

3.6Kbit EEPROM IP with configuration 28p8w16bit

OVERVIEW

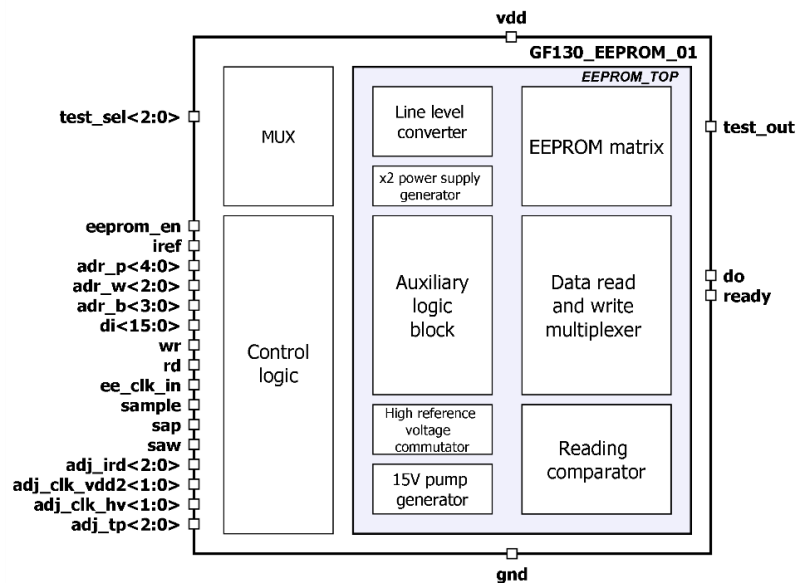
130GF_EEPROM_01 is a nonvolatile electrically erasable programmable read-only memory (EEPROM) with volume 3.6Kbit, which is organized as 28 pages of 8 words by 16 bits with single-bit output data and parallel write data in one word. Data writing is performed by setting data at $di<15:0>$, page address at $adr_p<4:0>$, word address in the page at $adr_w<2:0>$, and then applying $wr="1"$. Writing process finishes with setting flag ready to "1". Data reading is carried out by specifying page address at $adr_p<4:0>$, word address in the page at $adr_w<2:0>$, bit address in the word at $adr_b<3:0>$, and then applying the reading comparator strobe $sample="1"$. The read bit appears at pin do after some delay. Memory is optimized for usage in the industrial and commercial applications, requiring low power consumption and supply voltage. Data to be write are set at data input pin $di<15:0>$. Writing process starts, when signal wr goes to "1". Data $di<15:0>$, page address $adr_p<4:0>$, word address in page $adr_w<2:0>$ are latched into internal registers and cannot be changed until the end of the writing process. At the end of the writing, the $ready = "1"$ flag is set.

Metal stack 6LM_CU_1TM_SP_9KA.

IP technology: Global Foundries Embedded EEPROM 0.13 um.

IP status: silicon proven

Total area: 0.096mm²



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit	
			min	typ	max		
Supply voltage	V_{dd}	-	1.08	1.2	1.5	V	
Junction operating temperature range	T_j	-	-40	+27	+125	°C	
Reference current	I_{ref}	-	-	50	-	nA	
Clock frequency	F_{clk}	-	-	2	-	MHz	
EEPROM size	S	-	-	3.6	-	Kbit	
Access time	t_{acc}	-	-	0.36	0.62	us	
Programming time	t_{wr}	Time of writing process of one word	-	4.1	-	ms	
Read setup time relative to read signal	T_{READS}	-	10	-	-	us	
Current consumption in read mode	I_{read}	-	1.6	2	8.0	uA	
Average current consumption in write mode	I_{write}	-	7.5	10.0	24.0	uA	
Peak current consumption in write mode	I_{write_peak}	-	24	28	40	uA	
Standby current	$I_{standby}$	VDD=1.2V	T=27°C	-	-	<0.1	uA
			T=60°C	-	-	0.2	
			T=85°C	-	-	0.5	
			T=125°C	-	-	2.0	
		VDD=1.5V	T=27°C	-	-	0.15	
			T=60°C	-	-	0.3	
			T=85°C	-	-	0.65	
			T=125°C	-	-	2.5	
High Level Input Voltage	V_{IH}	For digital inputs	0.7 V_{dd}	-	-	V	
Low Level Input Voltage	V_{IL}		-	-	0.3	V	