

**TLCS-870 Family TLCS-870/C1 Series**

**8-bit / 44-pin**

# **TMP89FH42LUG** **TMP89FM42LUG**

**FLASH**

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

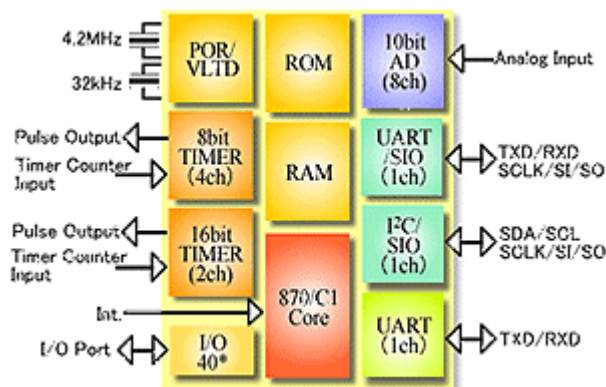
## **Features**

### **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 |

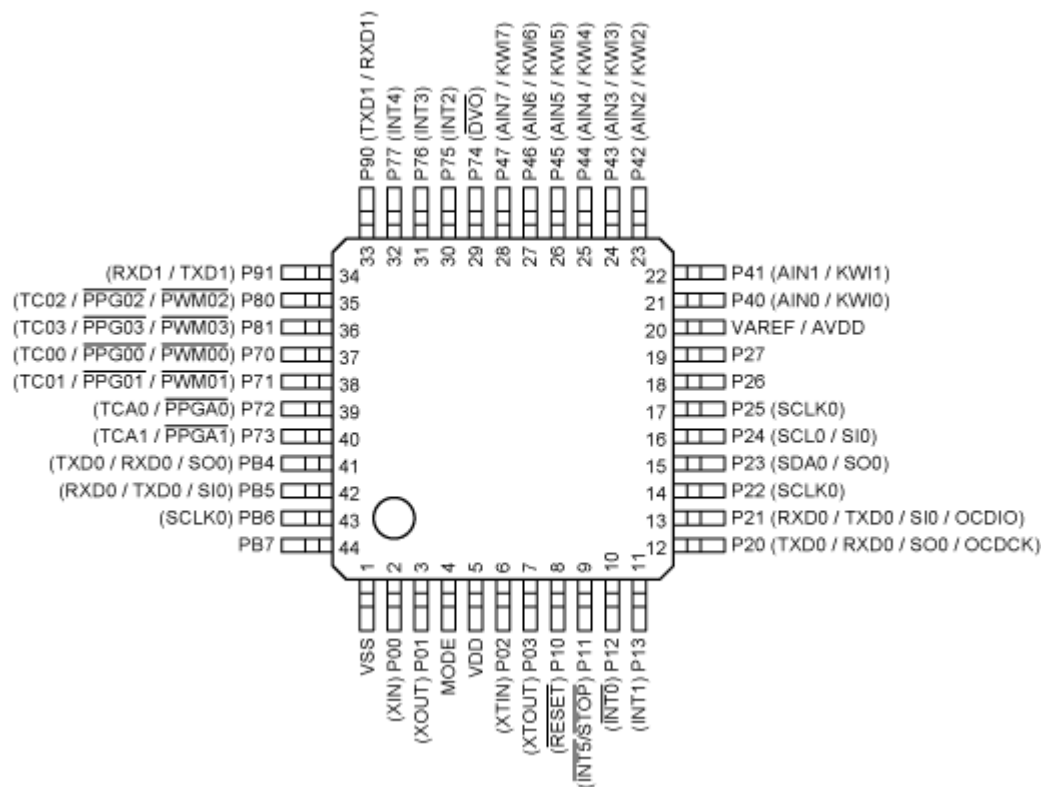
### **Product Lineup**

| 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<br>SW89CN3-ZCC: 10 licenses  |
|  | Integrated Development Environment | SW00MN0-ZCC: 1 license<br>SW00MN3-ZCC: 10 licenses<br>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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