

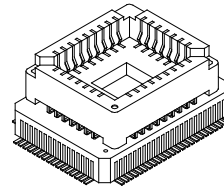
**CMOS 8-bit Single Chip Microcomputer****Description**

The CXP83400/83401 is a CMOS 8-bit single chip microcomputer of piggyback/evaluator combined type, which is developed for evaluating the function of the CXP83412/83416.

**Features**

- A wide instruction set (213 instructions) which covers various types of data.
  - 16-bit operation/multiplication and division/Boolean bit operation instructions
- Minimum instruction cycle
  - 400ns at 10MHz operation
  - 32kHz at 122 $\mu$ s operation
- Applicable EPROM
  - LCC type 27C128, LCC type 27C256  
(Maximum 16K bytes are available.)
- Incorporated RAM capacity
  - 448 bytes (LCD display data area included)
- Peripheral functions
  - A/D converter
    - 8 bits, 8 channels, successive approximation method  
(Conversion time of 32 $\mu$ s/10MHz)
  - Serial interface
    - Incorporated 8-bit and 8-stage FIFO  
(Auto transfer for 1 to 8 bytes ), 1 circuit 2 channels
  - Timer
    - 8-bit timer, 8-bit timer/counter, 19-bit time base timer, 32kHz timer/counter
  - LCD controller/driver
    - Maximum 128 segments display possible (During 1/4 duty)
    - 4 common outputs, 32 segment outputs
    - Display method: Static, 1/2, 1/3 and 1/4 duty
    - Bias method: 1/2 and 1/3 bias
  - Remote control reception circuit
    - 8-bit pulse measurement counter with on-chip 6-stage FIFO
  - PWM output
    - 14 bits 1 channel, 8 bits 1 channel
- Interruption
  - 12 factors, 12 vectors, multi-interruption possible
- Standby mode
  - Sleep/stop
- Package
  - 80-pin ceramic PQFP

80 pin PQFP (Ceramic)



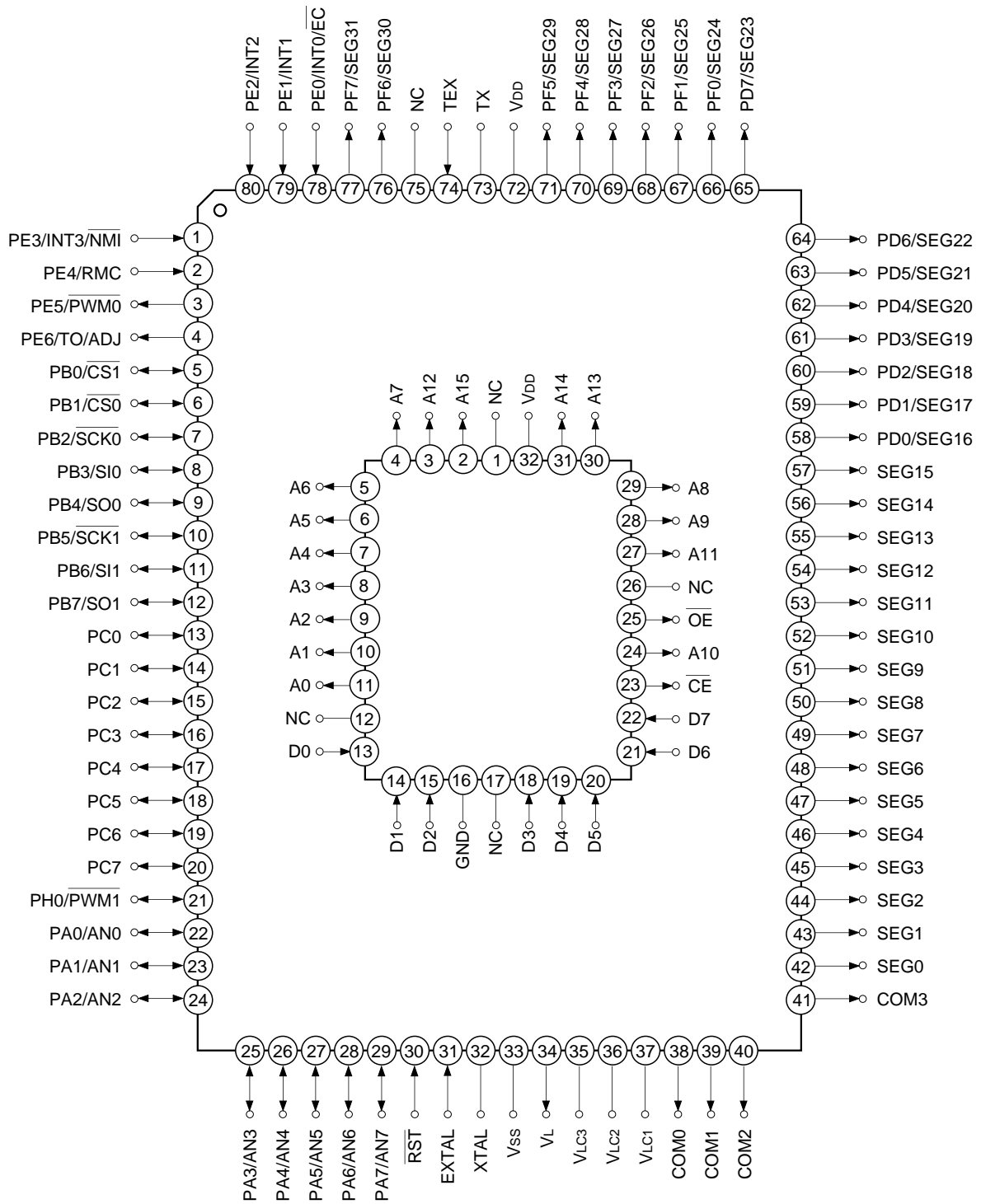
**Note)** Mask option depends on the type of the CXP83400. Refer to the Products List for details.

