PIC16C64

PIC16C64 Rev. A Silicon Errata Sheet

The PIC16C64 (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 PIC16C64 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.

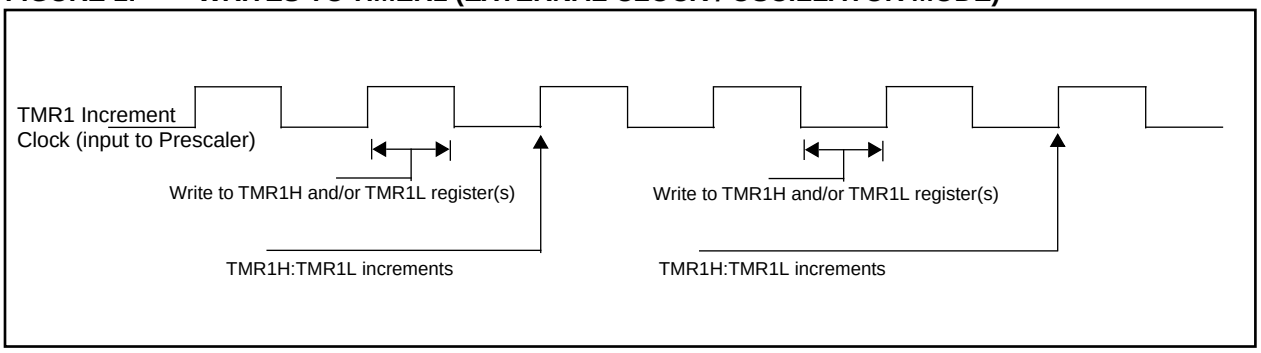
When the TMR1H and/or TMR1L registers are written while this clock is low, TMR1 will not increment on the next rising edge of this clock, but must first have a falling clock and the the rising clock for TMR1 to increment.

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

WORLDWIDE SALES AND SERVICE

AMERICAS

Corporate Office
Microchip Technology Inc.
2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 602-786-7200 Fax: 602-786-7277
Technical Support: 602 786-7627
Web: http://www.microchip.com

Atlanta
Microchip Technology Inc.
500 Sugar Mill Road, Suite 200B
Atlanta, GA 30350
Tel: 770-640-0034 Fax: 770-640-0307

Boston
Microchip Technology Inc.
5 Mount Royal Avenue
Marlborough, MA 01752
Tel: 508-480-9990 Fax: 508-480-8575

Chicago
Microchip Technology Inc.
333 Pierce Road, Suite 180
Itasca, IL 60143
Tel: 630-285-0071 Fax: 630-285-0075

Dallas
Microchip Technology Inc.
14651 Dallas Parkway, Suite 816
Dallas, TX 75240-8809
Tel: 972-991-7177 Fax: 972-991-8588

Dayton
Microchip Technology Inc.
Two Prestige Place, Suite 150
Miamisburg, OH 45342
Tel: 937-291-1654 Fax: 937-291-9175

Detroit
Microchip Technology Inc.
42705 Grand River, Suite 201
Novi, MI 48375-1727
Tel: 248-374-1888 Fax: 248-374-2874

Los Angeles
Microchip Technology Inc.
18201 Von Karman, Suite 1090
Irvine, CA 92612
Tel: 714-263-1888 Fax: 714-263-1338

New York
Microchip Technology Inc.
150 Motor Parkway, Suite 202
Hauppauge, NY 11788
Tel: 516-273-5305 Fax: 516-273-5335

San Jose
Microchip Technology Inc.
2107 North First Street, Suite 590
San Jose, CA 95131
Tel: 408-436-7950 Fax: 408-436-7955

AMERICAS (continued)

Toronto
Microchip Technology Inc.
5925 Airport Road, Suite 200
Mississauga, Ontario L4V 1W1, Canada
Tel: 905-405-6279 Fax: 905-405-6253

ASIA/PACIFIC

Hong Kong
Microchip Asia Pacific
RM 3801B, Tower Two
Metroplaza
223 Hing Fong Road
Kwai Fong, N.T., Hong Kong
Tel: 852-2-401-1200 Fax: 852-2-401-3431

India
Microchip Technology Inc.
India Liaison Office
No. 6, Legacy, Convent Road
Bangalore 560 025, India
Tel: 91-80-229-0061 Fax: 91-80-229-0062

Japan
Microchip Technology Intl. Inc.
Benex S-1 6F
3-18-20, Shinyokohama
Kohoku-Ku, Yokohama-shi
Kanagawa 222-0033 Japan
Tel: 81-45-471- 6166 Fax: 81-45-471-6122

Korea
Microchip Technology Korea
168-1, Youngbo Bldg. 3 Floor
Samsung-Dong, Kangnam-Ku
Seoul, Korea
Tel: 82-2-554-7200 Fax: 82-2-558-5934

Shanghai
Microchip Technology
RM 406 Shanghai Golden Bridge Bldg.
2077 Yan'an Road West, Hong Qiao District
Shanghai, PRC 200335
Tel: 86-21-6275-5700 Fax: 86 21-6275-5060

ASIA/PACIFIC (continued)

Singapore
Microchip Technology Singapore Pte Ltd.
200 Middle Road
#07-02 Prime Centre
Singapore 188980
Tel: 65-334-8870 Fax: 65-334-8850

Taiwan, R.O.C
Microchip Technology Taiwan
10F-1C 207
Tung Hua North Road
Taipei, Taiwan, ROC
Tel: 886-2-2717-7175 Fax: 886-2-2545-0139

EUROPE

United Kingdom
Arizona Microchip Technology Ltd.
505 Eskdale Road
Winnersh Triangle
Wokingham
Berkshire, England RG41 5TU
Tel: 44-1189-21-5858 Fax: 44-1189-21-5835

France
Arizona Microchip Technology SARL
Zone Industrielle de la Bonde
2 Rue du Buisson aux Fraises
91300 Massy, France
Tel: 33-1-69-53-63-20 Fax: 33-1-69-30-90-79

Germany
Arizona Microchip Technology GmbH
Gustav-Heinemann-Ring 125
D-81739 Müchen, Germany
Tel: 49-89-627-144 0 Fax: 49-89-627-144-44

Italy
Arizona Microchip Technology SRL
Centro Direzionale Colleoni
Palazzo Taurus 1 V. Le Colleoni 1
20041 Agrate Brianza
Milan, Italy
Tel: 39-39-6899939 Fax: 39-39-6899883

9/29/98

DNV Certification, Inc. USA
ACCREDITED REGISTRAR ANSI-RAB
DNV
DNV MSC The Netherlands Accredited by the RvA
ISO 9001 REGISTERED FIRM

Microchip received ISO 9001 Quality System certification for its worldwide headquarters, design, and wafer fabrication facilities in January, 1997. Our field-programmable PICmicro® 8-bit MCUs, Serial EEPROMs, related specialty memory products and development systems conform to the stringent quality standards of the International Standard Organization (ISO).