

# TMP89FH42LUG TMP89FM42LUG

**FLASH\***

8-bit microcontroller supporting low-voltage erase/program operations

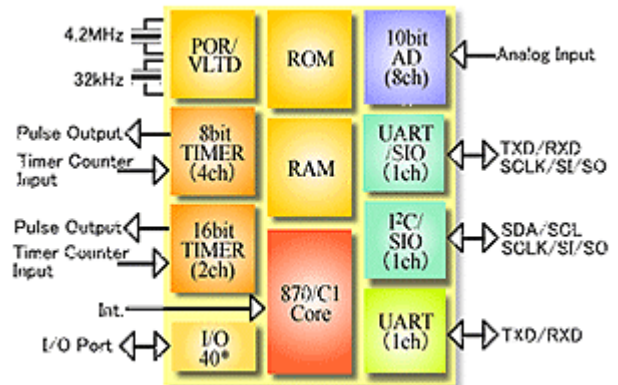
## Features

### TLCS-870/C1 CPU Core

- ▶ Operating voltage
  - 3.0 to 3.6 V at 4.2 MHz (erase/write)
  - 2.7 to 3.6 V at 4.2 MHz (read)
  - 2.2 to 3.6 V at 2 MHz (read)
- ▶ Clock gear 1/4, 1/2, 1/1

### Built-in Functions

- ▶ Voltage detecting circuit  
(Two voltage levels detectable, reset or interrupt selectable)
- ▶ Power-on reset circuit
- ▶ 10-bit AD converter : 8 channels
- ▶ 8-bit timer : 4 channels
- ▶ 16-bit timer : 2 channels
- ▶ UART/SIO : 1 channel
- ▶ UART : 1 channel
- ▶ I<sup>2</sup>C/SIO : 1 channel (One SIO channel can be used at a time.)
- ▶ Built-in pull-up resistors
- ▶ On-chip debug function (Flash version only)



\*:Two pins are used for high-frequency oscillation and cannot be used as input/output ports.

### Flash Memory Size

Part number	ROM (Flash)	RAM
TMP89FH42LUG	16 Kbytes	2 Kbytes
TMP89FM42LUG	32 Kbytes	2 Kbytes

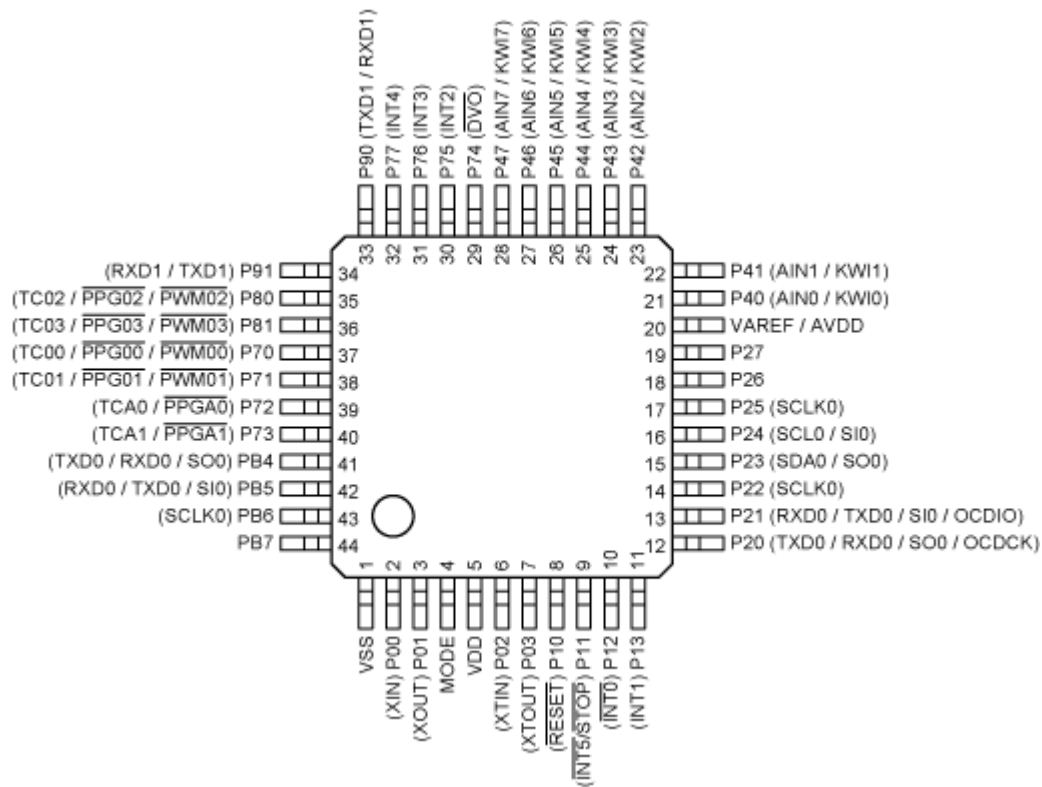
### Product Lineup

Part number	ROM	RAM
TMP89CH42UG	16 Kbytes	2 Kbytes
TMP89CM42UG	32 Kbytes	2 Kbytes

\* This product uses the SuperFlash® technology under license of Silicon Storage Technology, Inc. Super Flash® is a registered trademark of Silicon Storage Technology, Inc.

## Package Information

### Pin Assignments



Package name : LQFP44-P-1010-0.80B

## Development Systems

### Software Products

Toshiba Integrated Development Environment	C Compiler	SW89CN0-ZCC: 1 license SW89CN3-ZCC: 10 licenses
	Integrated Development Environment	SW00MN0-ZCC: 1 license SW00MN3-ZCC: 10 licenses The emulator comes with a single-seat download license.

### Hardware Products

On-Chip Debug Emulator	Emulator	BMP89A400010A-G
In-Circuit Emulator	Emulator	BMP89A300010A-G
	Emulation chip	TMP89C900XBG**

\*\* : Under development

\* Use either an On-Chip Debug Emulator or an In-Circuit Emulator.

\* As to hardware products, additional accessories are also needed.

» For further information about Toshiba microcomputers and Toshiba microcomputer development systems, please visit <http://www.semicon.toshiba.co.jp/eng/product/micro/index.html>

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