

## PIC16F87X Rev. B5 Silicon Errata Sheet

The PIC16F87X (Rev. B5) parts you have received conform functionally to the Device Data Sheet (DS30292A), except for the anomalies described below.

All the problems listed here will be addressed in future revisions of the PIC16F87X silicon.

This errata applies to the PIC16F877-20/P production version with an assembly date code of 9925 or greater and all other production versions of the PIC16F87X family.

1. Module: Electrical Specifications

The Supply Voltage specification has not yet met the design target (data sheet specification). The specification for these devices is shown in Table 1.

2. Module: A/D Specifications

The Offset Error specification has not yet met the design target (data sheet specification). The specification for these devices is shown in Table 1.

3. Module: TMR1

When operating in external clock mode (TMR1CS is set), reading either of the timer 1 registers (TMR1H or TMR1L) may cause the timer not to increment as expected. This occurs for both synchronous and asynchronous inputs.

The scenarios which display this are:

- a) When a read operation of the TMR1H register occurs, the TMR1L register may not increment.
- b) When a read operation of the TMR1L register occurs, the TMR1H register may not increment. This improper operation is only an issue when the TMR1L register increments from FFh to 00h (FFh → 00H) during the read of the TMR1L register.

Work Around

Do not read either the TMR1H or the TMR1L registers when operating in external clock mode (TMR1CS is set). If the application needs to read the 16-bit counter, evaluate if this function can be moved to the TMR0 or one of the other timer resources on the device.

**TABLE 1: DC SPECIFICATION CHANGES FROM DATA SHEET**

| Param No. | Sym. | Characteristic | Tested Specification |     |       | Data Sheet Specification |     |       | Units |
|-----------|------|----------------|----------------------|-----|-------|--------------------------|-----|-------|-------|
|           |      |                | Min                  | Typ | Max   | Min                      | Typ | Max   |       |
| D001      | VDD  | Supply Voltage | 2.5                  | —   | 5.5   | 2.0                      | —   | 5.5   | V     |
| A06       | E0FF | Offset Error   | —                    | —   | < ± 2 | —                        | —   | < ± 1 | LSb   |

# PIC16F87X

## 4. Module: I/O Ports

The IOL condition for the VOL specification has been relaxed for the I/O ports. Table 2 shows what the current data sheet specification is, as well as the limit that the device is currently tested to.

### Work Around

None

### **Clarifications/Corrections to the Data Sheet:**

In the Device Data Sheet (DS30292A), the following clarifications and corrections should be noted:

None.

**TABLE 2: DC SPECIFICATION CHANGES FROM DATA SHEET**

| Param No. | Sym. | Characteristic                  | Tested Specification |     |     |   | Data Sheet Specification |     |     |  | Units |
|-----------|------|---------------------------------|----------------------|-----|-----|---|--------------------------|-----|-----|--|-------|
|           |      |                                 | Min                  | Typ | Max | Condition   | Min                      | Typ | Max | Condition                                      |       |
| D080      | VoL  | Output Low Voltage<br>I/O ports | —                    | —   | 0.6 | IOL = <b>2.5</b> mA<br>VDD = 4.5 V<br>-40°C -to 85°C  | —                        | —   | 0.6 | IOL = 8.5 mA<br>VDD = 4.5 V<br>-40°C -to 85°C  | V     |
| D080A     |      |                                 | —                    | —   | 0.6 | IOL = <b>TBD</b> mA<br>VDD = 4.5 V<br>-40°C -to 125°C | —                        | —   | 0.6 | IOL = 7.0 mA<br>VDD = 4.5 V<br>-40°C -to 125°C | V     |

**NOTES:**

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**Note the following details of the code protection feature on PICmicro® MCUs.**

- The PICmicro family meets the specifications contained in the Microchip Data Sheet.
- Microchip believes that its family of PICmicro microcontrollers is one of the most secure products of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the PICmicro microcontroller in a manner outside the operating specifications contained in the data sheet. The person doing so may be engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as “unbreakable”.
- Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our product.

If you have any further questions about this matter, please contact the local sales office nearest to you.

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