SONY

CXP86400/86490

CMOS 8-bit Single Chip Microcomputer

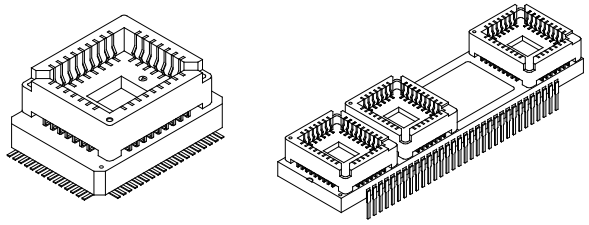
Piggyback/ evaluator type

Description

The CXP86400/86490 are CMOS 8-bit single chip microcomputers that serve as both piggyback and evaluator. The CXP86400/86490 are developed for evaluating the function of the CXP86440/86448/86460.

Note that the CXP86400 corresponds to the fixed font and the CXP86490 corresponds to the custom font respectively.

64 pin PQFP (Ceramic) 64 pin PSDIP (Ceramic)



Structure

Silicon gate CMOS IC

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 250ns at 16MHz operation
  122µs at 32kHz operation
- Applicable EPROM LCC type 27C512 (Maximum 60K bytes are available.)
- Incorporated RAM 1536 bytes (Excludes VRAM for on-screen display and sprite RAM)
- EPROM for custom font (CXP86490 only)
  LCC27C512 (Maximum 12K bytes are available.)
- Peripheral functions
  - A/D converter 8 bits, 6 channels, successive approximation method
    (Conversion time of 1.6µs at 16MHz)
  - Serial interface 8-bit clock sync type, 1 channel
  - Timer 8-bit timer
    8-bit timer/counter
    19-bit time base timer
    32kHz timer/ counter
  - On-screen display (OSD) 12 × 16 dots, 384 character types, 15 character colors, 24 characters × 2 lines
    frame background 8 colors/half blanking
    background on full screen 15 colors/half blanking
    edging/shadowing/rounding for every line
    background with shadow for every character/ double scanning
    sprite OSD; 12 × 16 dots, 1 screen, 8 colors for every dot
  - I^2C bus interface
  - PWM output 8 bits, 8 channels
    14 bits, 1 channel
  - Remote control reception circuit
    8-bit pulse measurement counter, 6-stage FIFO
  - HSYNC counter
  - Watchdog timer
- Interruption 13 factors, 13 vectors, multi-interruption possible
- Standby mode SLEEP
- Package CXP86400 64-pin ceramic PQFP
  CXP86490 64-pin ceramic PSDIP (Supports custom font)

Note) Mask option depends on the type of the CXP86400/86490. Refer to the Product List for details.

