



MICROCHIP

PIC24FJ256GB110 FAMILY

PIC24FJ256GB110 Family Data Sheet Errata

Clarifications/Corrections to the Data Sheet:

In the Device Data Sheet (DS39897B), the following clarifications and corrections should be noted. Any silicon issues related to the PIC24FJ256GB110 family will be reported in a separate silicon errata. Please check the Microchip web site for any existing issues.

1. Module: Electrical Characteristics

The following tables are changed with the new or modified values shown in bold text:

- Table 28-4:
DC Characteristics: Operating Current (I_{DD})
- Table 28-5:
DC Characteristics: Idle Current (i_{IDLE})
- Table 28-6:
DC Characteristics: Power-Down Current (I_{PD})

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TABLE 28-4: DC CHARACTERISTICS: OPERATING CURRENT (IDD)

| DC CHARACTERISTICS | | | Standard Operating Conditions: 2.0V to 3.6V (unless otherwise stated) Operating temperature $-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ for Industrial | | |
|--|------------------------|-------|---|------------|--|
| Parameter No. | Typical ⁽¹⁾ | Max | Units | Conditions | |
| Operating Current (IDD)⁽²⁾ | | | | | |
| DC20 | 0.83 | 1.2 | mA | -40°C | 2.0V ⁽³⁾ 1 MIPS |
| DC20a | 0.83 | 1.2 | mA | +25°C | |
| DC20b | 0.83 | 1.2 | mA | +85°C | |
| DC20d | 1.1 | 1.7 | mA | -40°C | |
| DC20e | 1.1 | 1.7 | mA | +25°C | |
| DC20f | 1.1 | 1.7 | mA | +85°C | |
| DC23 | 3.3 | 4.5 | mA | -40°C | 2.0V ⁽³⁾ 4 MIPS |
| DC23a | 3.3 | 4.5 | mA | +25°C | |
| DC23b | 3.3 | 4.6 | mA | +85°C | |
| DC23d | 4.3 | 6.0 | mA | -40°C | |
| DC23e | 4.3 | 6.0 | mA | +25°C | |
| DC23f | 4.3 | 6.0 | mA | +85°C | |
| DC24 | 18.2 | 24.0 | mA | -40°C | 2.5V ⁽³⁾ 16 MIPS |
| DC24a | 18.2 | 24.0 | mA | +25°C | |
| DC24b | 18.2 | 24.0 | mA | +85°C | |
| DC24d | 18.2 | 24.0 | mA | -40°C | |
| DC24e | 18.2 | 24.0 | mA | +25°C | |
| DC24f | 18.2 | 24.0 | mA | +85°C | |
| DC31 | 15.0 | 35.0 | μA | -40°C | 2.0V ⁽³⁾ LPRC (31 kHz) |
| DC31a | 15.0 | 35.0 | μA | +25°C | |
| DC31b | 20.0 | 50.0 | μA | +85°C | |
| DC31d | 57.0 | 75.0 | μA | -40°C | |
| DC31e | 57.0 | 75.0 | μA | +25°C | |
| DC31f | 95.0 | 124.0 | μA | +85°C | |

Note 1: Data in "Typical" column is at 3.3V, 25°C unless otherwise stated. Parameters are for design guidance only and are not tested.

- 2:** The supply current is mainly a function of the operating voltage and frequency. Other factors, such as I/O pin loading and switching rate, oscillator type, internal code execution pattern and temperature, also have an impact on the current consumption. The test conditions for all IDD measurements are as follows: OSCI driven with external square wave from rail to rail. All I/O pins are configured as inputs and pulled to VDD. MCLR = VDD; WDT and FSCM are disabled. CPU, SRAM, program memory and data memory are operational. No peripheral modules are operating and all of the Peripheral Module Disable (PMD) bits are set.
- 3:** On-chip voltage regulator disabled (ENVREG tied to Vss).
- 4:** On-chip voltage regulator enabled (ENVREG tied to VDD), Low-Voltage Detect (LVD) and Brown-out Detect (BOD) are enabled.

