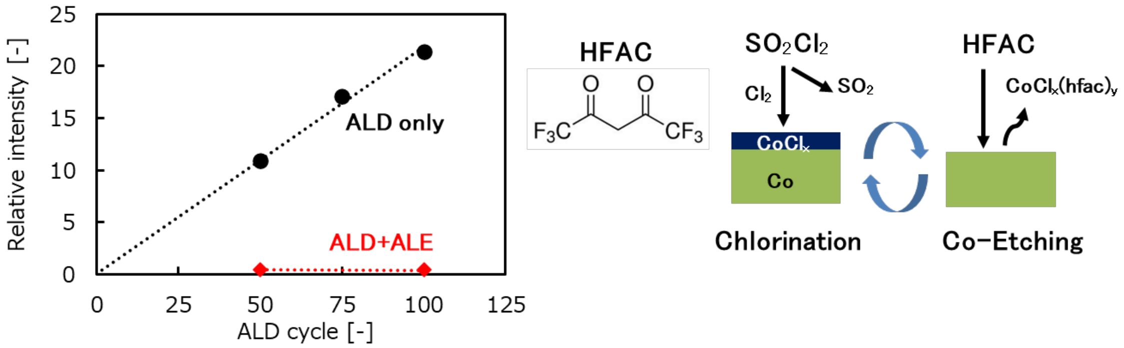
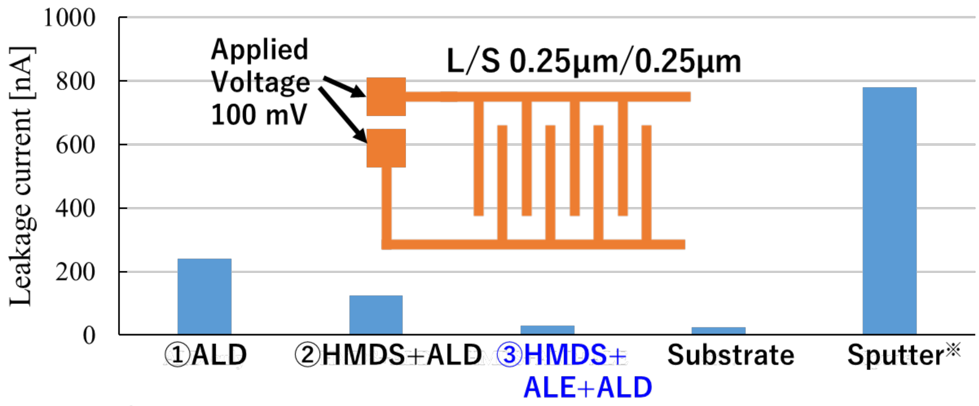


Fig. 1 Co thin film growth on SiO_2 by ALD and ALD/ALE combination. CCTBA was used as the Co-ALD precursor, and a SO_2Cl_2/HFAC sequential supply was used for Co-ALE.



① Co-ALD 100 Cycles

② HMDS Pretreatment ＋ Co-ALD 100 Cycles

③ HMDS Pretreatment ＋ (Co-ALD 25 Cycles＋ALE 3 Cycles)×4

※ PVD-Co with same thickness of Co-ALD 100 Cycles

Fig. 2 Leakage current of the L/S pattern of Cu/low-k substrate with Co AS-ALD.