



180821367 Revision B for EFM32GG11B* MCU Product Family

PRCN Issue Date: 8/21/2018

Effective Date: 11/27/2018

PCN Type: Product Revision

Description of Change

Silicon Labs is pleased to announce product revision B of the EFM32GG11Bxxx (Giant Gecko Series 1) family of 32-bit MCUs, along with updated datasheet, reference manual, and errata. The new revision is a pin-compatible replacement for the previous revision A family of devices.

The EFM32GG11 Family data sheet is updated to version 1.0, the Reference Manual is updated to version 1.0, and the Errata is updated to 0.4.

Revision B affects the Errata document in the following ways:

- Added newly discovered and inadvertently missing errata: ADC_E228, CSEN_E201, CSEN_E202, and I2C_E206.
- Edited errata: CMU_E204, CORE_E203, CORE_E204, CORE_E205, and CORE_E206 reclassified as MSC_E201, MSC_E202, MSC_E203, and MSC_E204 with clarified wording.
- Resolved errata: ADC_E224, ADC_E225, ADC_E228, BU_E201, BU_E202, CMU_E203, CMU_E204, CORE_E205/MS_C_E203, EMU_E214, GPIO_E202, I2C_E202, I2C_E203, I2C_E205, LCD_E201, RMU_E203, RTCC_E205, SDIO_E201, USB_E201, USB_E202, VDACC_E201, and VDACC_E202.

See the EFM32GG11 Errata document for complete details.

Revision B includes several updated specifications in the data sheet; the key changes are summarized below (table and figure numbers refer to the previous EFM32GG11 v0.6 datasheet):

- Section 1: Reworded the bootloader functionality to defer the specific bootloader implementation to the bootloader App Notes, which list the supported devices.
- Table 2.1: Updated ordering information to include revision B in the part numbers.
- Section 4.1: Updated electrical characteristics with latest data and production test limits. All previous "TBDs" are now resolved.
- Section 4.1.27: Updated SDIO mode timing with final timing conditions and specifications for Rev B silicon.
- Section 4.1.28: Updated QSPI timing specifications with final timing conditions and specifications for Rev B silicon.
- Table 4.20: Added R_USB parameter to the GPIO Table.
- Table 4.50, Table 4.51, Table 4.56, Table 4.58: Removed the specification for "clock fall time".
- Table 5.3, Table 5.4, Table 5.5: Corrected ball numbering on the BGA120 package.
- Table 5.20: Re-ordered the GPIO table alphabetically.
- Section 7.2: Corrected dimension "X" in the BGA152 PCB land pattern.

The Revision History section of the updated data sheet also summarizes these changes.

Reason for Change

Revision to die to correct errata. Also updated specifications based on the results of additional silicon characterization.

Impact on Form, Fit, Function, Quality, Reliability

There is no impact to form, fit, quality, or reliability.

The following functions are impacted:

- Updated device revision information in ROM Table (PID0 – PID3 registers):
 - Minor Revision will now read 0x01 (Rev B) instead of 0x00 (Rev A).
- Resolved errata: ADC_E224, ADC_E225, ADC_E228, BU_E201, BU_E202, CMU_E203, CMU_E204, CORE_E205/MSC_E203, EMU_E214, GPIO_E202, I2C_E202, I2C_E203, I2C_E205, LCD_E201, RMU_E203, RTCC_E205, SDIO_E201, USB_E201, USB_E202, VDAC_E201, and VDAC_E202.
- Changes to electrical characteristics.
 - Resolved "TBDs" throughout Section 4.1 (Electrical Characteristics).
 - Section 4.1.27: SDIO timing and parameters now finalized for Rev B silicon.
 - Section 4.1.28: QSPI timing and parameters now finalized for Rev B silicon.
 - Table 4.20: Added spec for external series resistor required for USB.

