PIC18F2585/2680/4585/4680

PIC18F2585/2680/4585/4680 Data Sheet Errata

In the PIC18F2585/2680/4585/4680 Device Data Sheet (DS39625**C**), the following clarifications and corrections should be noted. Any silicon issues related to these devices will be reported in a separate silicon errata. Please check the Microchip web site for any existing issues.

1. Module: Electrical Characteristics (Power-Down and Supply Current)

The eight-page table in **Section 27.2 "DC Characteristics: Power-Down and Supply Current"** is updated, on three pages, with the corrections noted in bold text.

On page 419, the second page of the table, the Units column is changed for the top row entry:

27.2 DC Characteristics: Power-Down and Supply Current PIC18F2585/2680/4585/4680 (Industrial) PIC18LF2585/2680/4585/4680 (Industrial) (Continued)

PIC18LF2585/2680/4585/4680 (Industrial)		**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial					
PIC18F2585/2680/4585/4680 (Industrial, Extended)		**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial -40°C ≤ TA ≤ +125°C for extended					
Param No.	**Device**	**Typ**	**Max**	**Units**	**Conditions**		
	PIC18LFX585/X680	0.53	1.10	**mA**	-40°C	VDD = 2.0V	FOSC = 1 MHz (**RC_RUN** mode, Internal oscillator source)
		0.55	1.10	mA	+25°C		
		0.56	1.10	mA	+85°C		
	PIC18LFX585/X680	0.94	1.20	mA	-40°C	VDD = 3.0V	
		0.90	1.20	mA	+25°C		
		0.88	1.20	mA	+85°C		
	All devices	1.80	2.30	mA	-40°C	VDD = 5.0V	
		1.70	2.30	mA	+25°C		
		1.60	2.30	mA	+85°C		
	PIC18FX585/X680	2.60	3.60	mA	+125°C		

Legend: Shading of rows is to assist in readability of the table.

Note 1: The power-down current in Sleep mode does not depend on the oscillator type. Power-down current is measured with the part in Sleep mode, with all I/O pins in high-impedance state and tied to VDD or VSS and all features that add delta current disabled (such as WDT, Timer1 Oscillator, BOR, etc.).

2: The supply current is mainly a function of operating voltage, frequency and mode. Other factors, such as I/O pin loading and switching rate, oscillator type and circuit, internal code execution pattern and temperature, also have an impact on the current consumption. The test conditions for all IDD measurements in active operation mode are:
OSC1 = external square wave, from rail-to-rail; all I/O pins tri-stated, pulled to VDD;
MCLR = VDD; WDT enabled/disabled as specified.

3: For RC oscillator configurations, current through REXT is not included. The current through the resistor can be estimated by the formula Ir = VDD/2REXT (mA) with REXT in kΩ.

4: Standard low-cost 32 kHz crystals have an operating temperature range of -10°C to +70°C. Extended temperature crystals are available at a much higher cost.

On page 423, the sixth page of the table, the Units column is changed for the top three row entries:

27.2 DC Characteristics: Power-Down and Supply Current PIC18F2585/2680/4585/4680 (Industrial) PIC18LF2585/2680/4585/4680 (Industrial) (Continued)

PIC18LF2585/2680/4585/4680 (Industrial)	**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial
PIC18F2585/2680/4585/4680 (Industrial, Extended)	**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial -40°C ≤ TA ≤ +125°C for extended

Param No.	Device	Typ	Max	Units	Conditions		
	PIC18LFX585/X680	640.00	715.00	µA	-40°C	VDD = 2.0V	FOSC = 4 MHz (**PRI_IDLE** mode, EC oscillator)
		650.00	715.00	µA	+25°C		
		660.00	715.00	µA	+85°C		
	PIC18LFX585/X680	0.98	1.40	mA	-40°C	VDD = 3.0V	
		1.00	1.40	mA	+25°C		
		1.00	1.40	mA	+85°C		
	All devices	1.90	2.20	mA	-40°C	VDD = 5.0V	
		1.90	2.20	mA	+25°C		
		1.90	2.20	mA	+85°C		
	PIC18FX585/X680	2.10	2.40	mA	+125°C		

Legend: Shading of rows is to assist in readability of the table.

Note 1: The power-down current in Sleep mode does not depend on the oscillator type. Power-down current is measured with the part in Sleep mode, with all I/O pins in high-impedance state and tied to VDD or VSS and all features that add delta current disabled (such as WDT, Timer1 Oscillator, BOR, etc.).

2: The supply current is mainly a function of operating voltage, frequency and mode. Other factors, such as I/O pin loading and switching rate, oscillator type and circuit, internal code execution pattern and temperature, also have an impact on the current consumption. The test conditions for all IDD measurements in active operation mode are:

OSC1 = external square wave, from rail-to-rail; all I/O pins tri-stated, pulled to VDD;
$\overline{\text{MCLR}}$ = VDD; WDT enabled/disabled as specified.

3: For RC oscillator configurations, current through REXT is not included. The current through the resistor can be estimated by the formula Ir = VDD/2REXT (mA) with REXT in kΩ.

4: Standard low-cost 32 kHz crystals have an operating temperature range of -10°C to +70°C. Extended temperature crystals are available at a much higher cost.

