

CXP85400/85490

CMOS 8-bit 1-chip Microcomputer

**Piggyback/
evaluator type**

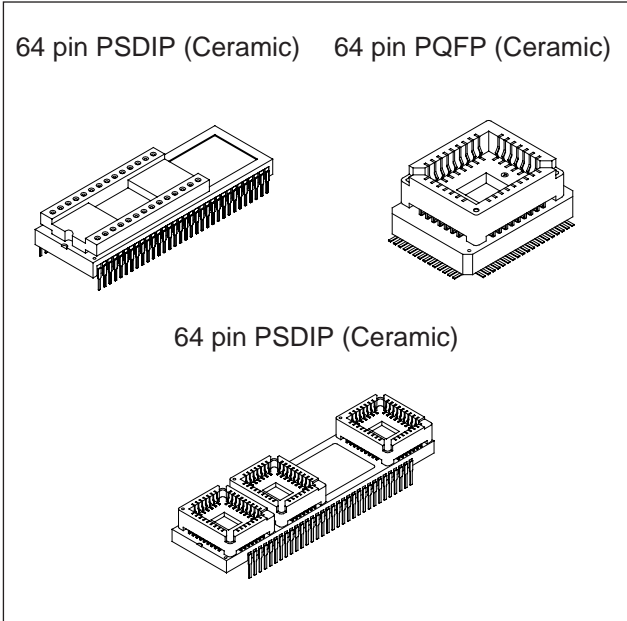
Description

The CXP85400/85490 are CMOS 8-bit 1-chip microcomputers that serve as both piggyback and evaluator. The CXP85400/85490 are developed for evaluating the function of the CXP85452/85460.

Note that CXP85400 corresponds to the fixed font, and CXP85490 corresponds to the custom font respectively.

Features

- Instruction set which supports a wide array of data types
 - 213 types of instructions which include 16-bit calculations, multiplication and division arithmetic, and boolean bit operations.
- Minimum instruction cycle 0.5μs/8MHz
- EPROM 27C512
 - LCC type 27C512
 - (Maximum of 60K bytes are available.)
- Incorporated RAM capacity 960 bytes
- EPROM for custom font (CXP85490 only) LCC type 27C256, LCC type 27C512
 - (used volume is 24K bytes)
- Peripheral functions
 - On-screen display function 12 × 18 dots, 384 types 15 colors, 32 characters × 12 lines
Black frame output half blanking, shadow, background color on full screen/
half blanking
Double scanning mode, jitter elimination circuit
 - I²C bus interface
 - PWM output 14 bits, 1 channel
8 bits, 8 channels
 - Remote control receiving circuit 8-bit pulse measurement counter, 6-stage FIFO
 - A/D converter 8 bits, 4 channels, successive approximation system
(conversion time of 20μs/8MHz)
 - HSYNC counter 2 channels
 - Power supply frequency counter
 - Watchdog timer
 - Serial I/O 8-bit clock synchronized
 - Timers 8-bit timer, 8-bit timer/counter, 19-bit time-base timer
- Interrupts 14 factors, 14 vectors multi-interruption possible
- Standby mode Sleep
- Package 64-pin ceramic SDIP/QFP



Structure

Silicon gate CMOS IC

Note) Optional mask depends on the type of the CXP85400/85490. Refer to the product list for details.

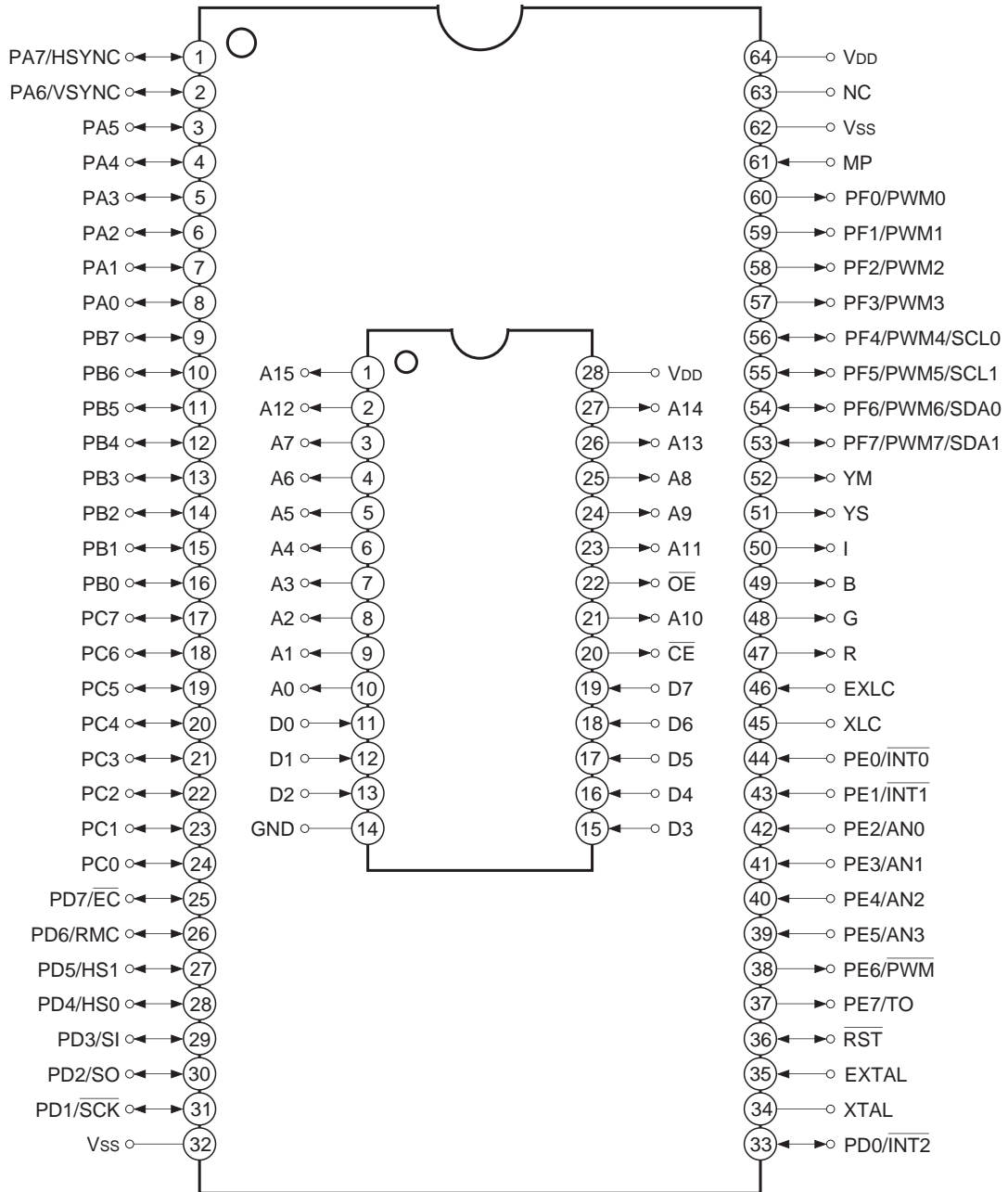
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CXP85400