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TABLE 28-5: DC CHARACTERISTICS: IDLE CURRENT (IDLE)

| DC CHARACTERISTICS | | | Standard Operating Conditions: 2.0V to 3.6V (unless otherwise stated) Operating temperature $-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ for Industrial | | |
|--|------------------------|--------------|---|-----------------------|--|
| Parameter No. | Typical ⁽¹⁾ | Max | Units | Conditions | |
| Idle Current (IDLE)⁽²⁾ | | | | | |
| DC40 | 220 | 310 | μA | -40°C | 2.0V ⁽³⁾ 1 MIPS |
| DC40a | 220 | 310 | μA | $+25^{\circ}\text{C}$ | |
| DC40b | 220 | 310 | μA | $+85^{\circ}\text{C}$ | |
| DC40d | 300 | 390 | μA | -40°C | |
| DC40e | 300 | 390 | μA | $+25^{\circ}\text{C}$ | |
| DC40f | 320 | 420 | μA | $+85^{\circ}\text{C}$ | |
| DC43 | 0.85 | 1.1 | mA | -40°C | 2.0V ⁽³⁾ 4 MIPS |
| DC43a | 0.85 | 1.1 | mA | $+25^{\circ}\text{C}$ | |
| DC43b | 0.87 | 1.2 | mA | $+85^{\circ}\text{C}$ | |
| DC43d | 1.1 | 1.4 | mA | -40°C | |
| DC43e | 1.1 | 1.4 | mA | $+25^{\circ}\text{C}$ | |
| DC43f | 1.1 | 1.4 | mA | $+85^{\circ}\text{C}$ | |
| DC47 | 4.4 | 5.6 | mA | -40°C | 2.5V ⁽³⁾ 16 MIPS |
| DC47a | 4.4 | 5.6 | mA | $+25^{\circ}\text{C}$ | |
| DC47b | 4.4 | 5.6 | mA | $+85^{\circ}\text{C}$ | |
| DC47c | 4.4 | 5.6 | mA | -40°C | |
| DC47d | 4.4 | 5.6 | mA | $+25^{\circ}\text{C}$ | |
| DC47e | 4.4 | 5.6 | mA | $+85^{\circ}\text{C}$ | |
| DC50 | 1.1 | 1.4 | mA | -40°C | 2.0V ⁽³⁾ FRC (4 MIPS) |
| DC50a | 1.1 | 1.4 | mA | $+25^{\circ}\text{C}$ | |
| DC50b | 1.1 | 1.4 | mA | $+85^{\circ}\text{C}$ | |
| DC50d | 1.4 | 1.8 | mA | -40°C | |
| DC50e | 1.4 | 1.8 | mA | $+25^{\circ}\text{C}$ | |
| DC50f | 1.4 | 1.8 | mA | $+85^{\circ}\text{C}$ | |
| DC51 | 4.3 | 6.0 | μA | -40°C | 2.0V ⁽³⁾ LPRC (31 kHz) |
| DC51a | 4.5 | 6.0 | μA | $+25^{\circ}\text{C}$ | |
| DC51b | 10.0 | 25 | μA | $+85^{\circ}\text{C}$ | |
| DC51d | 44.0 | 60.0 | μA | -40°C | |
| DC51e | 44.0 | 60.0 | μA | $+25^{\circ}\text{C}$ | |
| DC51f | 70.0 | 115.0 | μA | $+85^{\circ}\text{C}$ | |

Note 1: Data in "Typical" column is at 3.3V, 25°C unless otherwise stated. Parameters are for design guidance only and are not tested.

2: Base IDLE current is measured with core off, OSCI driven with external square wave from rail to rail. All I/O pins are configured as inputs and pulled to VDD. MCLR = VDD; WDT and FSCM are disabled. No peripheral modules are operating and all of the Peripheral Module Disable (PMD) bits are set.

3: On-chip voltage regulator disabled (ENVREG tied to Vss).

4: On-chip voltage regulator enabled (ENVREG tied to VDD), Low-Voltage Detect (LVD) and Brown-out Detect (BOD) are enabled.