**Structure**

Silicon gate CMOS IC

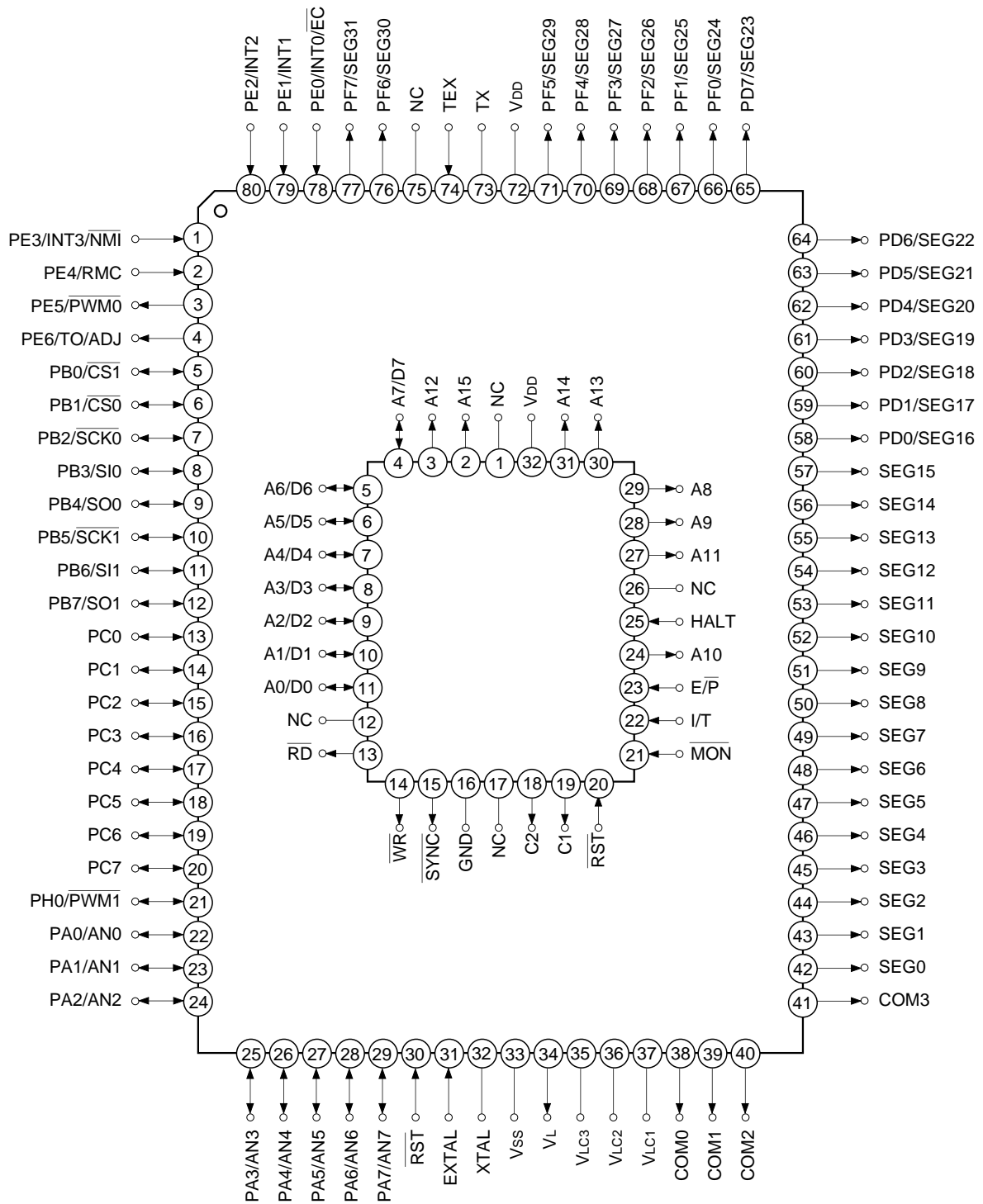
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Pin Assignment in Piggyback Mode