Pin Assignment: Piggyback mode 1

(Top View) 64 pin PSDIP Package

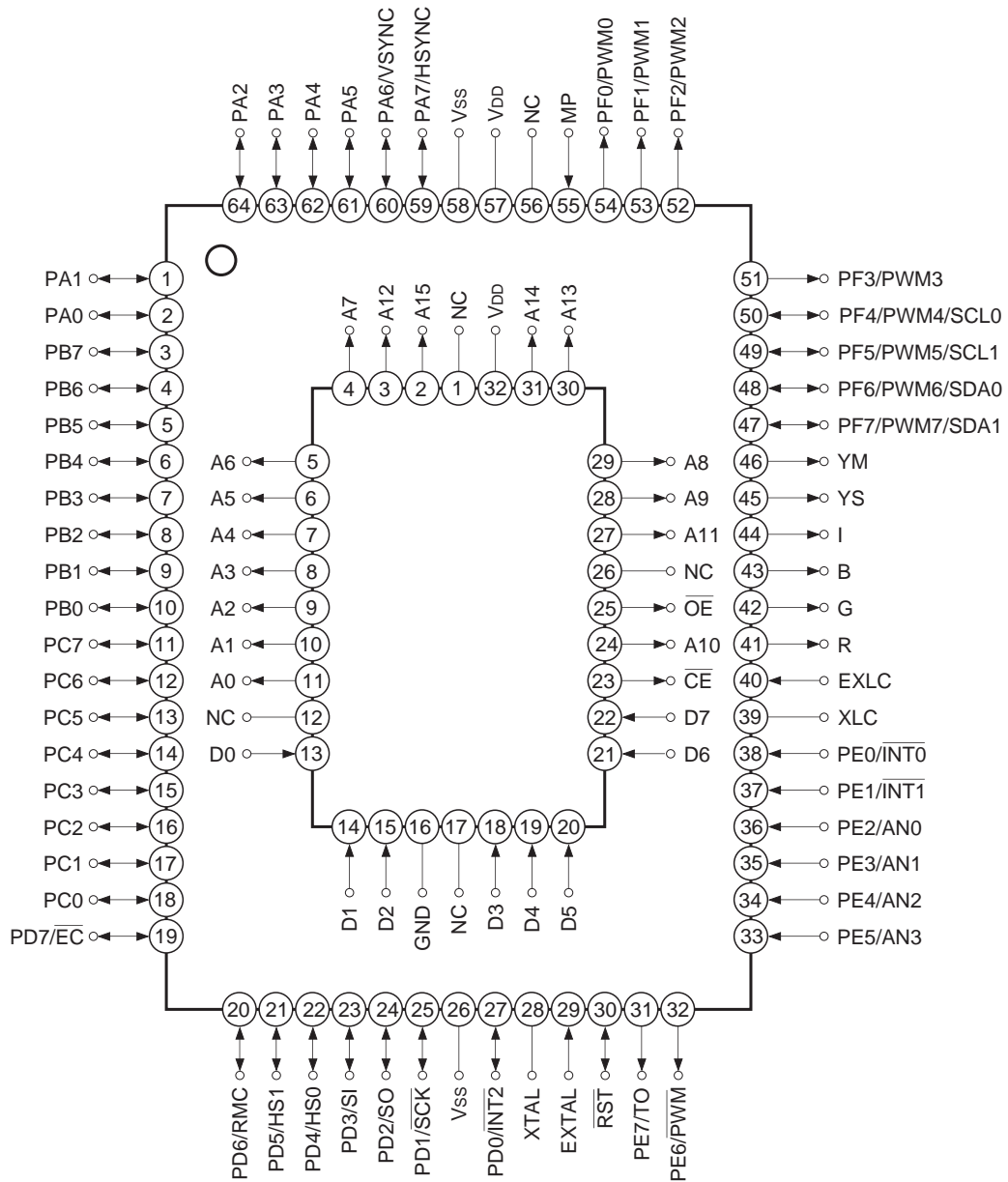


- Note)**
1. NC (Pin 63) is always connected to VDD.
 2. Vss (Pins 32 and 62) are always connected to GND.
 3. MP (Pin 61) is always connected to GND.