Product Identification

| Existing Part # | Replacement Part # | DropInCompInd. |
|----------------------------|----------------------------|----------------|
| EFM32GG11B110F2048GM64-A | EFM32GG11B110F2048GM64-B | Yes |
| EFM32GG11B110F2048GM64-AR | EFM32GG11B110F2048GM64-BR | Yes |
| EFM32GG11B110F2048GQ64-A | EFM32GG11B110F2048GQ64-B | Yes |
| EFM32GG11B110F2048GQ64-AR | EFM32GG11B110F2048GQ64-BR | Yes |
| EFM32GG11B110F2048IM64-A | EFM32GG11B110F2048IM64-B | Yes |
| EFM32GG11B110F2048IM64-AR | EFM32GG11B110F2048IM64-BR | Yes |
| EFM32GG11B110F2048IQ64-A | EFM32GG11B110F2048IQ64-B | Yes |
| EFM32GG11B110F2048IQ64-AR | EFM32GG11B110F2048IQ64-BR | Yes |
| EFM32GG11B120F2048GM64-A | EFM32GG11B120F2048GM64-B | Yes |
| EFM32GG11B120F2048GM64-AR | EFM32GG11B120F2048GM64-BR | Yes |
| EFM32GG11B120F2048GQ64-A | EFM32GG11B120F2048GQ64-B | Yes |
| EFM32GG11B120F2048GQ64-AR | EFM32GG11B120F2048GQ64-BR | Yes |
| EFM32GG11B120F2048IM64-A | EFM32GG11B120F2048IM64-B | Yes |
| EFM32GG11B120F2048IM64-AR | EFM32GG11B120F2048IM64-BR | Yes |
| EFM32GG11B120F2048IQ64-A | EFM32GG11B120F2048IQ64-B | Yes |
| EFM32GG11B120F2048IQ64-AR | EFM32GG11B120F2048IQ64-BR | Yes |
| EFM32GG11B310F2048GL112-A | EFM32GG11B310F2048GL112-B | Yes |
| EFM32GG11B310F2048GL112-AR | EFM32GG11B310F2048GL112-BR | Yes |
| EFM32GG11B310F2048GQ100-A | EFM32GG11B310F2048GQ100-B | Yes |
| EFM32GG11B310F2048GQ100-AR | EFM32GG11B310F2048GQ100-BR | Yes |
| EFM32GG11B320F2048GL112-A | EFM32GG11B320F2048GL112-B | Yes |
| EFM32GG11B320F2048GL112-AR | EFM32GG11B320F2048GL112-BR | Yes |
| EFM32GG11B320F2048GQ100-A | EFM32GG11B320F2048GQ100-B | Yes |
| EFM32GG11B320F2048GQ100-AR | EFM32GG11B320F2048GQ100-BR | Yes |
| EFM32GG11B3X0F2048GQ100-A | EFM32GG11B3X0F2048GQ100-B | Yes |
| EFM32GG11B3X0F2048GQ100-AR | EFM32GG11B3X0F2048GQ100-BR | Yes |
| EFM32GG11B420F2048GL112-A | EFM32GG11B420F2048GL112-B | Yes |
| EFM32GG11B420F2048GL112-AR | EFM32GG11B420F2048GL112-BR | Yes |
| EFM32GG11B420F2048GL120-A | EFM32GG11B420F2048GL120-B | Yes |
| EFM32GG11B420F2048GL120-AR | EFM32GG11B420F2048GL120-BR | Yes |
| EFM32GG11B420F2048GM64-A | EFM32GG11B420F2048GM64-B | Yes |
| EFM32GG11B420F2048GM64-AR | EFM32GG11B420F2048GM64-BR | Yes |
| EFM32GG11B420F2048GQ100-A | EFM32GG11B420F2048GQ100-B | Yes |
| EFM32GG11B420F2048GQ100-AR | EFM32GG11B420F2048GQ100-BR | Yes |
| EFM32GG11B420F2048GQ64-A | EFM32GG11B420F2048GQ64-B | Yes |
| EFM32GG11B420F2048GQ64-AR | EFM32GG11B420F2048GQ64-BR | Yes |
| EFM32GG11B420F2048IL112-A | EFM32GG11B420F2048IL112-B | Yes |
| EFM32GG11B420F2048IL112-AR | EFM32GG11B420F2048IL112-BR | Yes |
| EFM32GG11B420F2048IL120-A | EFM32GG11B420F2048IL120-B | Yes |
| EFM32GG11B420F2048IL120-AR | EFM32GG11B420F2048IL120-BR | Yes |
| EFM32GG11B420F2048IM64-A | EFM32GG11B420F2048IM64-B | Yes |
| EFM32GG11B420F2048IM64-AR | EFM32GG11B420F2048IM64-BR | Yes |
| EFM32GG11B420F2048IQ100-A | EFM32GG11B420F2048IQ100-B | Yes |
| EFM32GG11B420F2048IQ100-AR | EFM32GG11B420F2048IQ100-BR | Yes |
| EFM32GG11B420F2048IQ64-A | EFM32GG11B420F2048IQ64-B | Yes |
| EFM32GG11B420F2048IQ64-AR | EFM32GG11B420F2048IQ64-BR | Yes |
| EFM32GG11B510F2048GL120-A | EFM32GG11B510F2048GL120-B | Yes |
| EFM32GG11B510F2048GL120-AR | EFM32GG11B510F2048GL120-BR | Yes |
| EFM32GG11B510F2048GM64-A | EFM32GG11B510F2048GM64-B | Yes |
| EFM32GG11B510F2048GM64-AR | EFM32GG11B510F2048GM64-BR | Yes |
| EFM32GG11B510F2048GQ100-A | EFM32GG11B510F2048GQ100-B | Yes |
| EFM32GG11B510F2048GQ100-AR | EFM32GG11B510F2048GQ100-BR | Yes |

