voltage linear amplifier A400	Facilitates high voltage
Digital oscilloscope		Agilent DS05034A Digital Oscilloscope	Verify the dynamic waveform parameters