Eugenus New ALD Materials

Metal ALD; Dielectric ALD

FILM	TiSiN	TiN/TiSiN	VN	MoN	ZrO/HfO	MoO
APPLI- CATION	DRAM Barrier Metal	DRAM Bottom/Top Electrode	DRAM Bottom/Top Electrode	DRAM Bottom/Top Electrode	DRAM Capacitor Oxide	DRAM Capacitor Interface
TEM	Mask Nitride W Metal Contact WSIN QXP-TISIN First Active Source : Chipworks	0.00 m 1.04 m 1.77 m 1.77 m 1.78 m 0.00 m	VN 20 pm	MON (1802)	ZrO	20 mm 20 mm MoO
KEY RESULT	High temperature thin diffusion barrier	• TiN Step Coverage: >98%	VN Step Coverage: >98%Higher WF, Lower Rs than TiN	MoN Step Coverage: >90%Higher WF than TiN	• ZrO Step coverage: > 100%	• MoO Step coverage: > 100%

New ALD Materials for DRAM/3D-DRAM Scaling