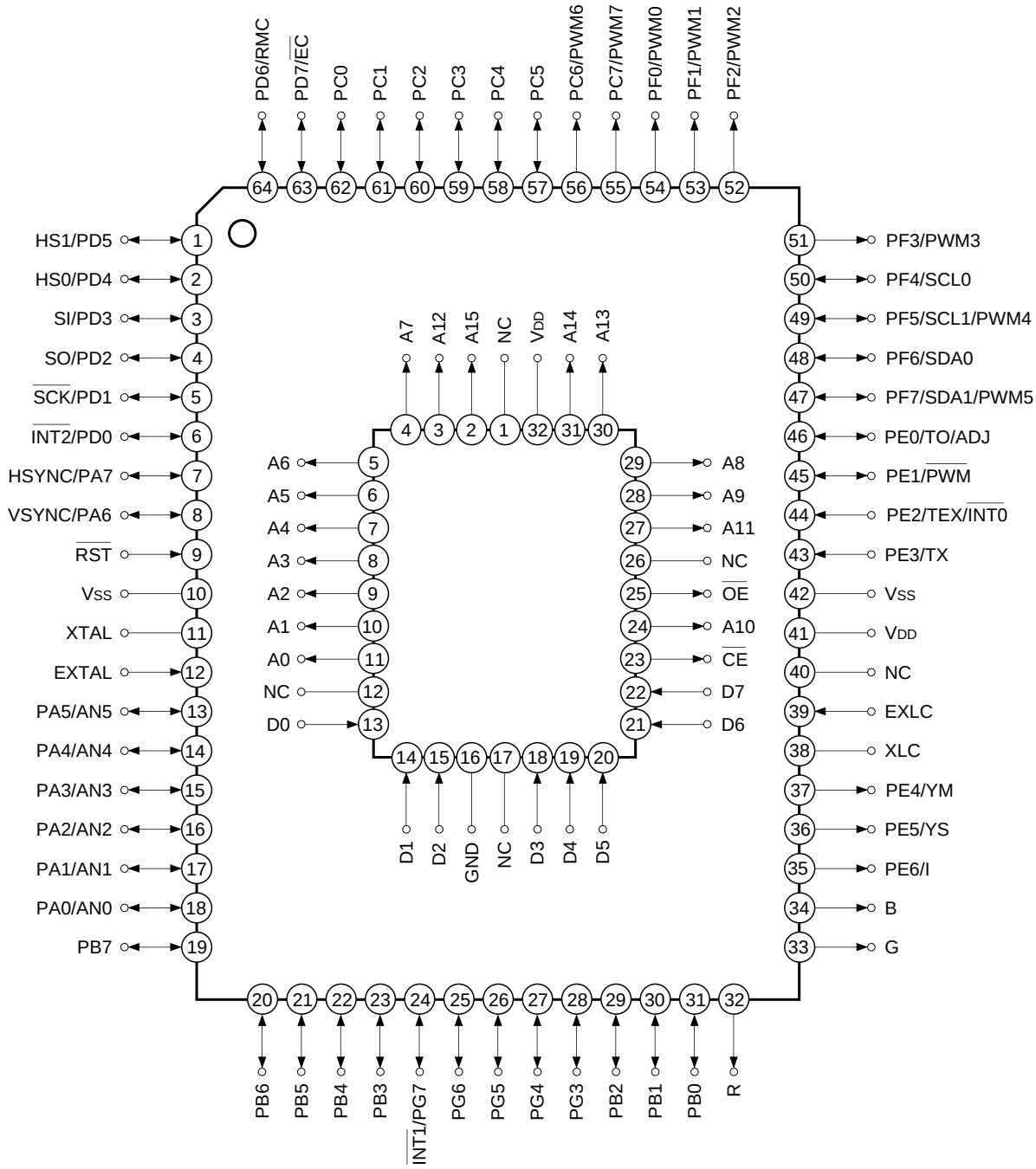
Perchase of Sony's I^2C components conveys a licence under the Philips I^2C Patent Rights to use these components in an I^2C system, provided that the system conforms to the I^2C Standard Specifications as defined by Philips.

Sony reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits.

E96643-PS

CXP86400

Pin Assignment in Piggyback Mode (Top View)

