

SONY**CXP740000****CMOS 8-bit Single Chip Microcomputer****Piggy/evaluation chip****Description**

The CXP740000 is a CMOS 8-bit single chip micro-computer of piggyback/evaluator combined type, which is developed for evaluating the function of the CXP740056/740096/740010.

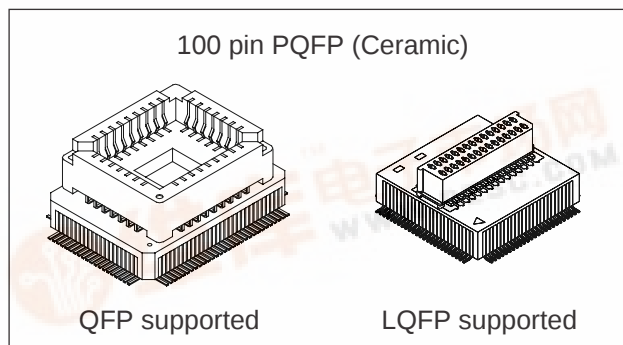
Features

- A wide instruction set (211 instructions) which covers various types of data.
 - 16-bit operation/multiplication and division/Boolean bit operation instructions
- Minimum instruction cycle
 - 167ns at 24MHz operation (4.5 to 5.5V)
 - 333ns at 12MHz operation (2.7 to 5.5V)
 - 122μs at 32kHz operation (2.7 to 5.5V)
- Applicable EPROM
 - CXP27C702K
 - (Maximum 120K bytes are available.)
- Incorporated RAM capacity
 - 4096 bytes
- Peripheral functions
 - A/D converter
 - 8 bits, 8 channels, successive approximation method
 - (Conversion time of 10.3μs/24MHz)
 - Serial interface
 - Start-stop sync type (UART), 1 channel
 - Incorporated buffer RAM
 - (Auto transfer for 1 to 32 bytes), 2 channels
 - 8-bit clock sync type (MSB/LSB first selectable), 1 channel
 - Timer
 - 8-bit timer, 2 channels
 - 8-bit timer/counter, 2 channels
 - 19-bit time-base timer, 16-bit capture timer/counter
 - 32kHz timer/counter
 - Remote control unit receive circuit
 - Internal noise elimination circuit
 - Internal 8-bit, 6-stage FIFO for measured data
 - PWM output
 - 12 bits, 12 channels
- Interruption
 - 24 factors, 15 vectors, multi-interruption possible
- Standby mode
 - Sleep/stop
- Package
 - 100-pin ceramic PQFP

Note) Mask option depends on the type of the CXP740000. Refer to the Products List for details.

