

704-bit EEPROM IP with configuration 11p4w16bit

OVERVIEW

The block is a nonvolatile electrically erasable programmable read-only memory (EEPROM) with volume 704 bits (44x16), which is organized as 11 pages of 4 words by 16 bit with single-bit output data and parallel write data. Write EEPROM page data comes to input data_in and write by words to latch through the signal sample_data, while the signal write in a state of «1». The address of a word written down in latches is defined by two low bits of the bus word_addr.

Set of flags that define the words that will be erased/written to the page is produced by signals set_flag (3:0). Rst_data signal used to reset to «0» the contents of all latches before recording data, signal rst_flag – to reset to «0» all the flags erase/write before setting the required flags.

Erasing of words from page, that correspond to the flags, performed by setting a signal busy, with the signal erase is at state «1». The address of erased page is defined by four high bits of the bus word_addr. Value of the bus word_addr doesn't change throughout all cycle of deleting (while busy = «1»).

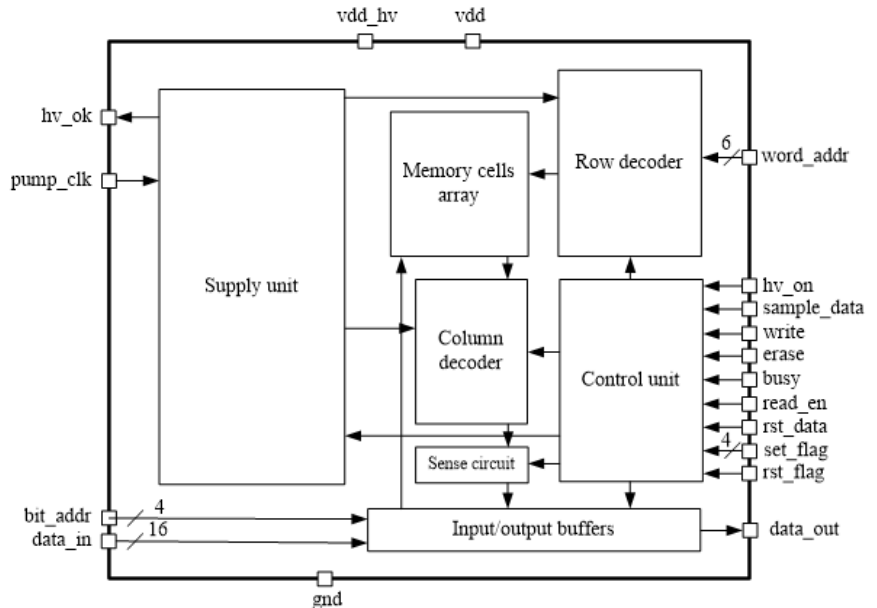
Data writing from latches to the words of page corresponding to flags, is produced by signal setting busy, thus the signal write is in a state «1». The address of writeable page is defined by four high bits of the bus word_addr.

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

Area: 0.13mm²



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Low level supply voltage	V _{dd}	-	1.44	1.80	2.16	V
High level supply voltage	V _{ddh}	-	V _{dd}	V _{dd} +0.3	5	V
Operating temperature range	T	-	-40	+27	+125	°C
Clock frequency for power supply generators	F _{clkgen}	-	-	500	-	kHz
Access time	t _{acc}	-	-	-	620	ns
EEPROM size	S	-	-	704	-	bit
Set/reset pulse width	t _{rs}	-	160	-	-	ns
Active pulse width of busy signal	t _{busy}	-	2000	-	2210	us
Current consumption in read mode	I _{read}	640kbit/s, V _{dd} = 1.8V	-	3.0	-	uA
Current consumption in write mode	I _{write}		-	6	-	
Standby current	I _{std}	-	-	-	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