

## 1Kbyte Embedded EEPROM 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. Write EEPROM page data comes to input  $di<15:0>$  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  $adr_p<5:0>$  and the address of the word in the page  $adr_w<2:0>$ , as well as the reading bit in the word  $adr_b<3:0>$ .

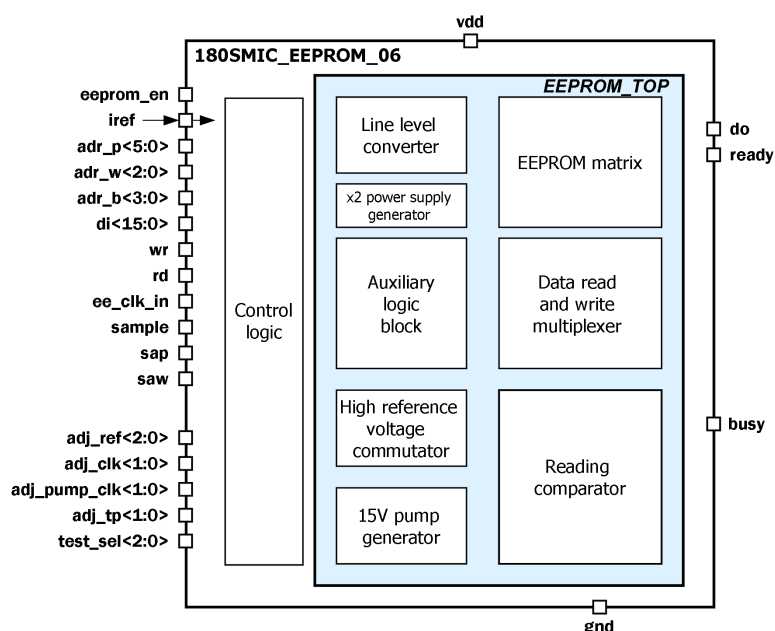
After applying the reading strobe, the do signal is set at the output corresponding to the reading data from the corresponding addresses of the EEPROM cell.

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: pre-silicon verification

Area: 0.204mm<sup>2</sup>



### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Low level supply voltage	V <sub>dd</sub>	-	1.0*	1.2	1.8	V
Operating temperature range	T	-	-40	+27	+125	°C
EEPROM size	S	-	-	1	-	Kbyte
Reference current	I <sub>ref</sub>	-	-	100	-	nA
EEPROM input clock frequency	F <sub>clk_in</sub>	-	-	7	-	MHz
Access time	t <sub>acc</sub>	-	-	320	620	ns
Time of writing process of one word	t <sub>wr</sub>	-	-	4.1	-	ms
Read setup time relative to read signal	t <sub>reads</sub>	-	10	-	-	us
Current consumption in read mode	I <sub>read</sub>	for 500Kb/s (sample signal 500kHz) @V <sub>dd</sub> =1.0-1.3V	3.5	4.4	16.0	uA
		@V <sub>dd</sub> =1.8V	-	-	20.8	
Average current consumption in write mode	I <sub>write</sub>	@V <sub>dd</sub> =1.0-1.3V	9	11.1	40.2	uA
		@V <sub>dd</sub> =1.8V	-	-	67	
Peak current consumption in write mode	I <sub>write</sub>	-	29	38	41	us
Standby current	I <sub>std</sub>	-	-	-	0.1	uA
High level input voltage	V <sub>IH</sub>	For digital inputs	0.7*V <sub>dd</sub>	-	-	V
Low level input voltage	V <sub>IL</sub>		-	-	0.3	V

\*Note – In case V<sub>dd</sub> drops below 1.2 V to 1.0 V (wherein, F<sub>clk</sub> = 500kHz), reading is possible, but writing could work incorrect. Data writing is guaranteed while V<sub>dd</sub> is higher than 1.2V.