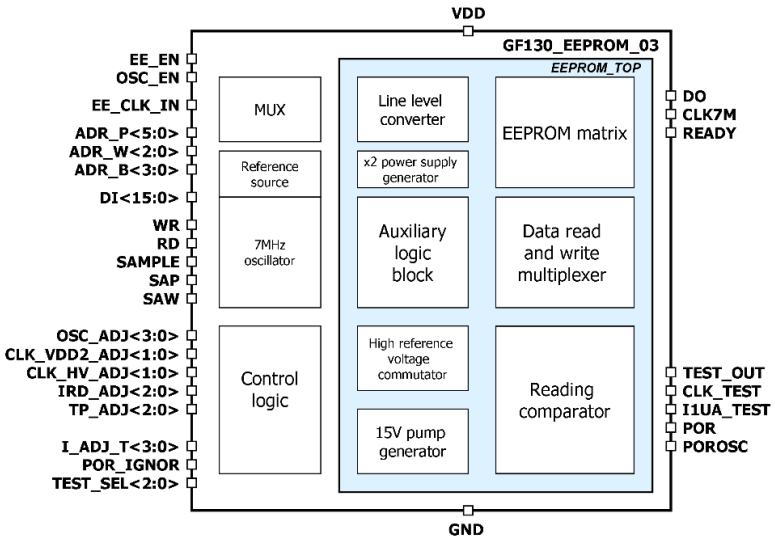
1Kbyte EEPROM IP with configuration 64p8w16bit

OVERVIEW



The block is a nonvolatile electrically erasable programmable read-only memory (EEPROM) with volume 1 Kbyte (16(bit per word) x 8(words per page) x 64(pages)) with single-bit output data and parallel write data in one word. Data writing is performed by setting data at **DI<15:0>** and write process execute if signal WR="1". Data **DI<15:0>**, page address **ADR_P<5:0>**, 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. Data reading is carried out by specifying the page address **ADR_P<5:0>**, word address in the page **ADR_W<2:0>** and bit address in the word **ADR_B<3:0>**. After applying the reading strobe, the **DO** signal is set at the output corresponding to the reading data from the corresponding addresses of the EEPROM cell. EEPROM also has a 7MHz built-in oscillator. The oscillator has frequency control inputs to compensate for process variation. Memory is optimized for usage in the industrial and commercial applications, requiring low power consumption and supply voltage.
Metal stack 6LM_CU_1TM_SP 9KA.
IP technology: Global Foundries Embedded EEPROM 0.13um
IP status: silicon proven
Total area: 0.179mm^2

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Supply voltage	V_{dd}	–	1.08	1.20	1.32	V
Junction operating temperature range	Tj	–	-40	+27	+125	°C
EEPROM size	S	–	–	1	–	Kbyte
Output clock frequency	F_{clk}	adj_osc = "1000" (by default)	5.3	7.0	10.2	MHz
		adj_osc = "1111" (max setting)	8.7	–	–	
		adj_osc = "0000" (min setting)	–	–	5.7	
Frequency standard deviation	F_σ	Mismatch + Process	–	9	–	%
Access time	t_{acc}	–	–	150	350	ns
Time of writing process of one word	t_{wr}	–	–	2.1	–	ms
Read setup time relative to read signal	t_{reads}	–	10	–	–	us
Reference source current consumption	I_{CC_RS}	–	2.3	3.6	6.2	uA
Oscillator current consumption	I_{CC_OSC}	Not including I_{CC_RS}	4.8	7.2	12.6	uA
Current consumption in read mode	I_{read}	Including I_{CC_CL}*; not including I_{CC_OSC}, I_{CC_RS}	2.9	3.8	7.6	uA
Average current consumption in write mode	I_{write_avg}	Including I_{CC_CL}; not including I_{CC_OSC}, I_{CC_RS}	22.0	28.9	49.5	uA
Standby current	$I_{standby}$	–	–	<0.05	<0.1	uA
		T = +60°C	–	–	0.2	uA
		T = +85°C	–	–	0.5	uA
		T = +125°C	–	–	2.2	uA
Input logic-high level	V_{IH}	For digital inputs	0.7*Vdd	–	–	V
Input logic-low level	V_{IL}		–	–	0.3	V

***Note**: I_{CC_CL} – Control Logic current consumption