

A low power 1Mbit MRAM based on 1T1MTJ bit cell integrated with Copper Interconnects “C12p4”

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A low power 1Mb Magnetoresistive Random Access Memory (MRAM) based on a 1-Transistor and 1-Magnetic Tunnel Junction (1T1MTJ) bit cell is demonstrated. MTJ elements are integrated with CMOS using copper interconnects cladded with a high permeability layer, which focuses magnetic flux toward the MTJ devices reducing the power needed for programming the bits. The 25mm² 1Mb MRAM circuit has 50ns address access and consumes 24mW at 3.0V and 20MHz.