| | | |
|----------------------------|----------------------------|-----|
| EFM32GG11B510F2048GQ64-A | EFM32GG11B510F2048GQ64-B | Yes |
| EFM32GG11B510F2048GQ64-AR | EFM32GG11B510F2048GQ64-BR | Yes |
| EFM32GG11B510F2048IL120-A | EFM32GG11B510F2048IL120-B | Yes |
| EFM32GG11B510F2048IL120-AR | EFM32GG11B510F2048IL120-BR | Yes |
| EFM32GG11B510F2048IM64-A | EFM32GG11B510F2048IM64-B | Yes |
| EFM32GG11B510F2048IM64-AR | EFM32GG11B510F2048IM64-BR | Yes |
| EFM32GG11B510F2048IQ100-A | EFM32GG11B510F2048IQ100-B | Yes |
| EFM32GG11B510F2048IQ100-AR | EFM32GG11B510F2048IQ100-BR | Yes |
| EFM32GG11B510F2048IQ64-A | EFM32GG11B510F2048IQ64-B | Yes |
| EFM32GG11B510F2048IQ64-AR | EFM32GG11B510F2048IQ64-BR | Yes |
| EFM32GG11B520F2048GL120-A | EFM32GG11B520F2048GL120-B | Yes |
| EFM32GG11B520F2048GL120-AR | EFM32GG11B520F2048GL120-BR | Yes |
| EFM32GG11B520F2048GM64-A | EFM32GG11B520F2048GM64-B | Yes |
| EFM32GG11B520F2048GM64-AR | EFM32GG11B520F2048GM64-BR | Yes |
| EFM32GG11B520F2048GQ100-A | EFM32GG11B520F2048GQ100-B | Yes |
| EFM32GG11B520F2048GQ100-AR | EFM32GG11B520F2048GQ100-BR | Yes |
| EFM32GG11B520F2048GQ64-A | EFM32GG11B520F2048GQ64-B | Yes |
| EFM32GG11B520F2048GQ64-AR | EFM32GG11B520F2048GQ64-BR | Yes |
| EFM32GG11B520F2048IL120-A | EFM32GG11B520F2048IL120-B | Yes |
| EFM32GG11B520F2048IL120-AR | EFM32GG11B520F2048IL120-BR | Yes |
| EFM32GG11B520F2048IM64-A | EFM32GG11B520F2048IM64-B | Yes |
| EFM32GG11B520F2048IM64-AR | EFM32GG11B520F2048IM64-BR | Yes |
| EFM32GG11B520F2048IQ100-A | EFM32GG11B520F2048IQ100-B | Yes |
| EFM32GG11B520F2048IQ100-AR | EFM32GG11B520F2048IQ100-BR | Yes |
| EFM32GG11B520F2048IQ64-A | EFM32GG11B520F2048IQ64-B | Yes |
| EFM32GG11B520F2048IQ64-AR | EFM32GG11B520F2048IQ64-BR | Yes |
| EFM32GG11B5X0F2048GQ100-A | EFM32GG11B5X0F2048GQ100-B | Yes |
| EFM32GG11B5X0F2048GQ100-AR | EFM32GG11B5X0F2048GQ100-BR | Yes |
| EFM32GG11B820F2048GL120-A | EFM32GG11B820F2048GL120-B | Yes |
| EFM32GG11B820F2048GL120-AR | EFM32GG11B820F2048GL120-BR | Yes |
| EFM32GG11B820F2048GL152-A | EFM32GG11B820F2048GL152-B | Yes |
| EFM32GG11B820F2048GL152-AR | EFM32GG11B820F2048GL152-BR | Yes |
| EFM32GG11B820F2048GL192-A | EFM32GG11B820F2048GL192-B | Yes |
