

## SUPPORTING INFORMATION

### Chemical Interactions in the Atomic Layer Deposition of Ge-Sb-Se-Te Films and Their Ovonic Threshold Switching Behavior

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**Table S1.** ALD subcycle sequences and Ge-Sb-Se-Te atomic compositions of the deposited films

GTST (GeTe <sub>2</sub> - Sb <sub>2</sub> Te <sub>3</sub> )	Subcycle sequences	Composition				d <sub>DUT</sub> (nm)
		Ge(at%)	Sb(at%)	Se(at%)	Te(at%)	
GTST (GeTe <sub>2</sub> - Sb <sub>2</sub> Te <sub>3</sub> )	GT1 ST0	33.78			66.22	17.9
	GT8 ST1	26.50	8.41	-	65.10	34.4
	GT4 ST1	19.48	18.09	-	62.43	-
	GT4 ST2	15.41	22.35		62.24	31.5
GTSS (GeTe <sub>2</sub> - Sb <sub>2</sub> Se <sub>3</sub> )	GT1 SS1	1.99	35.59	27.16	35.26	-
	GT4 SS1	15.24	22.03	7.81	54.92	-
	GT1 SS2	1.02	35.96	39.95	23.07	-
	GT1 SS4	0.84	35.98	47.61	15.57	-
	GT4 SS2	13.15	24.83	13.38	48.64	34.4
	GT6 SS2	25.35	11.88	13.47	49.30	-
	GT6 SS4	13.84	22.63	31.22	32.32	42.3
GT8 SS2	31.69	3.94	7.15	57.22	-	
GTSTSS (GeTe <sub>2</sub> - Sb <sub>2</sub> Te <sub>3</sub> - Sb <sub>2</sub> Se <sub>3</sub> )	GT2 ST1 SS1	16.27	21.42	12.14	62.31	-