Structure

Silicon gate CMOS IC



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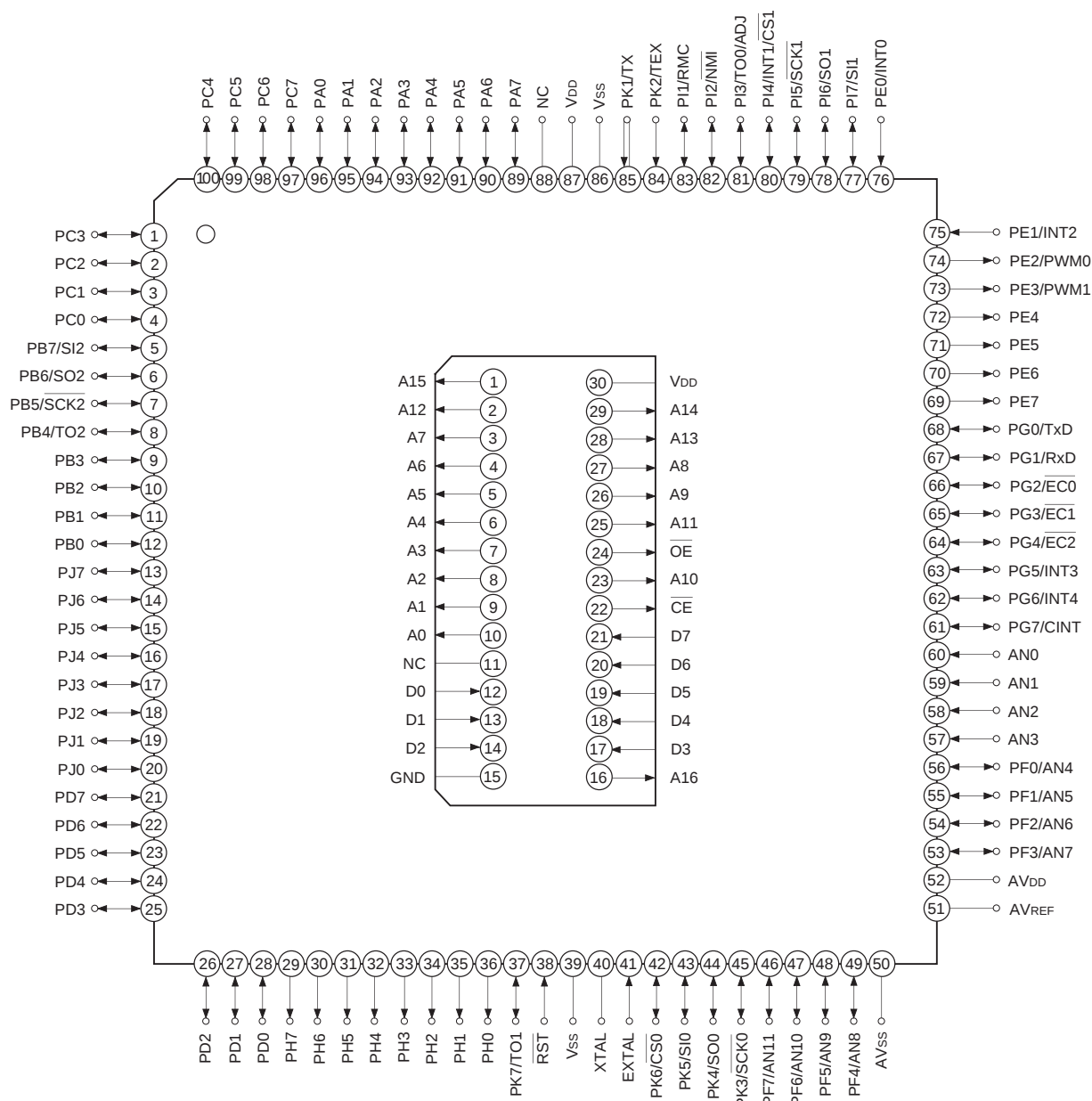
The diagram shows the pin configuration of the ATmega16 microcontroller. The pins are numbered 1 through 50. The functions for each pin are as follows:

- Pin 1:** PC5
- Pin 2:** PC4
- Pin 3:** PC3
- Pin 4:** PC2
- Pin 5:** PC1
- Pin 6:** PC0
- Pin 7:** PB7/SI2
- Pin 8:** PB6/SO2
- Pin 9:** PB5/SCK2
- Pin 10:** PB4/TO2
- Pin 11:** PB3
- Pin 12:** PB2
- Pin 13:** PB1
- Pin 14:** PB0
- Pin 15:** PJ7
- Pin 16:** PJ6
- Pin 17:** PJ5
- Pin 18:** PJ4
- Pin 19:** PJ3
- Pin 20:** PJ2
- Pin 21:** PJ1
- Pin 22:** PJ0
- Pin 23:** PD7
- Pin 24:** PD6
- Pin 25:** PD5
- Pin 26:** PD4
- Pin 27:** PD3
- Pin 28:** PD2
- Pin 29:** PD1
- Pin 30:** PD0
- Pin 31:** PH7
- Pin 32:** PH6
- Pin 33:** PH5
- Pin 34:** PH4
- Pin 35:** PH3
- Pin 36:** PH2
- Pin 37:** PH1
- Pin 38:** PH0
- Pin 39:** PK7/TO1
- Pin 40:** RST
- Pin 41:** Vss
- Pin 42:** XTAL
- Pin 43:** XTAL
- Pin 44:** PK6/CS0
- Pin 45:** PK5/SI0
- Pin 46:** PK4/SO0
- Pin 47:** K3/SCK0
- Pin 48:** PF7/AN11
- Pin 49:** PF6/AN10
- Pin 50:** PF5/AN9

The diagram also shows the internal connections between the pins, including the power supply pins (VDD, VSS) and the reset pin (RST).