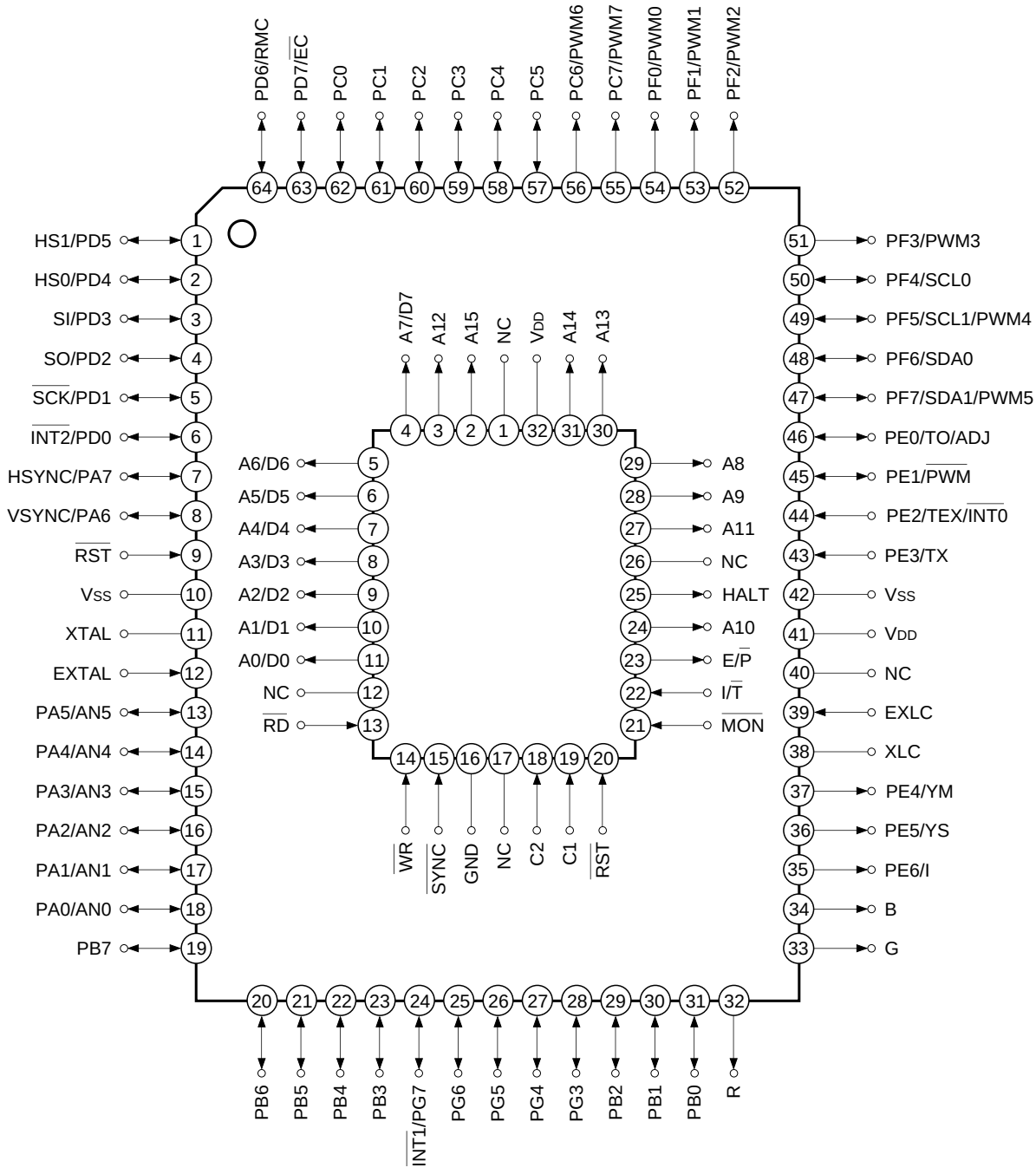


Note) 1. NC (Pin 40) is left open.

2. Vss (Pins 10 and 42) are both connected to GND.

CXP86400

Pin Assignment in Evaluator Mode (Top View)