**Note)** NC (Pin 75) is always connected to V<sub>DD</sub>.

Pin Assignment in Evaluator Mode

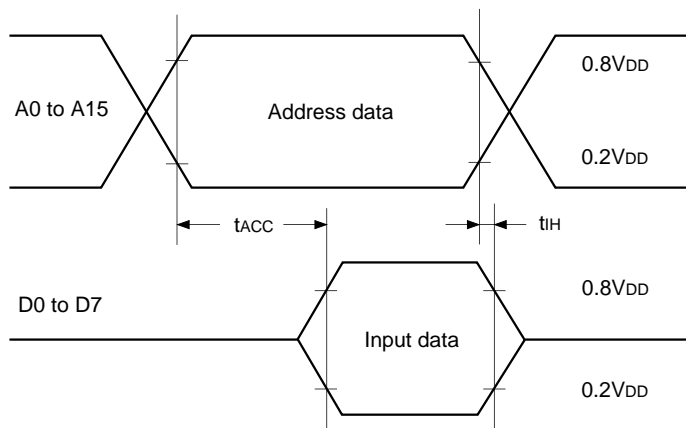


**Note)** NC (Pin 75) is always connected to V<sub>DD</sub>.

**EPROM Read Timing**

( $T_a = -20$  to  $+75^\circ\text{C}$ ,  $V_{DD} = 4.5$  to  $5.5\text{V}$ ,  $V_{SS} = 0\text{V}$  reference)

Item	Symbol	Pin	Min.	Max.	Unit
Address → data Input delay time	$t_{ACC}$	A0 to A15 D0 to D7		120	ns
Address → data Hold time	$t_{IH}$	A0 to A15 D0 to D7	0		ns



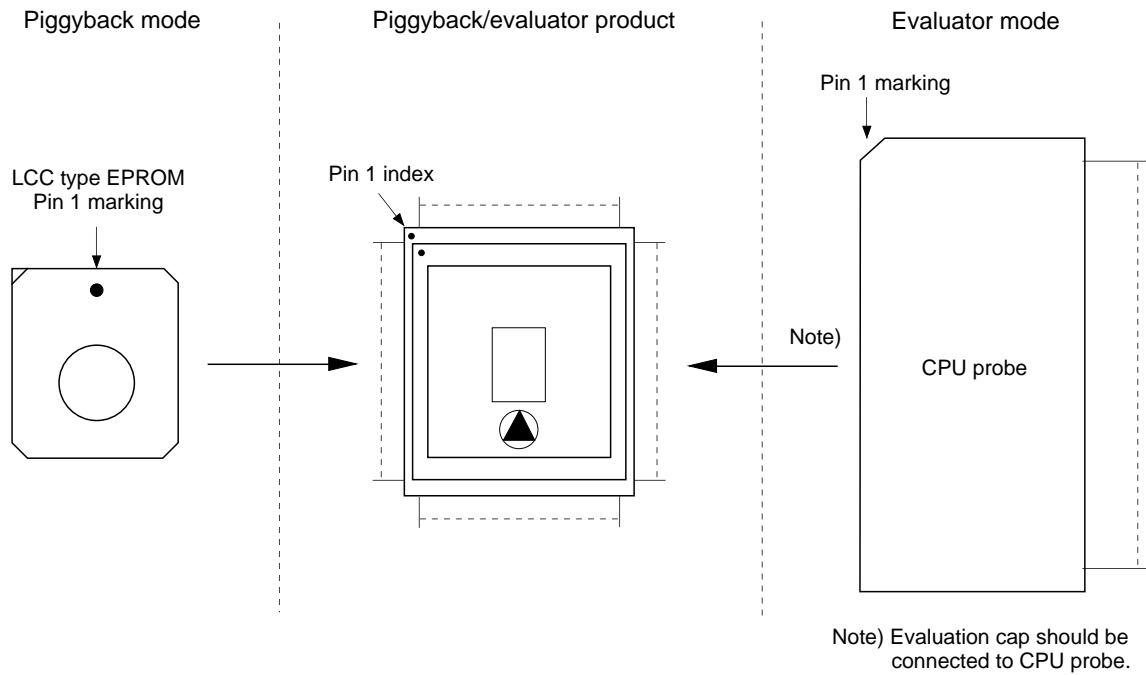
**Products List**

Option item	Products					
	Mask product				Piggyback/evaluator product	
	CXP83412	CXP83416	CXP83413	CXP83417	CXP83400-U01Q/R*1	CXP83401-U01Q*2
Package	80-pin plastic QFP/LQFP		0.65mm pitch 80-pin plastic QFP		80-pin ceramic PQFP	
ROM capacity	12K bytes	16K bytes	12K bytes	16K bytes	EPROM 16K bytes	
Pull-up resistor for reset pin	Existent/Non-existent				Existent	

\*1 Uses LQFP package conversion adaptor (SEK-80Q-80LQ, piggyback/evaluator attached).

\*2 Uses 0.65mm pitch QFP package conversion adaptor (SEK-80Q-65MM, piggyback/evaluator attached).

Piggyback mode/evaluator mode can be switched as shown below.



Package Outline Unit: mm

