

















BROWN Memory definitions • Function – functionality, nature of the storage mechanism • static and dynamic; volatile and nonvolatile • Access pattern – random, serial, content addressable Random NVRWM ROM Random Non-Random EPROM Mask-programmed SRAM (caces Access Access programmed

A00033	700033		programmed
SRAM (cache,	FIFO, LIFO	EEPROM	
register file)	Shift Register	FLASH	Electrically-
DRAM (main	CAM		programmed
memory)	CAM		(PROM)

- Input-output architecture number of data input and output ports (multiported memories)
- Application embedded, secondary, tertiary











BROWN
Nonvolatile read/write memories (NVRWM)

• UV (ultraviolet light exposure), FN (Fowler-Nordheim tunneling), Hot e (avalanche hot-electron-injection); $V_{DD} = 3.3 \text{ or } 5V; V_{PP} = 12 \text{ or } 12.5V$

	# Trans/ Cell	Cell Area	Mechanism		Power Supply		Program
			Erase	Write	Write	Read	/Erase Cycles
MASK ROM	11	0.35-5				V _{DD}	0
EPROM	1T	1	UV	Hot e	V _{PP}	V _{DD}	~100
EEPROM	2T	3-5	FN	FN	V _{PP}	V _{DD}	104 -105
FLASH	1T	1-2	FN	Hot e	V _{PP}	V _{DD}	104 -105
			FN	FN	V _{PP}	V _{DD}	10 ⁴ -10 ⁵

























writing of 1 (because of the on state of M_1). So, the new value of the cell has to be written through M_6 .







































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