PIC16C65

PIC16C65 Rev. A Silicon Errata Sheet

The PIC16C65 (Rev. A) parts you have received conform functionally to the Device Data Sheet (DS30234**D**), except for the anomalies described below.

All the problems listed here will be addressed in future revisions of the PIC16C65 silicon.

1. Module: USART

When the USART (SCI) is configured in asynchronous mode with the BRGH bit set, a high number of receive errors may be experienced. For asynchronous receive operations it is recommended that the USART be configured with the BRGH bit cleared.

Note: As with any windowed EPROM device, please cover the window at all times, except when erasing.

Clarifications/Corrections to the Data Sheet:

In the Device Data Sheet (DS30234**D**), the following clarifications and corrections should be noted.

1. Module: I/O Ports

The specification for the High Voltage Open Drain I/O (The RA4 pin on most devices) cannot be met without possible long term reliability issues on that I/O pin. If a high voltage drive is required, use an external transistor that can support the required voltage.

TABLE 1: DC SPECIFICATION CHANGES FROM DATA SHEET

Param No.	Sym.	Characteristic	New Specification			Data Sheet Specification			Units
			Min	Typ	Max	Min	Typ	Max	
D150	VOD	Open-drain High Voltage	—	—	**10**	—	—	14	V

2. Module: SSP (SPI Mode Timing Specificatios)

a) The SPI interface timings have been modified to the values shown in Table 2.

TABLE 2: DC SPECIFICATION CHANGES FROM DATA SHEET

Parm No.	Sym.	Characteristic		New Specification			Data Sheet Specification			Units
				Min	Typ	Max	Min	Typ	Max	
71	TSCH	SCK input high time (slave mode)	Continuous	1.25TCY + 30 ns	—	—	TCY + 20 ns	—	—	ns
71A			Single Byte (1)	40	—	—	N.A.			ns
72	TSCL	SCK input low time (slave mode)	Continuous	1.25TCY + 30 ns	—	—	TCY + 20 ns	—	—	ns
72A			Single Byte (1)	40	—	—	N.A.			ns
73A	TB2B	Last clock edge of the Byte1 to 1st clock edge of the Byte2 (1)		1.5 TCY + 40 ns	—	—	N.A.			ns

* This parameter is characterized but not tested

Note 1: Specification 73A is only required if specifications 71A and 72A are used.

3. Module: Timer1

a) The operation of Timer1 needs some clarification when the timer registers are written when the TMR1ON bit is set.

The internal clock signal that is the input to the TMR1 presaler affects the incrementing of Timer1 (TMR1H:TMR1L registers and the Timer1 prescaler). When the Timer1 registers are NOT written, the Timer1 will increment on the rising edge of the TMR1 increment clock.

When the TMR1H and/or TMR1L registers are written while this clock is high, TMR1 will increment on the next rising edge of this clock.

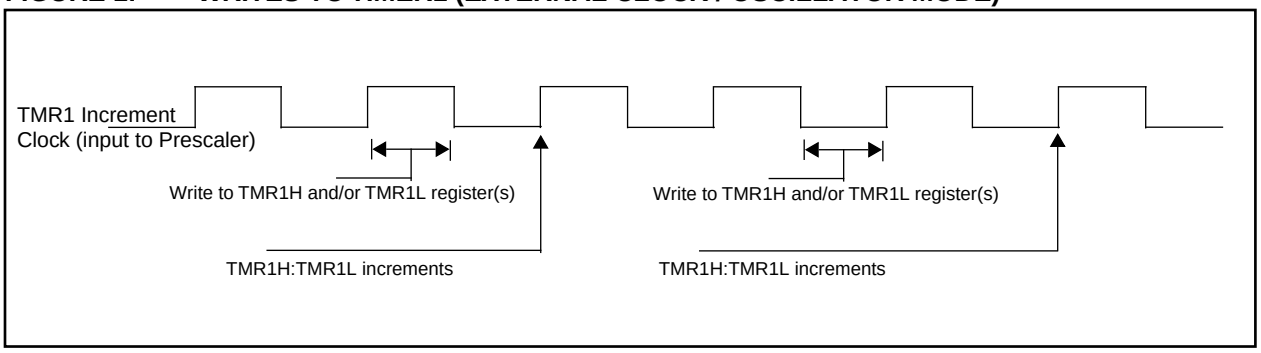
When the TMR1H and/or TMR1L registers are written while this clock is low, TMR1 will not increment on the next rising edge of this clock, but must first have a falling clock and the the rising clock for TMR1 to increment.

Figure 1 shows the two cases of writes to the TMR1H and/or TMR1L registers. Due to the VIH and VIL thresholds on the oscillator/clock pins, external

Timer1 oscillator components, and external clock frequency, the Timer1 increment clock may not be of a 50% duty cycle.

The TMR1 increment clock is out of phase of the T1OSO/T1CKI pin by a small propagation delay.

FIGURE 1: WRITES TO TIMER1 (EXTERNAL CLOCK / OSCILLATOR MODE)



4. Module: RC Oscillator

The table for RC Oscillator Frequencies in the Device Characterization section of the Data Sheet is incorrect. The correct characterization information is shown in Table 3.

TABLE 3: RC OSCILLATOR FREQUENCIES CHARACTERIZATION CHANGES FROM DATA SHEET

Cext	Rext	Correct Characterization Data		Current Data Sheet Values	
		Average	% Variation	Average	% Variation
22 pF	5.1 K	3.55 MHz	± 9.63%	4.12 MHz	± 1.4%
	10 K	1.99 MHz	± 10.53%	2.35 MHz	± 1.4%
	100 K	221.9 KHz	± 12.10%	268 KHz	± 1.1%
100 pF	3.3 K	1.77 MHz	± 10.67%	1.80 MHz	± 1.0%
	5.1 K	1.22 MHz	± 10.41%	1.27 MHz	± 1.0%
	10 K	669.4 KHz	± 10.92%	688 KHz	± 1.2%
	100 K	71.5 KHz	± 11.21%	77.2 KHz	± 1.0%
330 pF	3.3 K	625.1 KHz	± 10.68%	707 KHz	± 1.4%
	5.1 K	428.5 KHz	± 10.96%	501 KHz	± 1.2%
	10 K	231.9 KHz	± 11.32%	269 KHz	± 1.6%
	100 K	24.4 KHz	± 12.93%	28.3 KHz	± 1.1%

The percentage variation indicated here is part to part variation due to normal process distribution. The variation indicated is ±3 standard deviation from the average value for Vdd = 5V

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