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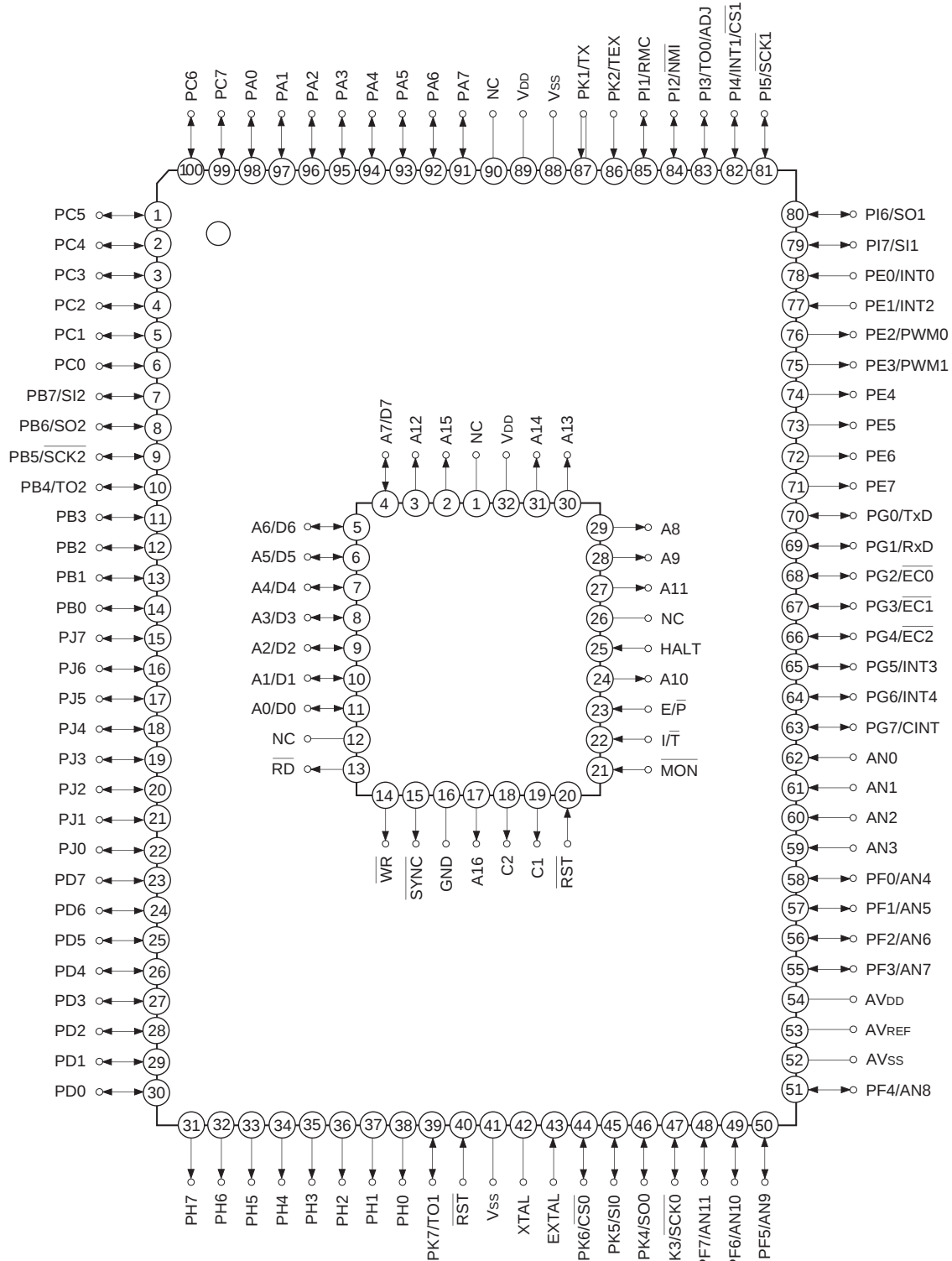
Pin Assignment in Piggyback Mode (LQFP package)



Note) 1. NC (Pin 88) is left open.