On page 425, the last page of the eight-page table, the temperature is changed for the bottom row and the punctuation fixed for the Conditions text:

27.2 DC Characteristics: Power-Down and Supply Current PIC18F2585/2680/4585/4680 (Industrial) PIC18LF2585/2680/4585/4680 (Industrial) (Continued)

PIC18LF2585/2680/4585/4680 (Industrial)		**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial					
PIC18F2585/2680/4585/4680 (Industrial, Extended)		**Standard Operating Conditions (unless otherwise stated)** Operating temperature -40°C ≤ TA ≤ +85°C for industrial -40°C ≤ TA ≤ +125°C for extended					
Param No.	**Device**	**Typ**	**Max**	**Units**	**Conditions**		
D026 (ΔIAD)	**A/D Converter**	1.0	2.0	μA	-40°C to +85°C	VDD = 2.0V	A/D on, not converting
		1.0	2.0	μA	-40°C to +85°C	VDD = 3.0V	
		1.0	2.0	μA	-40°C to +85°C	VDD = 5.0V	
		2.0	8.0	μA	**+125°C**		

Legend: Shading of rows is to assist in readability of the table.

Note 1: The power-down current in Sleep mode does not depend on the oscillator type. Power-down current is measured with the part in Sleep mode, with all I/O pins in high-impedance state and tied to VDD or VSS and all features that add delta current disabled (such as WDT, Timer1 Oscillator, BOR, etc.).

2: The supply current is mainly a function of operating voltage, frequency and mode. Other factors, such as I/O pin loading and switching rate, oscillator type and circuit, internal code execution pattern and temperature, also have an impact on the current consumption. The test conditions for all IDD measurements in active operation mode are:

OSC1 = external square wave, from rail-to-rail; all I/O pins tri-stated, pulled to VDD;
$\overline{MCLR}$ = VDD; WDT enabled/disabled as specified.

3: For RC oscillator configurations, current through REXT is not included. The current through the resistor can be estimated by the formula Ir = VDD/2REXT (mA) with REXT in kΩ.

4: Standard low-cost 32 kHz crystals have an operating temperature range of -10°C to +70°C. Extended temperature crystals are available at a much higher cost.

2. Module: ECAN™ Technology

The first paragraph of **Section 23.6.1 "Initiating Transmission"** is modified as shown.

23.6.1 INITIATING TRANSMISSION

For the MCU to have write access to the message buffer, the TXREQ bit must be clear, indicating that the message buffer is clear of any pending message to be transmitted.

Note:	The time between the clearing of the TXREQ bit and when the TX buffer has write access can be as long as four instruction cycles.

At a minimum, the SIDH, SIDL and DLC registers must be loaded. If data bytes are present in the message, the data registers must also be loaded. If the message is to use extended identifiers, the EIDH:EIDL registers must also be loaded and the EXIDE bit set.

3. Module: Electrical Characteristics

A row is changed in Table 27-24. The new and modified content is indicated by bold text.

TABLE 27-24: A/D CONVERTER CHARACTERISTICS:PIC18F2585/2680/4585/4680 (INDUSTRIAL)
PIC18LF2585/2680/4585/4680 (INDUSTRIAL)

Param No.	Sym	Characteristic	Min	Typ	Max	Units	Conditions
		...					
A04	EDL	Differential Linearity Error	—	—	<±1	LSb	ΔVREF ≥ 3.0V
A06	EOFF	Offset Error	—	—	**<±2**	LSb	**VREF = VSS and VDD**
A07	EGN	Gain Error	—	—	<±1	LSb	ΔVREF ≥ 3.0V
		...					

Note 1: The A/D conversion result never decreases with an increase in the input voltage and has no missing codes.

2: When A/D is off, it will not consume any current other than minor leakage current. The power-down current spec includes any such leakage from the A/D module.

3: VREFH current is from RA3/AN3/VREF+ pin or AVDD, whichever is selected as the VREFH source. VREFL current is from RA2/AN2/VREF- pin or AVSS, whichever is selected as the VREFL source.

4. Module: Master Synchronous Serial Port (MSSP) – Serial Peripheral Interface (SPI)

The following note has been added to the end of **Section 17.3.3 "Enabling SPI I/O"**.

Note:	When the module is enabled and in Master mode (CKE, SSPSTAT<6> = 1), a small glitch of approximately half a TCY may be seen on the SCK pin. To resolve this, keep the SCK pin as an input while setting SPEN. Then, configure the SCK pin as an output (TRISC<3> = 0).

5. Module: Enhanced Capture/Compare/PWM (ECCP1) Module

The following note has been added to the end of **Section 16.4.6 "Programmable Dead-Band Delay"**.

Note:	If the dead-band delay value is increased after the dead-band time has elapsed, that new value takes effect immediately. This happens even if the PWM pulse is high and can appear to be a glitch. Dead-band values must be changed during the dead-band time or before the ECCP1 module is active.

REVISION HISTORY

Rev A Document (05/2006)

First revision of this document, split from DS80202 (previous *"PIC18F2585/2680/4585/4680 Rev. A1 Silicon/Data Sheet Errata"*). Includes previous data sheet clarification issues 1 (DC Characteristics) and 2 (MOVFF Instruction), reordered as issues 1 (Instruction Set) and 2 (DC Characteristics). Added issues 3 (DC Characteristics: Power-Down and Supply Current), 4 (DC Characteristics – Voltage-Frequency Graph) and 5 (Table 27-6: External Clock Timing Requirements).

Rev B Document (11/2007)

Removed data sheet clarification issues 1 (Instruction Set), 2 (DC Characteristics), 4 (DC Characteristics – Voltage-Frequency Graph and 5 (External Clock Timing Requirements). Removed portions of issue 3 – now issue 1 (Electrical Characteristics) – that had been updated in the data sheet, but retained changes that had not been incorporated. Added data sheet clarification issues 2 (ECAN™ Technology), 3 (Electrical Characteristics), 4 (Master Synchronous Serial Port (MSSP) – Serial Peripheral Interface (SPI)) and 5 (Enhanced Capture/Compare/PWM (ECCP1) Module).

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