| EFM32GG11B820F2048GL192-AR | EFM32GG11B820F2048GL192-BR | Yes |
| EFM32GG11B820F2048GM64-A | EFM32GG11B820F2048GM64-B | Yes |
| EFM32GG11B820F2048GM64-AR | EFM32GG11B820F2048GM64-BR | Yes |
| EFM32GG11B820F2048GQ100-A | EFM32GG11B820F2048GQ100-B | Yes |
| EFM32GG11B820F2048GQ100-AR | EFM32GG11B820F2048GQ100-BR | Yes |
| EFM32GG11B820F2048GQ64-A | EFM32GG11B820F2048GQ64-B | Yes |
| EFM32GG11B820F2048GQ64-AR | EFM32GG11B820F2048GQ64-BR | Yes |
| EFM32GG11B820F2048IL120-A | EFM32GG11B820F2048IL120-B | Yes |
| EFM32GG11B820F2048IL120-AR | EFM32GG11B820F2048IL120-BR | Yes |
| EFM32GG11B820F2048IL152-A | EFM32GG11B820F2048IL152-B | Yes |
| EFM32GG11B820F2048IL152-AR | EFM32GG11B820F2048IL152-BR | Yes |
| EFM32GG11B820F2048IM64-A | EFM32GG11B820F2048IM64-B | Yes |
| EFM32GG11B820F2048IM64-AR | EFM32GG11B820F2048IM64-BR | Yes |
| EFM32GG11B820F2048IQ100-A | EFM32GG11B820F2048IQ100-B | Yes |
| EFM32GG11B820F2048IQ100-AR | EFM32GG11B820F2048IQ100-BR | Yes |
| EFM32GG11B820F2048IQ64-A | EFM32GG11B820F2048IQ64-B | Yes |
| EFM32GG11B820F2048IQ64-AR | EFM32GG11B820F2048IQ64-BR | Yes |
| EFM32GG11B840F1024GL120-A | EFM32GG11B840F1024GL120-B | Yes |
| EFM32GG11B840F1024GL120-AR | EFM32GG11B840F1024GL120-BR | Yes |
| EFM32GG11B840F1024GL152-A | EFM32GG11B840F1024GL152-B | Yes |
| EFM32GG11B840F1024GL152-AR | EFM32GG11B840F1024GL152-BR | Yes |
| EFM32GG11B840F1024GL192-A | EFM32GG11B840F1024GL192-B | Yes |
| EFM32GG11B840F1024GL192-AR | EFM32GG11B840F1024GL192-BR | Yes |
| EFM32GG11B840F1024GM64-A | EFM32GG11B840F1024GM64-B | Yes |
| EFM32GG11B840F1024GM64-AR | EFM32GG11B840F1024GM64-BR | Yes |
| EFM32GG11B840F1024GQ100-A | EFM32GG11B840F1024GQ100-B | Yes |
| EFM32GG11B840F1024GQ100-AR | EFM32GG11B840F1024GQ100-BR | Yes |
| EFM32GG11B840F1024GQ64-A | EFM32GG11B840F1024GQ64-B | Yes |
| EFM32GG11B840F1024GQ64-AR | EFM32GG11B840F1024GQ64-BR | Yes |
| EFM32GG11B840F1024IL120-A | EFM32GG11B840F1024IL120-B | Yes |
| EFM32GG11B840F1024IL120-AR | EFM32GG11B840F1024IL120-BR | Yes |
| EFM32GG11B840F1024IL152-A | EFM32GG11B840F1024IL152-B | Yes |
| EFM32GG11B840F1024IL152-AR | EFM32GG11B840F1024IL152-BR | Yes |
| EFM32GG11B840F1024IM64-A | EFM32GG11B840F1024IM64-B | Yes |