CXP85400

Pin Assignment: Piggyback mode 2

(Top View) 64 pin PQFP Package

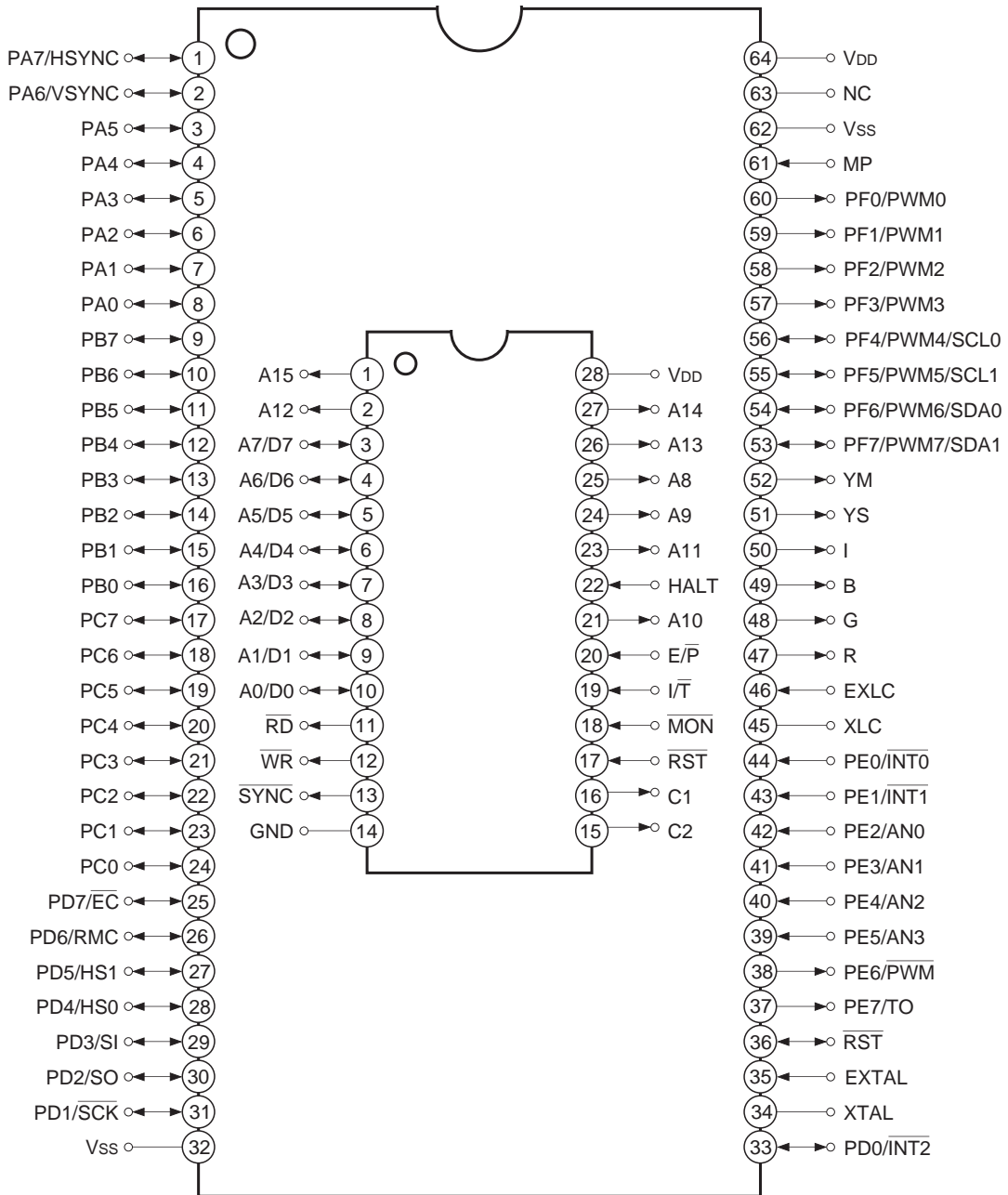


- Note)**
1. NC (Pin 56) is always connected to VDD.
 2. Vss (Pins 26 and 58) are always connected to GND.
 3. MP (Pin 55) is always connected to GND.

