



17062284 EFM8 UB1 Datasheet PCN

PCN Issue Date: 6/22/2017

Effective Date: 9/27/2017

PCN Type: Datasheet

Description of Change

Silicon Labs is pleased to announce the release of version 1.2 of the EFM8 Universal Bee 1 or UB1 datasheet.

This change announces an enhancement to the robustness of the internal low dropout regulator utilized in this product. This addition changes the calibration of the LDO to slightly increase the output target voltage which prevents a small voltage drop from occurring when entering low power modes. No direct issues have been observed on devices using the old calibration method, and this effort is part of the continual improvement process. This change leads to marginally increased current consumption in normal and idle mode.

The specification changes are as follows:

- Raised the typical current consumption in Normal Mode-Full speed with code executing from flash at 48 MHz from 8.9 mA to 9.4 mA.
- Raised the maximum current consumption in Normal Mode-Full speed with code executing from flash at 48 MHz from 9.8 mA to 10.1 mA.
- Raised the typical current consumption in Normal Mode-Full speed with code executing from flash at 24.5 MHz from 4.3 mA to 4.5 mA.
- Raised the maximum current consumption in Normal Mode-Full speed with code executing from flash at 24.5 MHz from 4.9 mA to 5.2 mA.
- Raised the typical current consumption in Idle Mode-Core halted with peripherals running at 48 MHz from 6 mA to 6.3 mA.
- Raised the maximum current consumption in Idle Mode-Core halted with peripherals running at 48 MHz from 6.6 mA to 6.8 mA.
- Raised the typical current consumption in Idle Mode-Core halted with peripherals running at 24.5 MHz from 2.8 mA to 2.9 mA.
- Raised the maximum current consumption in Idle Mode-Core halted with peripherals running at 24.5 MHz from 3.2 mA to 3.3 mA.
- Adjusted the QFN28 package dimension width or D, to 5.00 BCS. Previously the minimum was 4.9, the typical was 5.00, and the max was 5.10.
- Adjusted the QFN28 package dimension length or E, to 5.00 BCS. Previously the minimum was 4.9, the typical was 5.00, and the max was 5.10.
- Adjusted the QFN28 package length and width offset or aaa, to 0.10. Previously the specification was 0.15. This is derived from further characterization of the QFN28 package.
- Added Thermal Resistance (junction to case) and Thermal Characterization Parameter (junction to top) for the QFN20 and QFN28 packages.
- Added a note linking to the output low voltage and output high voltage table of the port I/Os to the performance curves.
- Added sizes to the transmit and receive FIFOs for the SMBus and I2C slave peripherals.
- Added a line in the introduction section to mention the reference manual where an individual can find more technical information on registers and blocks.
- Added a note on the comparator reference current consumption to clarify its source.
- Added a reference to application note 945 where an individual can find more information on factory provided bootloaders.
- Added table 3.2 and 3.3 to outline the pins used for bootloader communication and entry.
- Added table 4.11 "1.8V Internal LDO Voltage Regulator" to give specs on the internal voltage regulator.
- Added the CRC Calculation Time spec for a 256 Byte-block at 48MHz to table 4.4 "Flash Memory".
- Added Table 4.16 "SMBus Peripheral Timing Performance (Master Mode)". The table details minimum and maximum operating frequency for each class, hold times, start times, clock low and clock high periods, and start and stop conditions.
- Added a note in section 5.2 "USB" to clarify the set up for a self powered USB system.
- Added a resistor divider to Figure 5.5 "Self-Powered Connection Diagram for USB Pins".
- Corrected Figure 5.6 "Debug Connection Diagram" to move the pull-up resistor on C2D/RSTb to after the series resistor instead of before.
- Corrected a typo that incorrectly referenced an application note.

Reason for Change

The power consumption number changes are due to a previously incorrectly calibrated internal low dropout regulator that has now been corrected. The remaining changes are minor updates and are part of Silicon Labs continual improvement process.