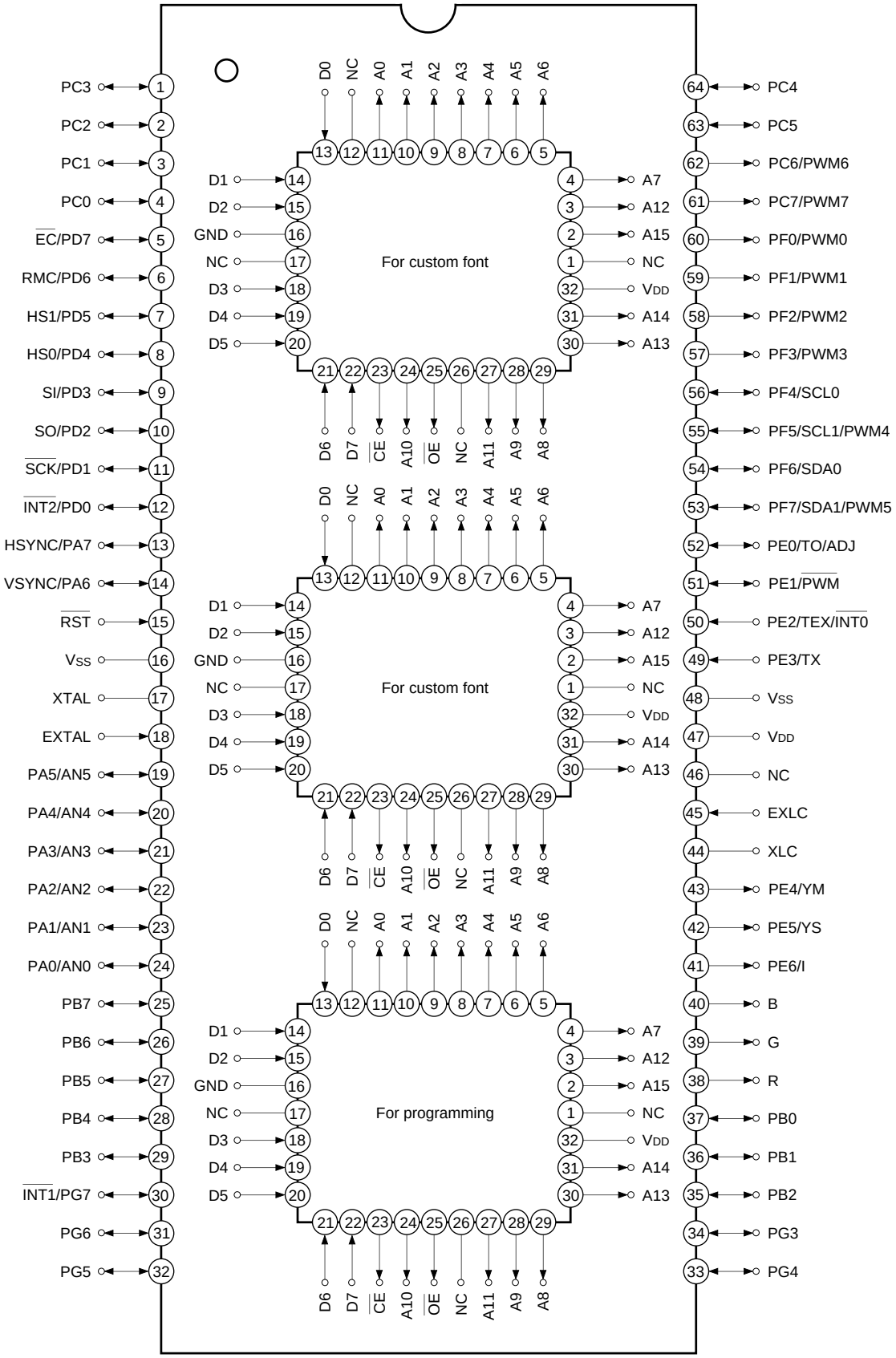


Note) 1. NC (Pin 40) is left open.

2. Vss (Pins 10 and 42) are both connected to GND.

CXP86490

Pin Assignment in Piggyback Mode (Top View)