2. Vss (Pins 39 and 86) are both connected to GND.

Pin Assignment in Evaluator Mode (QFP package)



Note) 1. NC (Pin 90) is left open.

2. Vss (Pins 41 and 88) are both connected to GND.

The diagram shows the pin configuration for the PIC16C505-04P microcontroller. The pins are numbered 1 through 50. The functions for each pin are as follows:

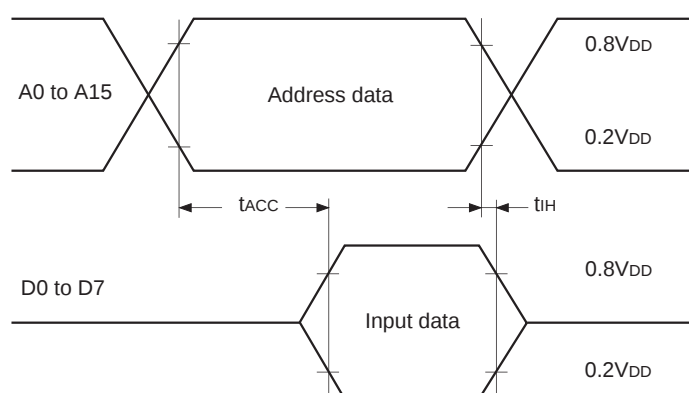
- Pin 1:** PC3
- Pin 2:** PC2
- Pin 3:** PC1
- Pin 4:** PC0
- Pin 5:** PB7/SI2
- Pin 6:** PB6/SO2
- Pin 7:** PB5/SCK2
- Pin 8:** PB4/TO2
- Pin 9:** PB3
- Pin 10:** PB2
- Pin 11:** PB1
- Pin 12:** PB0
- Pin 13:** PJ7
- Pin 14:** PJ6
- Pin 15:** PJ5
- Pin 16:** PJ4
- Pin 17:** PJ3
- Pin 18:** PJ2
- Pin 19:** PJ1
- Pin 20:** PJ0
- Pin 21:** PD7
- Pin 22:** PD6
- Pin 23:** PD5
- Pin 24:** PD4
- Pin 25:** PD3
- Pin 26:** PD2
- Pin 27:** PD1
- Pin 28:** PD0
- Pin 29:** PH7
- Pin 30:** PH6
- Pin 31:** PH5
- Pin 32:** PH4
- Pin 33:** PH3
- Pin 34:** PH2
- Pin 35:** PH1
- Pin 36:** PH0
- Pin 37:** PK7/TO1
- Pin 38:** RST
- Pin 39:** Vss
- Pin 40:** XTAL
- Pin 41:** EXTAL
- Pin 42:** PK6/CS0
- Pin 43:** PK5/SI0
- Pin 44:** PK4/SO0
- Pin 45:** PK3/SCK0
- Pin 46:** PF7/AN11
- Pin 47:** PF6/AN10
- Pin 48:** PF5/AN9
- Pin 49:** PF4/AN8
- Pin 50:** AVss

The diagram also shows the internal architecture of the microcontroller, including the CPU, memory, and peripheral modules.