CXP85400

Pin Assignment: Evaluator Mode 1

(Top View) 64 pin PSDIP Package

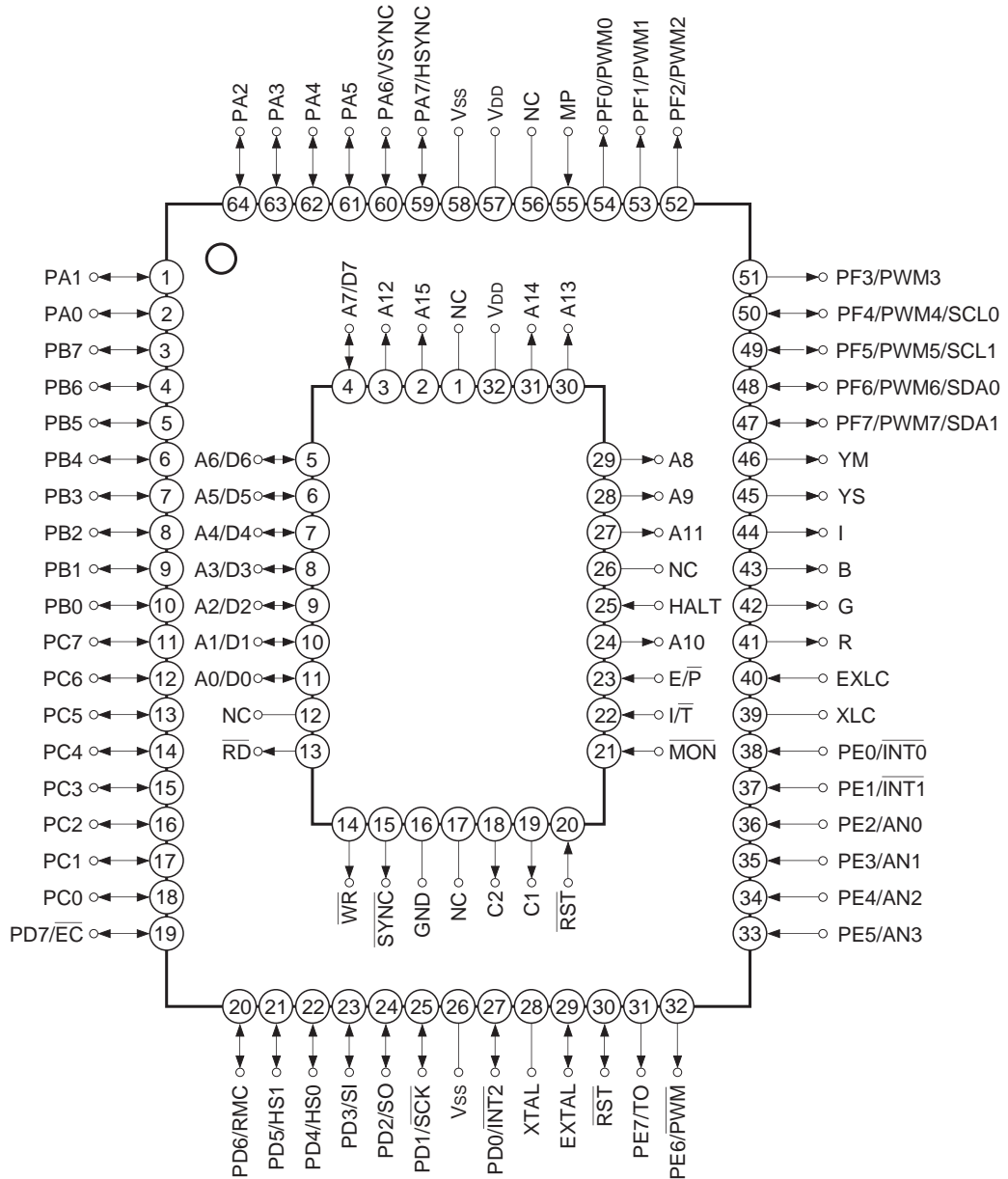


- Note)**
1. NC (Pin 63) is always connected to VDD.
 2. Vss (Pins 32 and 62) are always connected to GND.
 3. MP (Pin 61) is always connected to GND.

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Pin Assignment: Evaluator Mode 2