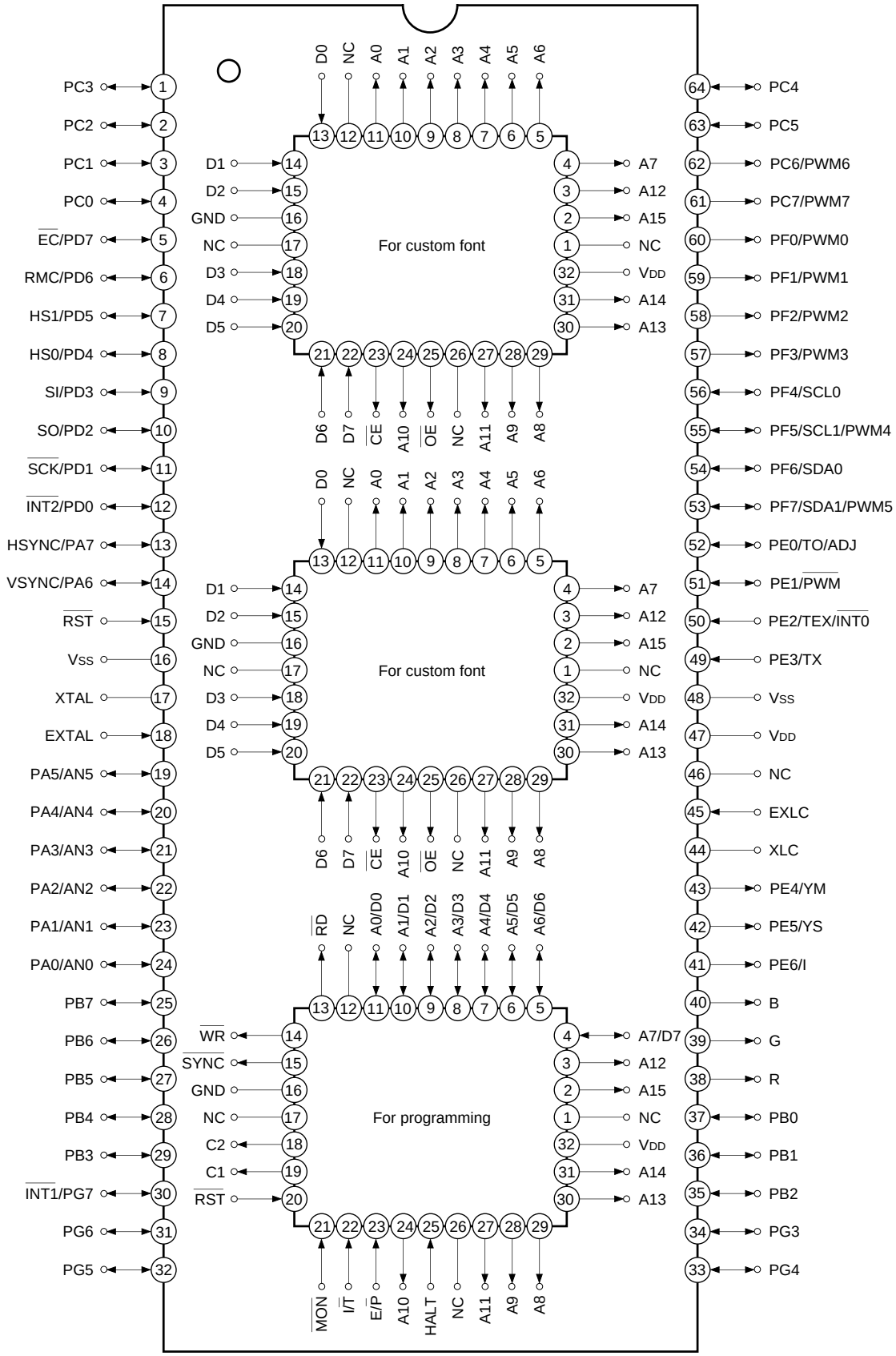


Note) 1. NC (Pin 46) is left open.

2. Vss (Pins 16 and 48) are both connected to GND.

CXP86490

Pin Assignment in Evaluator Mode (Top View)



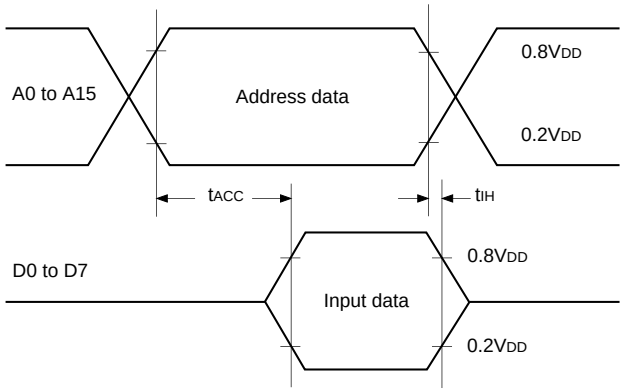
Note) 1. NC (Pin 46) is left open.

