

October 2009

Dear Customer

Important Notices

Thank you for your continued patronage of Toshiba microcontrollers.

This page gives you important information on using Toshiba microcontrollers. Please be sure to check each item for proper use of our products.

▶ **Restrictions on the Voltage Detection Circuit** (October 2009)

***If your datasheet is dated 30 November 2008 or earlier, please download the latest datasheet or request it from your local Toshiba office.**

▶ **Datasheet Corrections: Electrical Characteristics of the Power-On Reset Circuit** (September 2008)

***If your datasheet is dated 17 March 2008 or earlier, please download the latest datasheet or request it from your local Toshiba office.**

TOSHIBA Microcontrollers TLCS-870 Family
TLCS-870/C1 Series

| | | | | |
|----------------------------|------------|------------|------------|------------|
| TMP89FH40 | TMP89FM40 | TMP89CH42 | TMP89CM42 | TMP89FH42 |
| TMP89FH42L | TMP89FM42 | TMP89FM42A | TMP89FM42K | TMP89FM42L |
| TMP89FM43L | TMP89CH46 | TMP89CM46 | TMP89FH46 | TMP89FH46L |
| TMP89FM46 | TMP89FM46A | TMP89FM46K | TMP89FM46L | TMP89FS60 |
| TMP89FM82 | TMP89FM82T | | | |
| TMP89C900 (Emulation chip) | | | | |

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Restrictions on the Voltage Detection Circuit

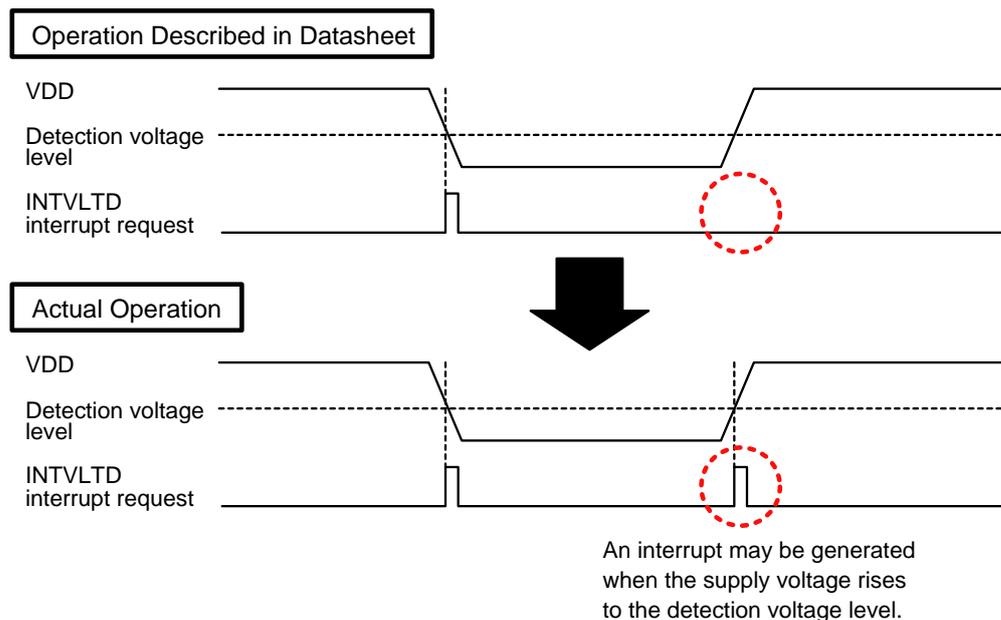
This is to inform you of restrictions on the voltage detection circuit in the TLCS-870/C1 Series of microcontrollers.

If you need any further information, please contact your local Toshiba sales representative.

[Restrictions]

1. INTVLTD Interrupt Request

When interrupt generation is enabled in the voltage detection circuit, an INTVLTD interrupt request may be generated not only when the supply voltage falls to the detection voltage level, but also when it rises to the detection voltage level.
 In ICE mode of the In-Circuit Emulator (TMP89C900), no interrupt request is generated when the supply voltage rises to the detection voltage level. Therefore, with products supporting the In-Circuit Emulator (TMP89C900), the interrupt generation operation may differ between the development tool and the actual product.



2. Releasing STOP Mode by Voltage Detection

The SRSS bit in the voltage detection control register 2 (VDCR2) provided for releasing STOP mode by voltage detection cannot be used because it does not function as expected.

[Workarounds]

1. INTVLTD Interrupt Request

Do not use the INTVLTD interrupt for voltage detection. The voltage level should be regularly checked using other timing such as the execution cycle of the main program. VDCR1<VDxSF> (x=1, 2) can be used to check the voltage level. However, if the operating voltage is near the detection voltage, the VDCR1<VDxSF> value may become unstable. It is recommended that VDCR1<VDxSF> be tested multiple times to determine the voltage level.

2. Releasing STOP Mode by Voltage Detection

Always set VDCR2<SRSS> to "00". Use the STOP pin to release STOP mode.

TOSHIBA Microcontrollers TLCS-870 Family
TLCS-870/C1 Series

| | | | |
|--------------|--------------|---------------|---------------|
| TMP89FM46DUG | TMP89FH46DUG | TMP89FM46LDUG | TMP89FH46LDUG |
| TMP89FM42UG | TMP89FH42UG | TMP89FM42LUG | TMP89FH42LUG |
| TMP89FM40NG | TMP89FH40NG | TMP89CM46DUG | TMP89CH46DUG |
| TMP89CM42UG | TMP89CH42UG | TMP89FM43LQG | |

September 2008

Datasheet Corrections: Electrical Characteristics of the Power-On Reset Circuit

With regard to the Toshiba 8-bit microcontrollers listed above, the following corrections should be made to the technical datasheets regarding the electrical characteristics of the power-on reset circuit.

If you have any questions or require any further information, please contact your local Toshiba sales representative.

[Electrical Characteristics of the Power-On Reset Circuit]

The electrical characteristics of the power-on reset detecting voltage should be corrected as shown below. When using the power-on reset circuit, please design your system by taking note of this correction to ensure proper operation.

Before correction

| Symbol | Parameter | Min | Typ. | Max | Unit |
|-------------------|----------------------------------|------|------|------|------|
| V _{PRON} | Power-on reset detecting voltage | 1.75 | 1.85 | 1.95 | V |

After correction

| Symbol | Parameter | Min | Typ. | Max | Unit |
|-------------------|----------------------------------|------|------|------|------|
| V _{PRON} | Power-on reset detecting voltage | 1.70 | 1.85 | 2.00 | V |