1KByte EEPROM IP with configuration 66p16w8bit

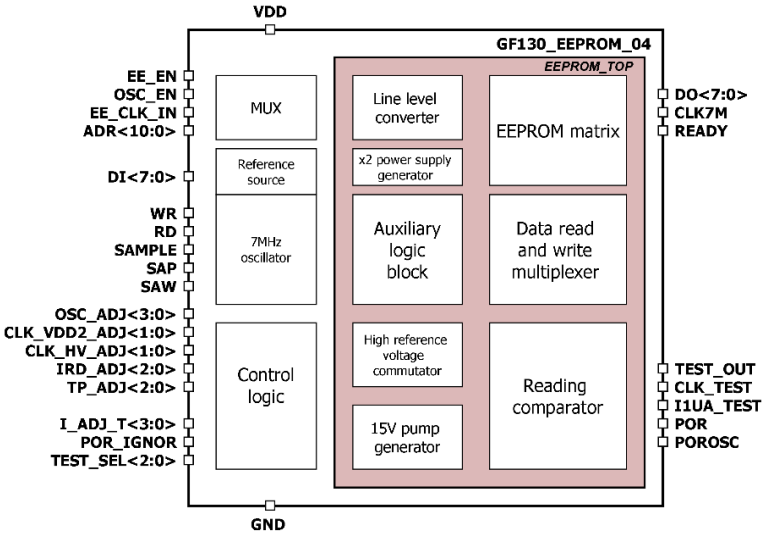
OVERVIEW

130GF_EEPROM_04 is a nonvolatile electrically erasable programmable read-only memory (EEPROM) with volume 1056 Byte (8(bit per word) x 16(words per page) x 66(pages)) with parallel write&read data in one word.

Write EEPROM data comes to input DI<7:0> and write process execute if signal WR="1".

Data DI<7:0>, page address ADR_P<6:0>, word address in page ADR_W<3:0> 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<6:0> and the address of the word in the page ADR_W<3:0>. After applying the reading strobe, the DO<7:0> signal is set at the output corresponding to the reading data from the corresponding addresses of the EEPROM cell.



EEPROM also has a 7MHz gated clock cell output (glitchless start) from a 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.

IP technology: Global Foundries Embedded EEPROM 0.13 um.

IP status: pre-silicon verification.

Total area: 0.226 mm^2.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Supply voltage	V_{dd}	–	1.1	1.2	1.3	V
Operating temperature range	T	–	-40	+27	+125	°C
EEPROM size	S	–	–	1	–	Kbyte
Output clock frequency	F_{clk}	Adjustable	5.3	7.0	10.2	MHz
Frequency standard deviation	F_{σ}	Mismatch + Process	–	9	–	%
Access time	t_{acc}	–	–	115	300	ns
Time of writing process of one word	t_{wr}	–	–	4.2	–	ms
Read setup time relative to read signal	t_{reads}	–	20	–	–	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}	14.0	22.0	41.0	uA
Average current consumption in write mode	I_{write_avg}	Including I_{CC_CL}*; not including I_{CC_OSC}, I_{CC_RS}	23.0	30.0	54.0	uA
Peak current consumption in write mode	I_{write_peak}	Including I_{CC_CL}*; not including I_{CC_OSC}, I_{CC_RS}	40.0	55.0	78.0	uA
Standby current	$I_{standby}$	–	–	<0.05	<0.1	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