TM57 Series

Differences between

TM57PA40 and TM57FA40

Application Note

tenx technology inc.

AMENDMENT HISTORY

Version	Date	Description
V1.0	June, 2011	New release

CONTENTS

PRODUCT NAME

TM57 Series IC

TITLE

Differences between TM57PA40 and TM57FA40

APPLICATION NOTE

TM57PA40 and TM57FA40 have the same functions; however, some differences still do exist. If user needs to exchange two ICs in the application, the application engineer must pay attention to below points:

1. The most significant difference between TM57PA40 and TM57FA40 is the different ROM type. TM57PA40 is using OTP ROM, whereas, TM57FA40 is FLASH ROM. Besides, TM57PA40 CONFIG storage occupies ROM area, whereas, TM57FA40 doesn't; therefore, when two programs exchange, it is necessary to create new PROJECT and select the corresponding IC type and CONFIG, rebuild first before go to the next step. REUSE is an exclusive function in TM57PA40. TM57FA40 is using FLASH ROM; therefore, REUSE function is not necessary.

2. After TM57PA40 is powered ON, I/O pull high resistor default setting is turned ON, while, in TM57FA40 is turned OFF, therefore, it needs to be handled in routine to avoid circuit handler malfunction after power ON.

3. The ADC of TM57PA40 and TM57FA40 is 12-bit, but the accuracy of TM57PA40 ADC is better than that of TM57FA40 ADC.

4. The IVC circuit in TM57FA40 does not exist in TM57PA40. In low power consumption application, the ICVPD options in TM57FA40 CONFIG should be set as "IVC/LVR OFF IN SLEEP MODE". At the same time, when entering SLEEP mode, TM57FA40 IVC voltage must be set according to the User Manual IVC[1:0], otherwise, unexpected malfunction may occur.

| IVC_REG | 11. 4~3 | W | 0 | Built-in regulator control in sleep mode
[C1:C0]=
00: VDD5 > 4.5V
01: 4.5V > VDD5 > 3.6V
10: 3.6V > VDD5 |

Example: When IC operating voltage is 5V, select [C1:C0] = 00 (VDD5 > 4.5V)
When IC operating voltage is 4V, select [C1:C0] = 01 (4.5V > VDD5 > 3.6V)
When IC operating voltage is 3V, select [C1:C0] = 10 (3.6V > VDD5)
Note: VDD5 is IC operating voltage

tenx technology inc.

Rev 1.0, 2011/07/22

5. In using external ceramic resonator 455 KHz, the CONFIG of TM57FA40 should be set as "Slow X'tal", whereas, in TM57PA40, it should be set as "Fast X'tal". Please note that when 455 KHz is applied on EV2795 EV Board, the CONFIG should be set as "Fast X'tal" normally, but for some manufactures it should be set to "Slow X'tal" instead, in that case, user can decide according to actual condition.

6. The max frequency of external oscillation in TM57PA40 is 24 MHz, whereas, it is 12 MHz in TM57FA40.

7. The external RC oscillator variables between TM57PA40 and TM57FA40 is not the same, readjustment is necessary when exchanging between two of them.

8. In emulator, both of them can use EV2795 EV BOARD, but the default setting in EV2795 power on pull high is turned ON, which is agree with TM57PA40, but not with TM57FA40 (the default in TM57FA40 is turned OFF).

9. Because the different process, the electrical characteristics will be slightly different, for example, the operating current, pull high resistance, input high/low level, LVR voltage, etc…, and also characteristics of specification application, such as the minimum voltage for RAM data storage in TM57FA40 is higher than that in TM57PA40, therefore, the power off memory loss time is less than in TM57PA40. After user exchanges two ICs, further testing and verification towards product variables and functions must be done to ensure no failure will happen.