1024-bit EEPROM IP with configuration 32p2w16bit

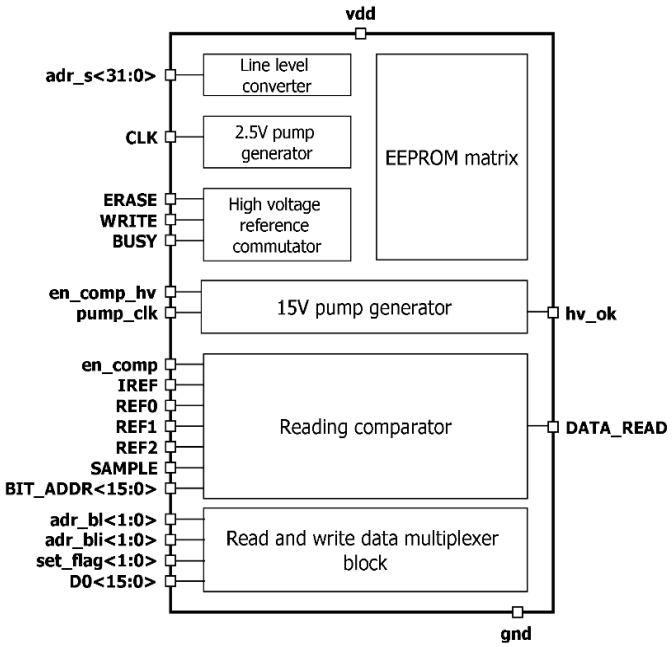
OVERVIEW

The block is a nonvolatile electrically erasable programmable read-only memory (EEPROM) with volume 1024 bits, which is organized as 32 pages of 2 words by 16 bit with single-bit output data and parallel write data. Data writing in EEPROM consists of 2 phases - erasing and writing. Erasing of words from page, performed by setting a signal BUSY, with the signal ERASE is at state «1». Data writing from latches to the words is produced by signal setting BUSY, thus the signal WRITE is in a state «1». Data reading is performed using the SAMPLE signal. Memory is optimized for usage in the industrial and commercial applications, requiring low power consumption and supply voltage.

IP technology: SMIC EEPROM CMOS 0.18um

IP status: silicon proven

Total area: 0.06mm^2



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition		Value			Unit
				min	typ.	max	
Low level supply voltage	V_{dd}	-		0.9*	1.1	1.8	V
Operating temperature range	T	-		-40	+27	+85	°C
Clock frequency for power supply generators	F_{clk}	-		400	500	600	kHz
Clock frequency for power supply generators for programing	F_{clk_pump}	-		800	1000	1200	kHz
Reference current	I_{ref}	-		40	50	60	nA
Access time	t_{acc}	-		-	320	-	ns
Current consumption in read mode	I_{read}	F_{clk} = 500kHz, F_{sample} = 500kHz	V_{dd} =0.9V	0.8	-	1.4	uA
			V_{dd} =1.0-1.5V	0.9	-	2.0	uA
			V_{dd} =1.5-1.8V	1.2	-	2.4	uA
Current consumption in write mode	I_{write}	F_{clk} = 500kHz, F_{clk_pump} = 1MHz	V_{dd} =1.0V*	4.0	-	5.5	uA
			V_{dd} =1.1V	4.7	-	6.2	uA
			V_{dd} =1.2-1.4V	5.8	-	8.5	uA
			V_{dd} =1.4-1.8V	5.8	-	12	uA
Standby current	I_{stand}	Exclude I_{ref}		-	-	0.1	uA
High Level Input Voltage	V_{IH}	For digital inputs		0.7*V_{dd}	-	-	V
Low Level Input Voltage	V_{IL}			-	-	0.3	V

***Note** – In case V_{dd} drops below 1 V to 0.9 V (wherein, F_{clk} = 512kHz, F_{clk_pump} = 1MHz), writing occurs, but hv_ok indicator does not work. Verification of writing should be done by reading after writing. Data reading speed at voltage less than 1V also decreases and is not guaranteed