Impact on Form, Fit, Function, Quality, Reliability

The current consumption numbers have increased in normal and idle mode. This may increase the total power consumed by the device. The package specifications in the data sheet have been updated to better reflect the actual package dimensions but the physical dimensions of the package have not changed.

Product Identification

EFM8UB10F8G-C-QFN20
EFM8UB10F8G-C-QFN20R
EFM8UB10F16G-C-QFN20
EFM8UB10F16G-C-QFN20R
EFM8UB10F16G-C-QFN28
EFM8UB10F16G-C-QFN28R
EFM8UB11F16G-C-QFN24
EFM8UB11F16G-C-QFN24R
EFM8UB11F16G-C-QSOP24
EFM8UB11F16G-C-QSOP24R

Last Date of Unchanged Product: 9/22/2017

Qualification Samples

Samples available on request

Specific conditions of acceptance of this change will be considered on a case by case basis if written notice is submitted within 30 days of this notice. To request further data or inquire about this notification, please contact your local Silicon Labs sales representative. A list of Silicon Labs sales representatives is available at <http://www.silabs.com>.

In some cases rejection of a change notice may impact Silicon Labs product pricing, delivery, quality, or reliability.

Customer Early Acceptance Sign Off

Customers may approve early PCN acceptance by completing the information below:

Early Acceptance:

Date: _____

Name: _____

Company: _____

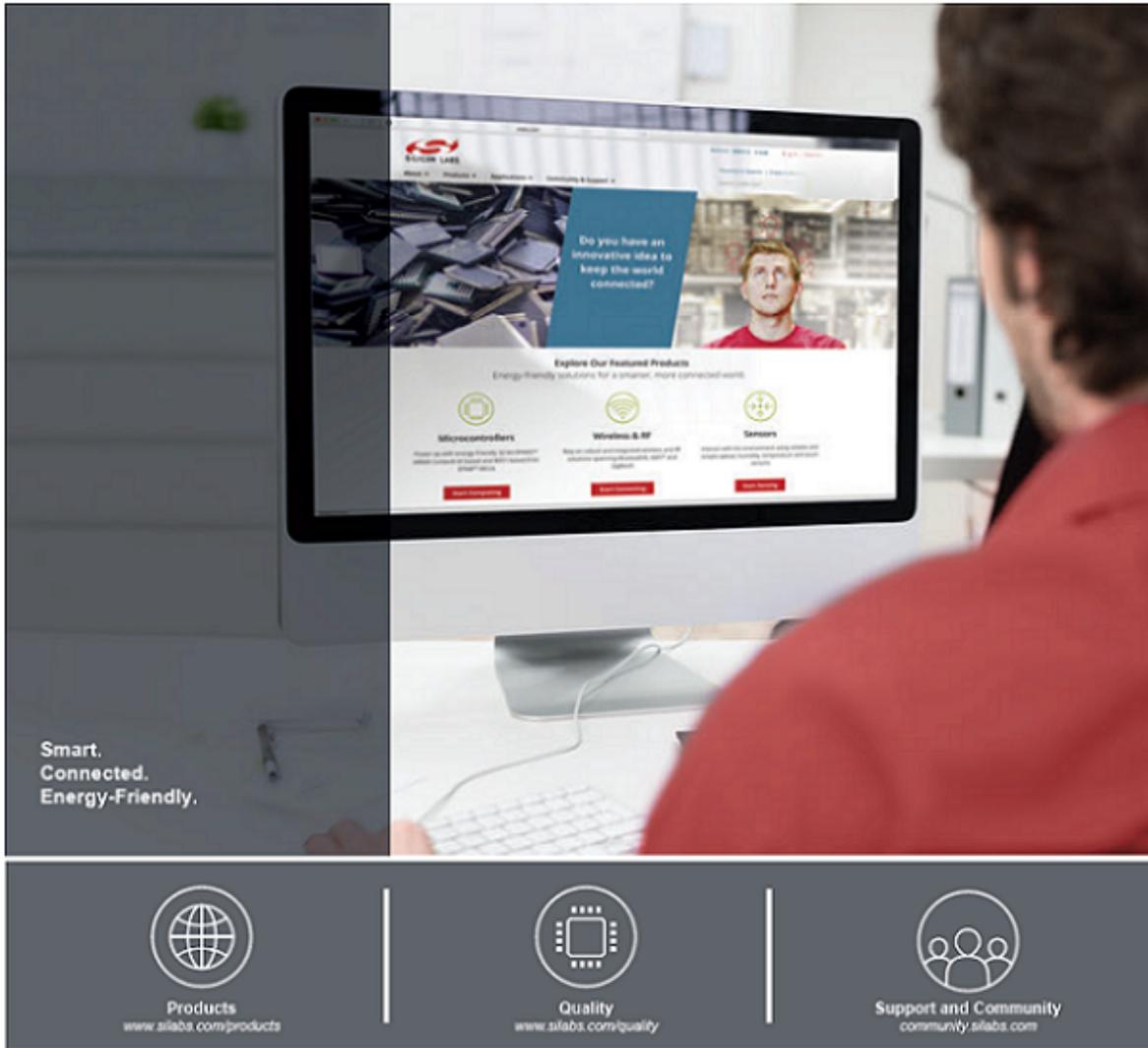
Email your early Acceptance approval to: PCNEarlyAcceptance@silabs.com

