

PIC16F87X Rev. B Silicon Errata Sheet

The PIC16F87X (Rev. B) 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.

All devices have been marked revision "B" and "engineering sample" or "ES".

1. Module: Program Memory

When instruction execution resumes after an internal program cycle terminates, the following 16 memory locations must be blank (all 1's). Otherwise this may cause unexpected device operation.

Work Around

To address this issue, use the following software sequence. Fixed in silicon revision B3.

EXAMPLE 1: CODE WORK AROUND

```

bsf          STATUS, RP1
bcf          STATUS, RP0
.
.
.
bcf          INTCON, GIE      ; If interrupts enabled
movlw 0x55
movwf       EECON2
movlw 0xAA
movwf       EECON2
bsf          EECON1, WR
nop
;
; When used with MPASM, the data 0x3fff places all '1's at that point in the program.
; This executes as an addlw 0xff instruction which is completely benign at this point
; in the program.
;
data         0x3fff          ; Instruction with all ones
data         0x3fff          ; needed to clear high voltage
data         0x3fff          ; out of the program memory
data         0x3fff          ; arrays
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
data         0x3fff
bsf          INTCON, GIE      ; If interrupts enabled
bcf          EECON1, WREN

```

2. Module: MSSP - SPI mode

The SDI pin is controlled by the module and not by the state of the TRIS bit. This means that the SDI pin cannot be an output when the MSSP module is in SPI mode.

Work Around

None for current silicon revision
(fixed in silicon revision B4)

3. 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.

4. 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.

5. 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:

- When a read operation of the TMR1H register occurs, the TMR1L register may not increment.
- 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	EOFF	Offset Error	—	—	< ± 2	—	—	< ± 1	LSb

6. Module: I/O Ports

The I_{OL} condition for the V_{OL} 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	V_{OL}	Output Low Voltage I/O ports	—	—	0.6	$I_{OL} = 3.0 \text{ mA}$ $V_{DD} = 4.5 \text{ V}$ -40°C -to 85°C	—	—	0.6	$I_{OL} = 8.5 \text{ mA}$ $V_{DD} = 4.5 \text{ V}$ -40°C -to 85°C	V
D080A			—	—	0.6	$I_{OL} = \text{TBD mA}$ $V_{DD} = 4.5 \text{ V}$ -40°C -to 125°C	—	—	0.6	$I_{OL} = 7.0 \text{ mA}$ $V_{DD} = 4.5 \text{ V}$ -40°C -to 125°C	V

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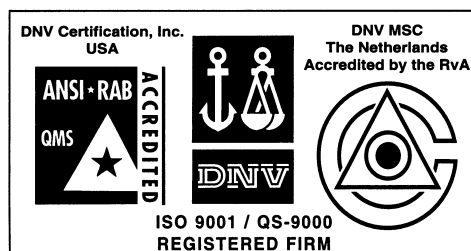
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