(Top View) 64 pin PQFP Package

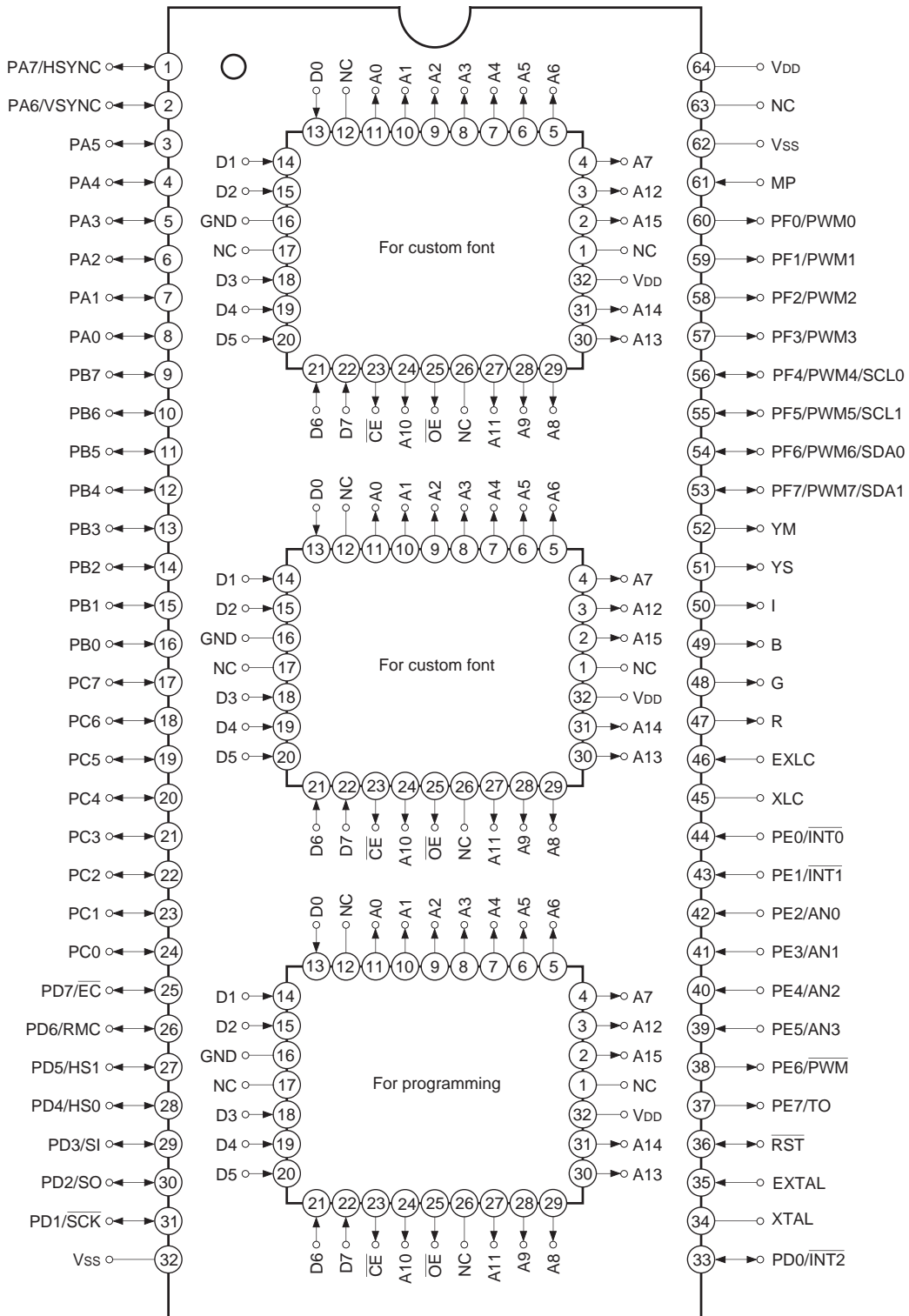


- Note)**
1. NC (Pin 56) is always connected to VDD.
 2. Vss (Pins 26 and 58) are always connected to GND.
 3. MP (Pin 55) is always connected to GND.

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Pin Assignment: Piggyback Mode