User Registration

Register today to create your account on Silabs.com. Your personalized profile allows you to receive technical document updates, new product announcements, "how-to" and design documents, product change notices (PCN) and other valuable content available only to registered users. <http://www.silabs.com/profile>

Qualification Data

Qualification data available on request



Disclaimer

Silicon Labs intends to provide customers with the latest, accurate, and in-depth documentation of all peripherals and modules available for system and software implementers using or intending to use the Silicon Labs products. Characterization data, available modules and peripherals, memory sizes and memory addresses refer to each specific device, and "Typical" parameters provided can and do vary in different applications. Application examples described herein are for illustrative purposes only. Silicon Labs reserves the right to make changes without further notice and limitation to product information, specifications, and descriptions herein, and does not give warranties as to the accuracy or completeness of the included information. Silicon Labs shall have no liability for the consequences of use of the information supplied herein. This document does not imply or express copyright licenses granted hereunder to design or fabricate any integrated circuits. The products are not designed or authorized to be used within any Life Support System without the specific written consent of Silicon Labs. A "Life Support System" is any product or system intended to support or sustain life and/or health, which, if it fails, can be reasonably expected to result in significant personal injury or death. Silicon Labs products are not designed or authorized for military applications. Silicon Labs products shall under no circumstances be used in weapons of mass destruction including (but not limited to) nuclear, biological or chemical weapons, or missiles capable of delivering such weapons.

Trademark Information

Silicon Laboratories Inc.®, Silicon Laboratories®, Silicon Labs®, SiLabs® and the Silicon Labs logo®, Bluegiga®, Bluegiga Logo®, Clockbuilder®, CMEMS®, DSPLL®, EFM®, EFM32®, EFR, Ember®, Energy Micro, Energy Micro logo and combinations thereof, "the world's most energy friendly microcontrollers", Ember®, EZLink®, EZRadio®, EZRadioPRO®, Gecko®, ISModem®, Micrium, Precision32®, ProSLIC®, Simplicity Studio®, SiPHY®, Telegesis, the Telegesis Logo®, USBXpress®, Zentri and others are trademarks or registered trademarks of Silicon Labs. ARM, CORTEX, Cortex-M3 and THUMB are trademarks or registered trademarks of ARM Holdings. Keil is a registered trademark of ARM Limited. All other products or brand names mentioned herein are trademarks of their respective holders.



Silicon Laboratories Inc.
400 West Cesar Chavez
Austin, TX 78701

<http://www.silabs.com>