2. Vss (Pins 16 and 48) are both connected to GND.

EPROM Read Timing

(Ta = –20 to +75°C, V_{DD} = 4.5 to 5.5V, Vss = 0V)

Item	Symbol	Pins	Min.	Max.	Unit
Address → data input delay time	t_{ACC}	A0 to A15 D0 to D7		75	ns
Address → data hold time	t_{IH}	A0 to A15 D0 to D7	0		ns



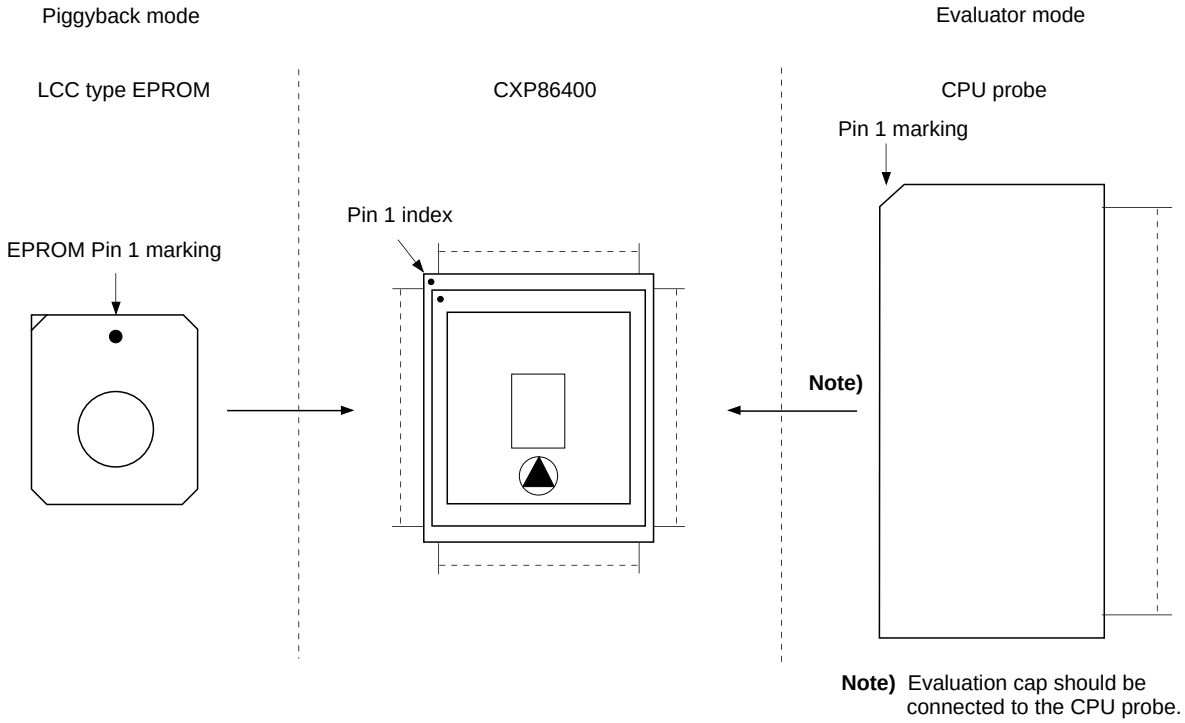
Product List

Optional item	Products									
	Mask									
	CXP86212	CXP86216	CXP86324	CXP86332	CXP86440	CXP86448	CXP86460	CXP86540	CXP86548	CXP86560
Package	64-pin plastic SDIP/QFP/LQFP									
Oscillation clock	16MHz									
ROM capacity	12K bytes	16K bytes	24K bytes	32K bytes	40K bytes	48K bytes	60K bytes	40K bytes	48K bytes	60K bytes
Reset pin pull-up resistor	Existent/Non existent									
Font data	User data									

Optional item	Products	
	Piggyback/evaluator	
	CXP86400-U01Q	CXP86490-U01S
Package	64-pin ceramic PQFP	64-pin ceramic PSDIP
Oscillation clock	16MHz	
ROM capacity	EPROM 60K bytes	
Reset pin pull-up resistor	Existent	
Font data	Fixed	EPROM 12K bytes