(Top View) 64 pin PSDIP Package

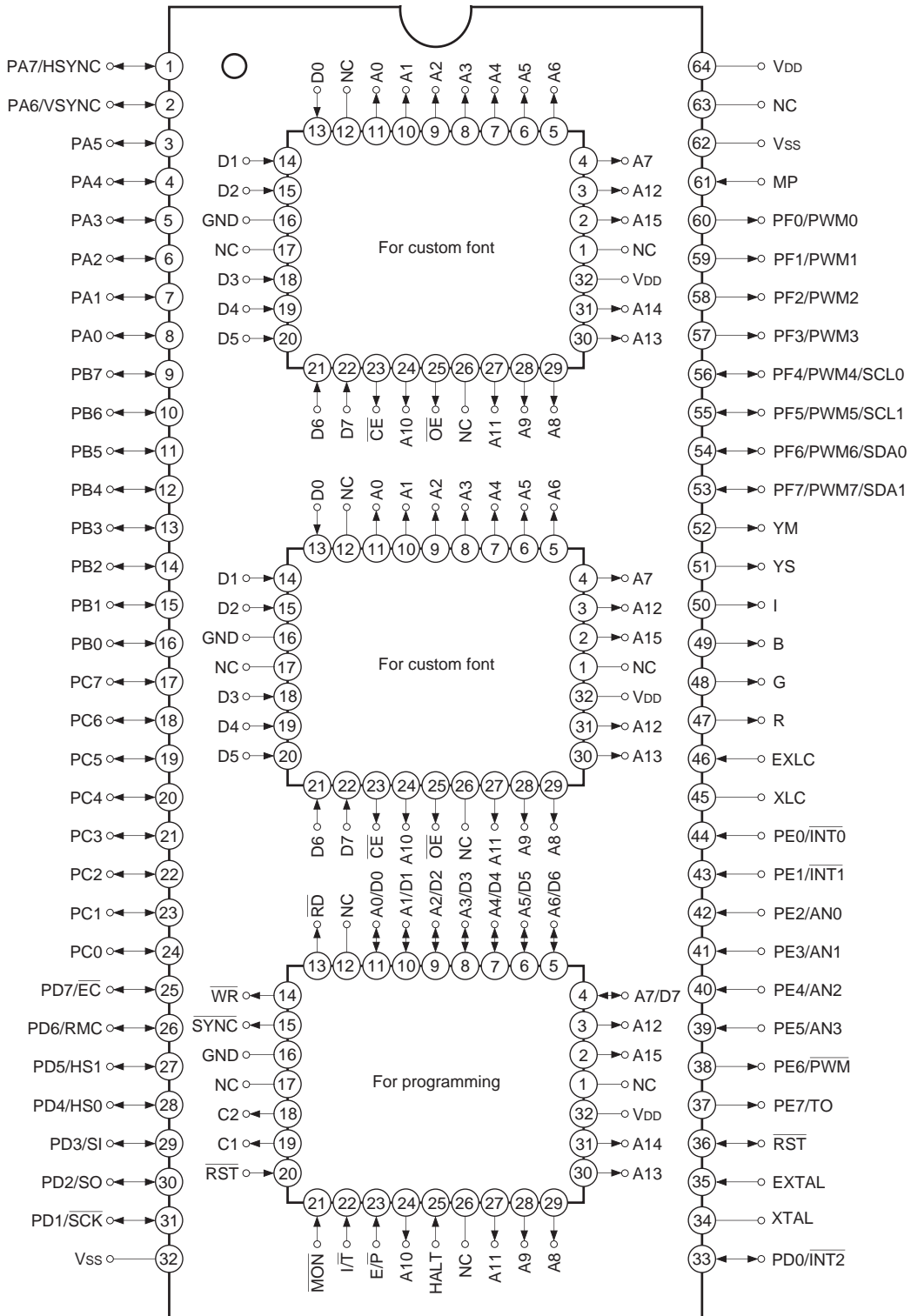


- Note)**
1. NC (Pin 63) is always connected to V_{DD}.
 2. V_{ss} (Pins 32 and 62) are always connected to GND.
 3. MP (Pin 61) is always connected to GND.

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Pin Assignment: Evaluator Mode

(Top View) 64 pin PSDIP Package

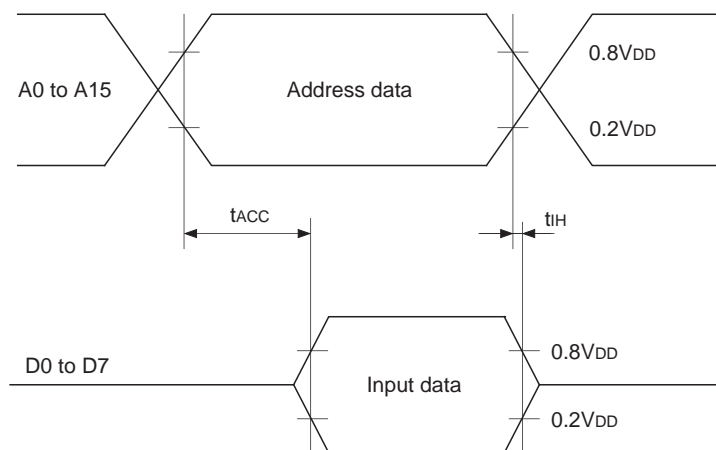


- Note)**
1. NC (Pin 63) is always connected to V_{DD}.
 2. V_{SS} (Pins 32 and 62) are always connected to GND.
 3. MP (Pin 61) is always connected to GND.

EPROM Read Timing

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

| Item | Symbol | Pin | Min. | Max. | Unit |
|---------------------------------|-----------|-----------------------|------|------|------|
| Address → data input delay time | t_{ACC} | A0 to A15 D0 to D7 | | 150 | ns |
| Address → data hold time | t_{IH} | A0 to A15 D0 to D7 | 0 | | ns |