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TABLE 28-6: DC CHARACTERISTICS: POWER-DOWN CURRENT (IPD)

| DC CHARACTERISTICS | | | Standard Operating Conditions: 2.0V to 3.6V (unless otherwise stated) Operating temperature $-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ for Industrial | | |
|---|------------------------|-------------|---|-----------------------|---|
| Parameter No. | Typical ⁽¹⁾ | Max | Units | Conditions | |
| Power-Down Current (IPD)⁽²⁾ | | | | | |
| DC60 | 0.1 | 1.0 | μA | -40°C | Base Power-Down Current ⁽⁵⁾ |
| DC60a | 0.15 | 1.0 | μA | $+25^{\circ}\text{C}$ | |
| DC60b | 3.7 | 18.0 | μA | $+85^{\circ}\text{C}$ | |
| DC60c | 0.2 | 1.4 | μA | -40°C | |
| DC60d | 0.25 | 1.4 | μA | $+25^{\circ}\text{C}$ | |
| DC60e | 4.2 | 27.0 | μA | $+85^{\circ}\text{C}$ | |
| DC60f | 3.6 | 10.0 | μA | -40°C | |
| DC60g | 4.0 | 10.0 | μA | $+25^{\circ}\text{C}$ | |
| DC60h | 11.0 | 36.0 | μA | $+85^{\circ}\text{C}$ | |
| DC61 | 1.75 | 3 | μA | -40°C | |
| DC61a | 1.75 | 3 | μA | $+25^{\circ}\text{C}$ | |
| DC61b | 1.75 | 3 | μA | $+85^{\circ}\text{C}$ | |
| DC61c | 2.4 | 4 | μA | -40°C | |
| DC61d | 2.4 | 4 | μA | $+25^{\circ}\text{C}$ | |
| DC61e | 2.4 | 4 | μA | $+85^{\circ}\text{C}$ | |
| DC61f | 2.8 | 5 | μA | -40°C | |
| DC61g | 2.8 | 5 | μA | $+25^{\circ}\text{C}$ | |
| DC61h | 2.8 | 5 | μA | $+85^{\circ}\text{C}$ | |
| DC62 | 2.5 | 7.0 | μA | -40°C | RTCC + Timer1 w/32 kHz Crystal: $\Delta I_{\text{RTCC}} + \Delta I_{\text{T132}}$ ⁽⁵⁾ |
| DC62a | 2.5 | 7.0 | μA | $+25^{\circ}\text{C}$ | |
| DC62b | 3.0 | 7.0 | μA | $+85^{\circ}\text{C}$ | |
| DC62c | 2.8 | 7.0 | μA | -40°C | |
| DC62d | 3.0 | 7.0 | μA | $+25^{\circ}\text{C}$ | |
| DC62e | 3.0 | 7.0 | μA | $+85^{\circ}\text{C}$ | |
| DC62f | 3.5 | 10.0 | μA | -40°C | |
| DC62g | 3.5 | 10.0 | μA | $+25^{\circ}\text{C}$ | |
| DC62h | 4.0 | 10.0 | μA | $+85^{\circ}\text{C}$ | |

Note 1: Data in the Typical column is at 3.3V, 25°C unless otherwise stated. Parameters are for design guidance only and are not tested.

- 2:** Base IPD is measured with all peripherals and clocks shut down. All I/Os are configured as inputs and pulled high. WDT, etc., are all switched off, and the Peripheral Module Disable (PMD) bits for all unused peripherals are set.
- 3:** On-chip voltage regulator disabled (ENVREG tied to Vss).
- 4:** On-chip voltage regulator enabled (ENVREG tied to VDD), Low-Voltage Detect (LVD) and Brown-out Detect (BOD) are enabled.
- 5:** The Δ current is the additional current consumed when the module is enabled. This current should be added to the base IPD current.

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REVISION HISTORY

Rev A Document (7/2008)

Initial release of this data sheet errata. Includes Data Sheet Clarification 1 (Electrical Characteristics).

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NOTES:

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