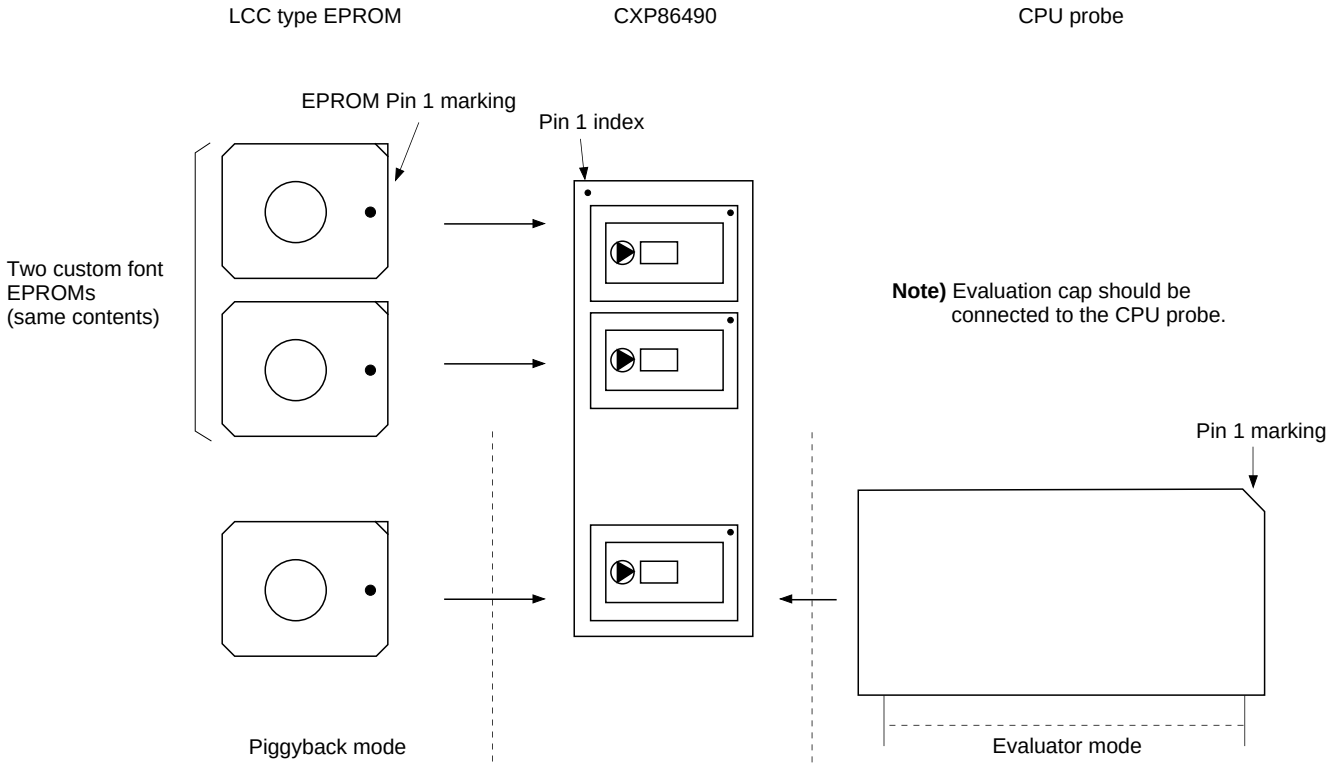
CXP86400

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



CXP86490

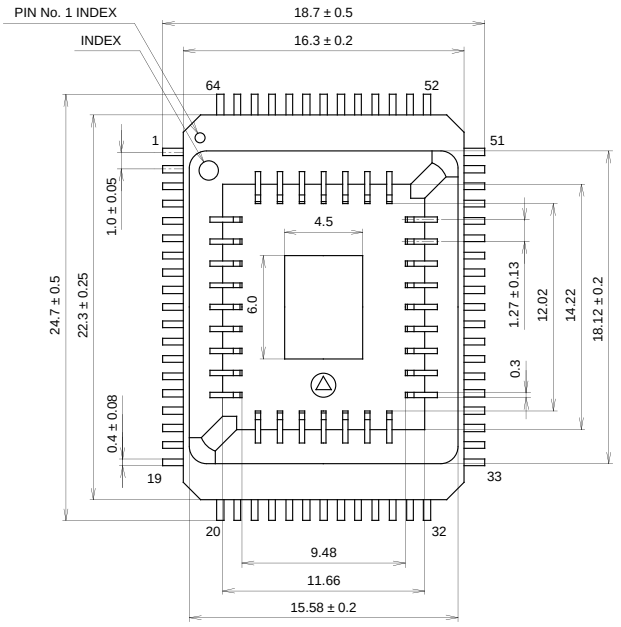
Piggyback mode and evaluator mode can be switched as shown below.

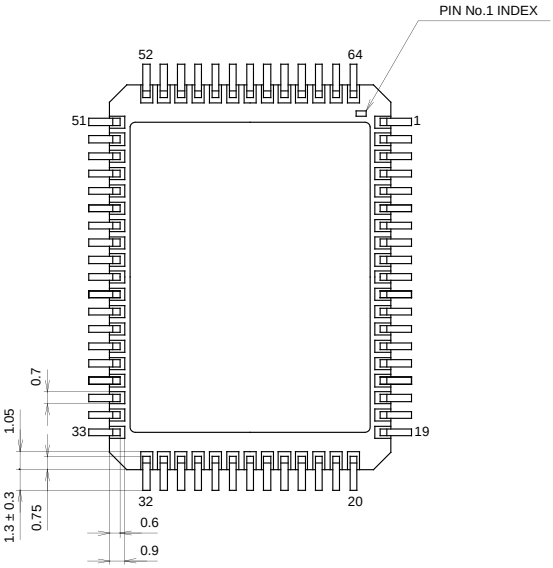


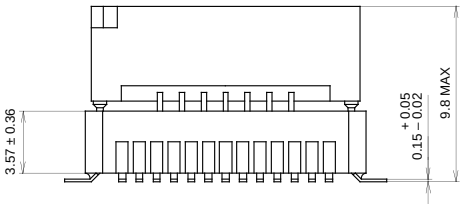
Package Outline Unit: mm

CXP86400

64PIN PQFP (CERAMIC)







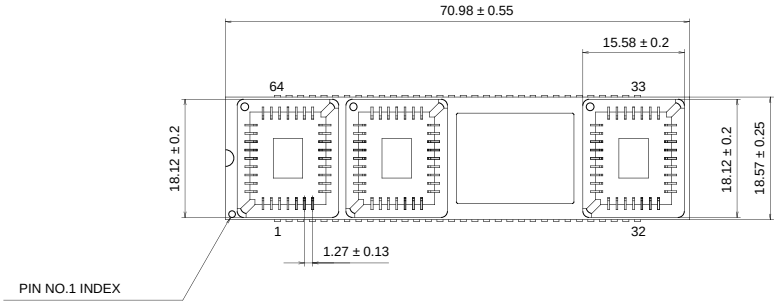
SONY CODE	PQFP-64C-L02
EIAJ CODE	AQFP064-C-0000-B
JEDEC CODE	————

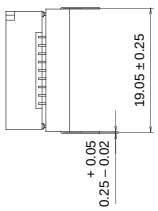
PACKAGE STRUCTURE

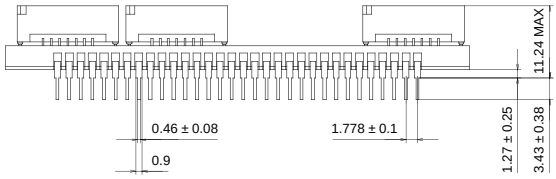
PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE WEIGHT	5.2g

CXP86490

64PIN PSDIP (CERAMIC)







SONY CODE	PSDIP-64C-02
EIAJ CODE	ADIP064-C-0750-B
JEDEC CODE	————

PACKAGE STRUCTURE

PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE WEIGHT	22.8g