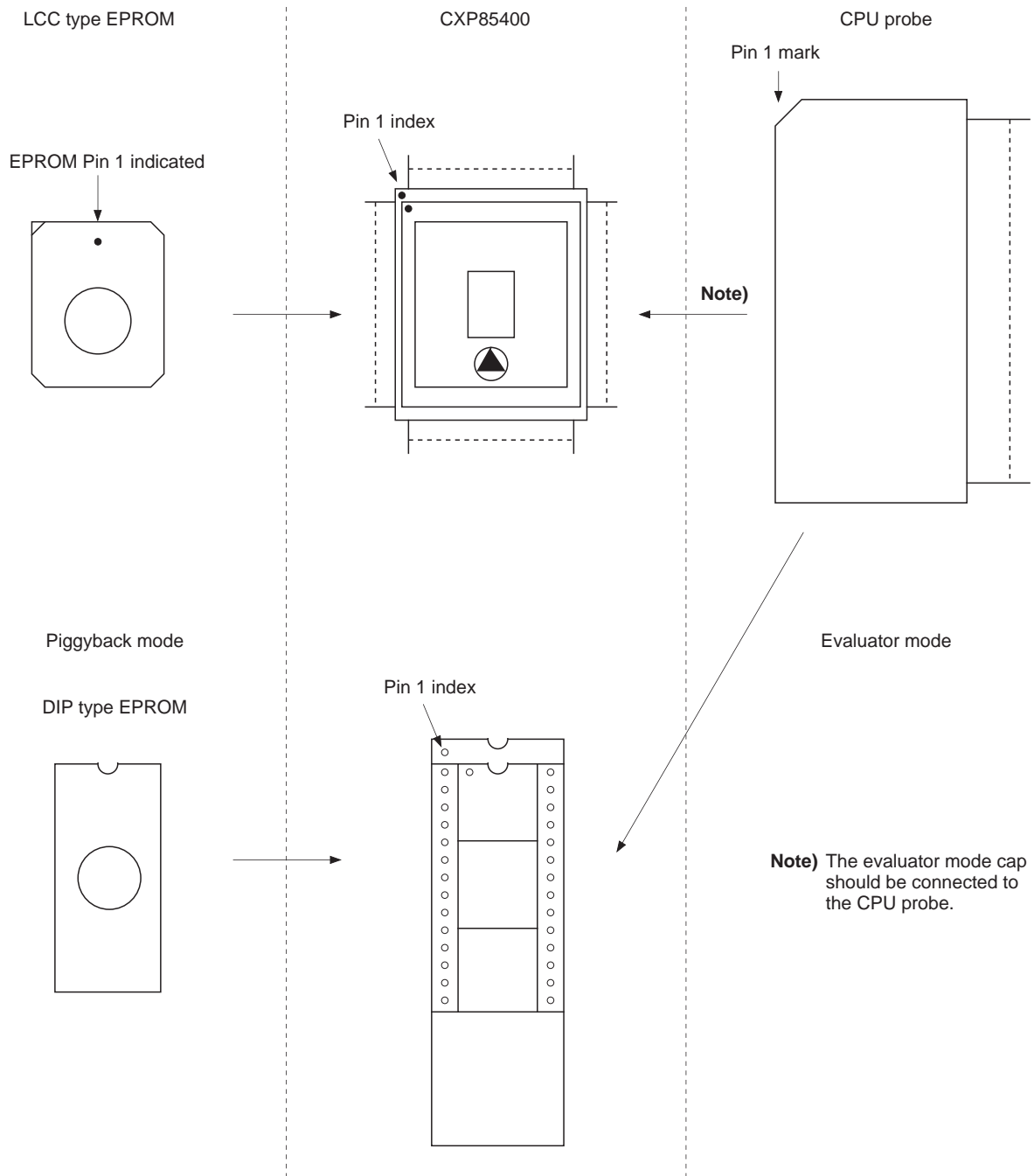


Product List

| Optional item | Product | | | |
|----------------------------|-------------------------|-----------|--------------------------------|----------------------|
| | Mask | | Piggyback/evaluator | |
| | CXP85452 | CXP85460 | CXP85400-U01S CXP85400-U01Q | CXP85490-U01S |
| Package | 64 pin plastic SDIP/QFP | | 64 pin ceramic PSDIP/PQFP | 64 pin ceramic PSDIP |
| ROM capacity | 52K bytes | 60K bytes | EPROM 60K bytes | |
| Reset pin pull-up resistor | Existent/Non existent | | Existent | |
| Power-on reset circuit | Existent/Non existent | | Existent | |
| Font data | User data | | Fixed | EPROM 24K bytes |

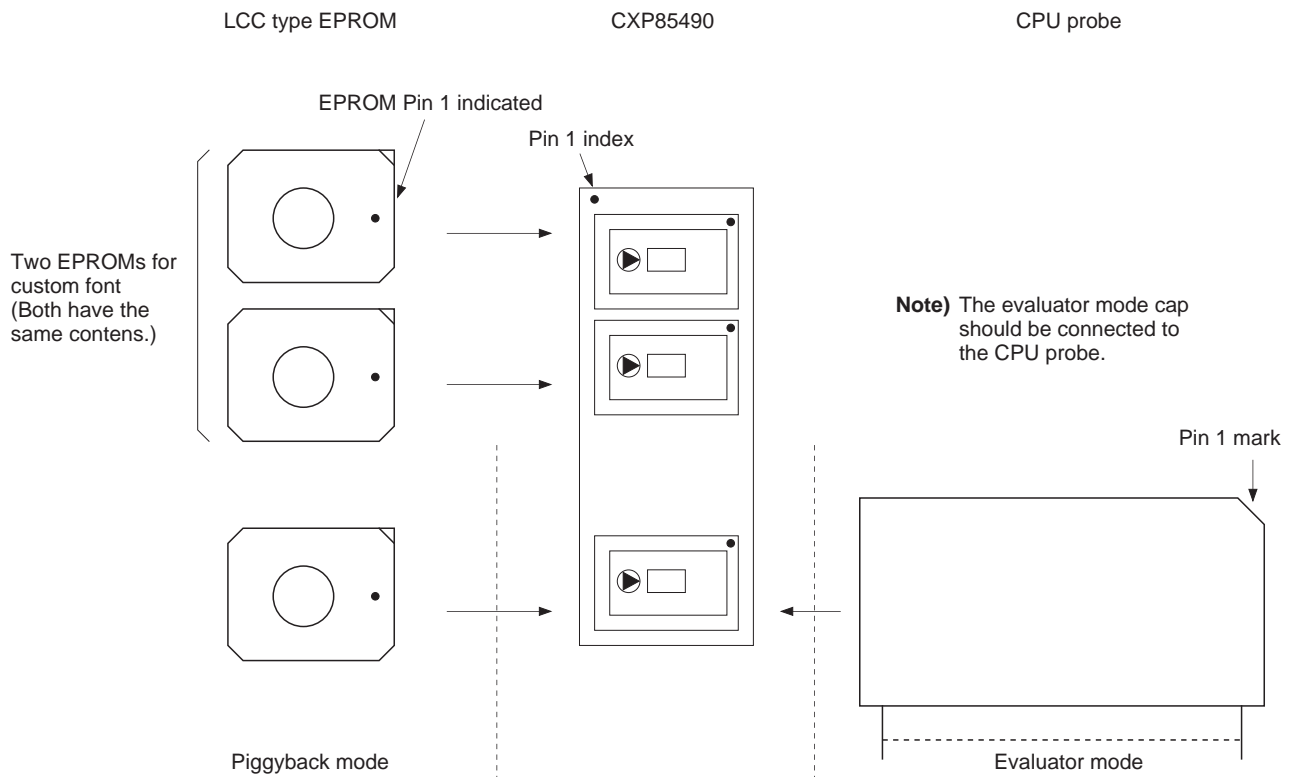
CXP85400

Piggyback mode/evaluator mode switching process is as follows.



