

Nano CMOS Prototyping Platform

Fact Sheet
Technology

Application:

- Micro- and Nanoscale CMOS technology
- High level research and development services
- New gate stack materials
- SOI process platform
- Small volume production

Description:

The transition from micro- to nanoscale CMOS is the major challenge for the semiconductor industry during the next decade. A flexible SOI CMOS process platform is available that can be fine-tuned for a variety of research and development applications. AMO's standard CMOS process uses SOI substrates, Poly-Si and Metal 1 interconnects. The range of devices and circuits includes MOSFETs with 12 nm gate length, FinFETs, novel High-k and metal gate transistors, nano-dot memory devices, sensors, detectors and integrated circuits for system on chip (SOC) bio-electronics.

Proposal:

AMO offers high level research and development services to meet your demanding requirements. Our versatile equipment is individually fine-tuned to achieve complete customer satisfaction. Short feedback loops and personal, confidential customer care are our highest priorities. AMO's process platform is capable of delivering electronic and photonic prototype devices according to your research needs.

Substrate	Si/SOI			
Lithography	E-Beam ~ 10 nm	UV Nanoimprint ~ 10 nm	Optical Contact Lithography ≥ 1µm	
Substrate Size	6"-Wafer	4"- Wafer	Fragments	
Wet Processing	RCA1 & RCA2, HF			
Furnaces	Dry Oxidation 3 nm to 180 nm	Wet Oxidation 20 nm to 1µm	POCL3 for solar cells	Annealing H ₂ , Ar, N ₂
Rapid Thermal Processing	200 °C/s	Up to 1300 °C	N ₂ , Ar, H ₂	
CVD	Poly-Si 20 nm to 2µm	Silicon nitride (Si ₃ N ₄) 20 nm to 500 nm	Low temperature oxide (LTO, SiO ₂) 10 nm to 500 nm	
Metallization	Sputtered metals Al, Ti, W, Co, Ni, AlSi (1%), NiAl, n ⁺ Si, TiN, NiAlN	Sputtered dielectrics SiO ₂ , HfO ₂ , Ta ₂ O ₅ , Al ₂ O ₃ , SiN	Evaporated SiO ₂ , Al, Ti, Cr, Ta ₂ O ₅	ALD AlN, Al ₂ O ₃ , TiN, TaN
Dry Etching	RIE, ECR, ICP	HBr, Cl ₂ , O ₂ , SF ₆ , CHF ₃ , CF ₄ , C ₄ F ₈ , BCl ₃ , CO ₂ He, Ar, N ₂	Silicon, Poly-Si, TiN, Ti, SiO ₂ , High selectivity	Deep Silicon, Deep SiO ₂
Metrology	SEM, AFM, STM, MFM	Scanning Ellipsometry 6"	Microscope	Profiler
Electrical Testing	Semi-automated probe station	Low level & high voltage DC	IV, CV, charge pumping	Hot chuck up to 300 °C

Please contact us for further information and detailed process planning support

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