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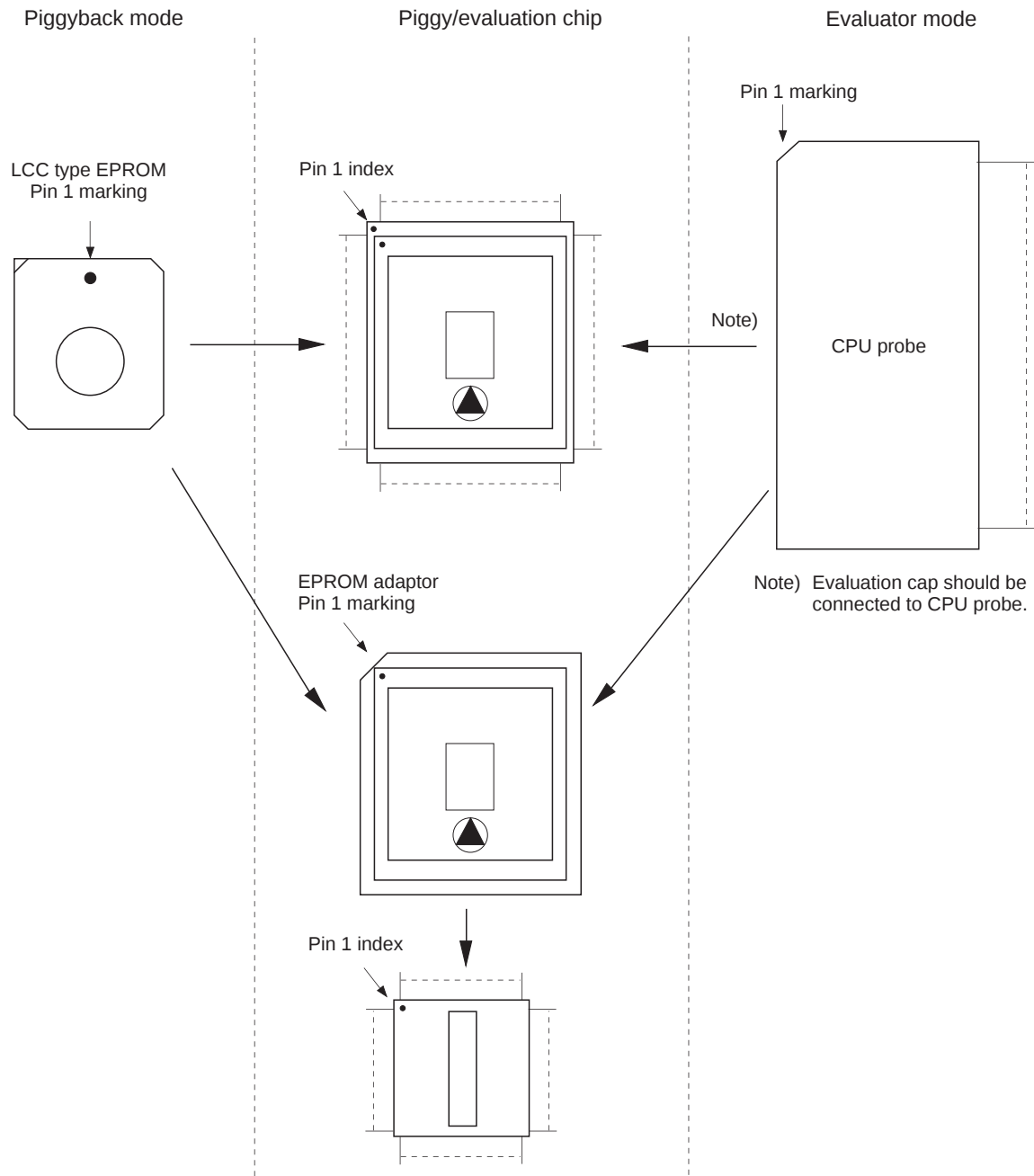
EPROM Read Timing(Ta = -20 to +75°C, V_{DD} = 2.7 to 5.5V, V_{SS} = 0V reference)

Item	Symbol	Pin	Min.	Max.	Unit
Address → data input delay time	t _{ACC}	A0 to A15 D0 to D7		100* ¹	ns
				50* ²	
Address → data hold time	t _{IH}	A0 to A15 D0 to D7	0		ns

*¹ At 12MHz operation (V_{DD} = 4.5 to 5.5V)*² At 12MHz operation (V_{DD} = 2.7 to 5.5V), at 24MHz operation (V_{DD} = 4.5 to 5.5V)**Products List**

Option item	Products			
	Mask ROM			Piggy/evaluation chip
	CXP740056	CXP740096	CXP740010	CXP740000-U01Q CXP740000-U01R
Package	100-pin plastic QFP/LQFP			100-pin ceramic PQFP
ROM capacity	56K bytes	96K bytes	120K bytes	EPROM 120K bytes
Pull-up resistor for reset pin	Existent/Non-existent			Existent