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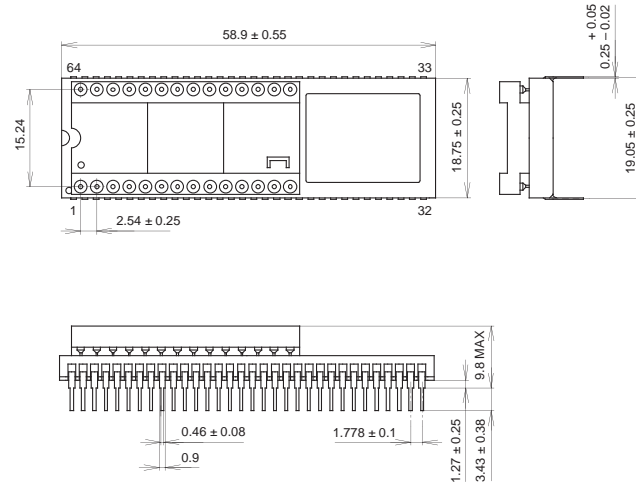
Piggyback mode/evaluator mode switching process is as follows.



Package Outline

Unit: mm

64PIN PSDIP (CERAMIC) 750mil

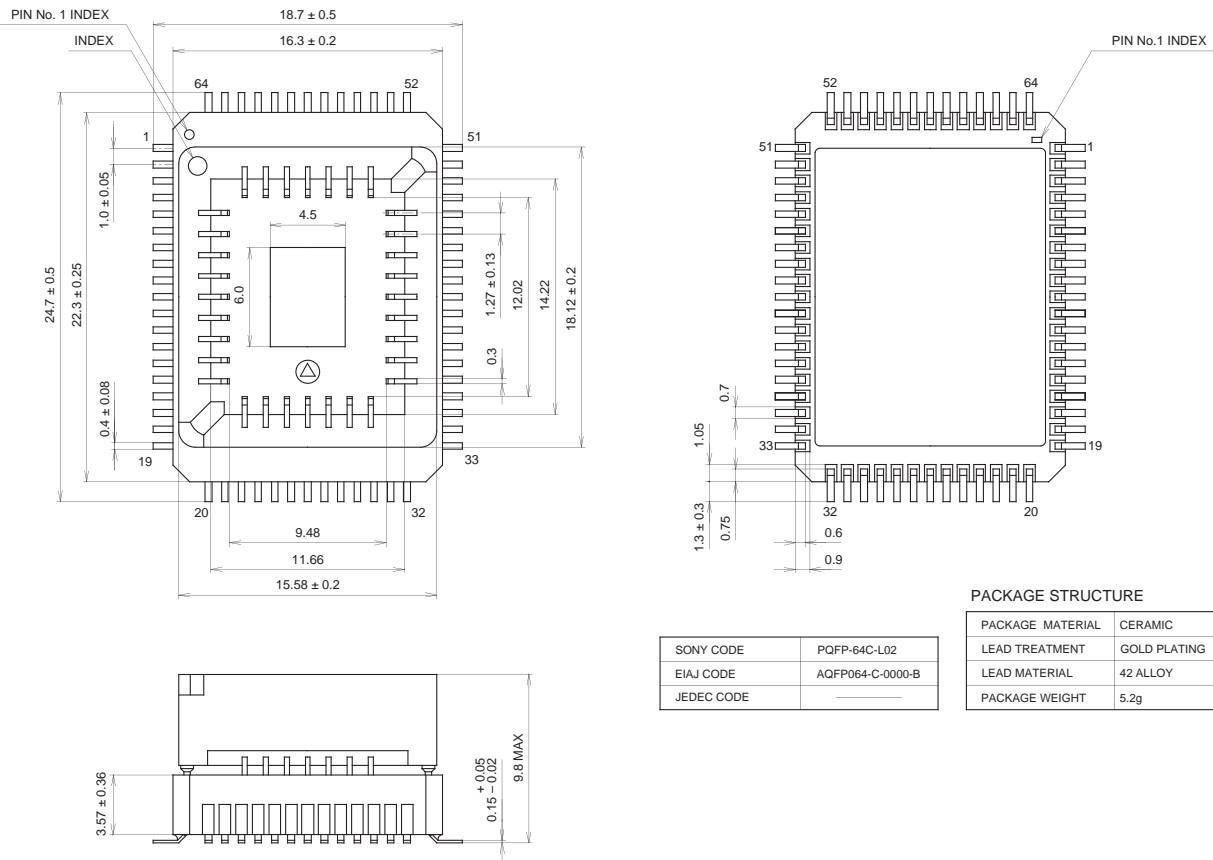


PACKAGE STRUCTURE

| | |
|------------|------------------|
| SONY CODE | PSDIP-64C-01 |
| EIAJ CODE | ADIP064-C-0750-A |
| JEDEC CODE | |

| | |
|------------------|--------------|
| PACKAGE MATERIAL | CERAMIC |
| LEAD TREATMENT | GOLD PLATING |
| LEAD MATERIAL | 42 ALLOY |
| PACKAGE WEIGHT | 16.0g |

64PIN PQFP (CERAMIC)



PACKAGE STRUCTURE

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

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

64PIN PSDIP (CERAMIC)