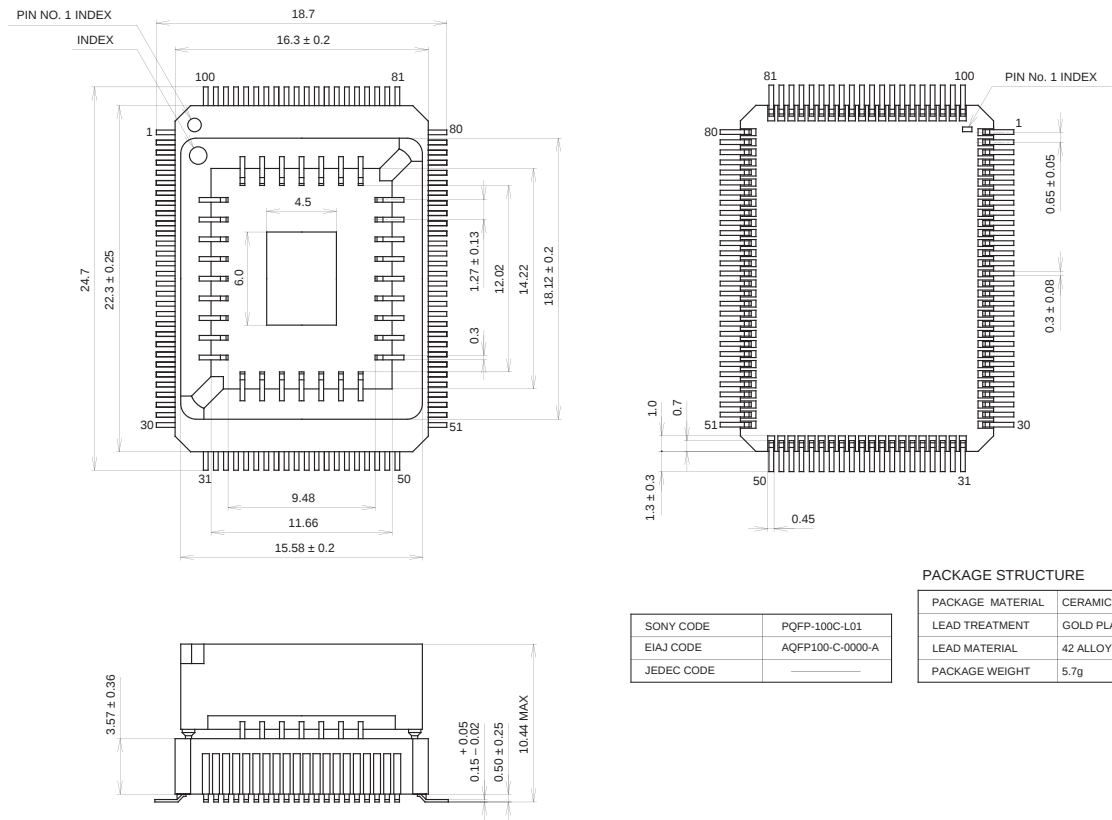
Piggyback mode/evaluator mode can be switched as shown below.



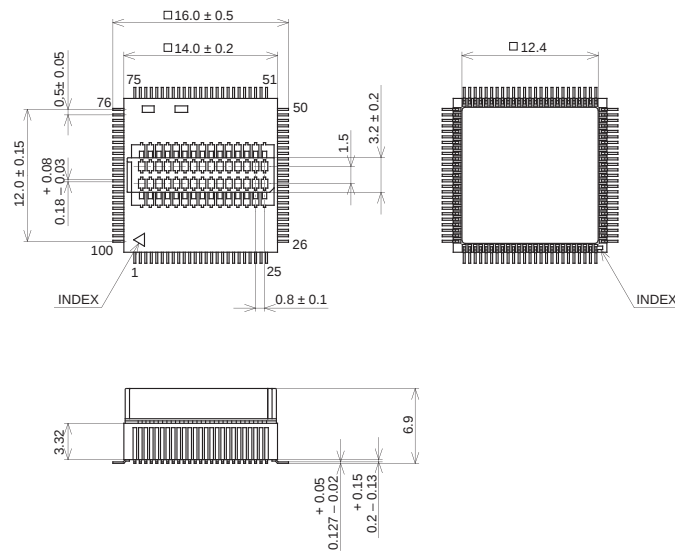
Package Outline

Unit: mm

100PIN PQFP (CERAMIC)



100PIN PQFP(CERAMIC)



SONY CODE	PQFP-100C-L05
EIAJ CODE	AQFP100-C-0000
JEDEC CODE	

PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE MASS	2.4g