| | | |
|----------------------------|----------------------------|-----|
| EFM32GG11B840F1024IM64-AR | EFM32GG11B840F1024IM64-BR | Yes |
| EFM32GG11B840F1024IQ100-A | EFM32GG11B840F1024IQ100-B | Yes |
| EFM32GG11B840F1024IQ100-AR | EFM32GG11B840F1024IQ100-BR | Yes |
| EFM32GG11B840F1024IQ64-A | EFM32GG11B840F1024IQ64-B | Yes |
| EFM32GG11B840F1024IQ64-AR | EFM32GG11B840F1024IQ64-BR | Yes |

*"X" denotes a custom character.

Last Date of Unchanged Product: 11/27/2018

Qualification Samples

Samples available upon request.

Customer Response

Lack of acknowledgment of the PCN within 30 days constitutes acceptance of the change, Ref. JEDEC-J-STD-046.

To request further data or inquire about this notification, please contact your Silicon Labs sales representative. A list of Silicon Labs sales representatives is available at <http://www.silabs.com>.

Customers may approve early PCN acceptance by emailing approval, along with PCN # to PCNEarlyAcceptance@silabs.com

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Qualification Data

See Appendix of this PCN.



EFM32GG11 Qualification Report

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| Part Rev B, TSMC Fabrication, ASEKR Assembly except as noted | | | | | | | |
|--|---|---------------|-----------------|------------------|-------|---------|-------------|
| Test Name | Test Condition | Qualification | Lot ID or Start | Fail/Pass or End | Notes | Summary | Status |
| Test Group A – Accelerated Environment Stress Tests - 16X16 TQFP | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q041916 | 0/28 | 1 | | Pass |
| | | | Q041920 | 0/28 | 1 | 3 lots | |
| | | | Q042690 | 0/28 | 1 | 0/84 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041917 | 0/28 | 1 | | In Progress |
| | | | Q041921 | 0/28 | 1 | 3 lots | |
| | | | Q042691 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q041918 | 0/26 | 1 | | Pass |
| | | | Q041922 | 0/27 | 1 | 3 lots | |
| | | | Q042692 | 0/27 | 1 | 0/80 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q041923 | 0/27 | 1 | | Pass |
| | | | Q041919 | 0/27 | 1 | 3 lots | |
| | | | Q042693 | 0/27 | 1 | 0/81 | |
| Test Group A – Accelerated Environment Stress Tests - 7x7 VFBGA | | | | | | | |
| HAST | JA110 110°C, 85%RH Vcc=3.8V, 264 hours | 3 lots, N=>77 | Q040951 | 0/28 | 1 | | Pass |
| | | | Q041803 | 0/28 | 1 | 3 lots | |
| | | | Q041807 | 0/28 | 1 | 0/84 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041802 | 0/28 | 1 | | Pass |
| | | | Q040950 | 0/28 | 1 | 3 lots | |
| | | | Q041806 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q041805 | 0/27 | 1 | | Pass |
| | | | Q041801 | 0/27 | 1 | 3 lots | |
| | | | Q040949 | 0/27 | 1 | 0/81 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q040952 | 0/27 | 1 | | Pass |
| | | | Q041804 | 0/27 | 1 | 3 lots | |
| | | | Q041808 | 0/27 | 1 | 0/81 | |
| Test Group A – Accelerated Environment Stress Tests - 14x14 TQFP, ASECL | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q041606 | 0/27 | 1 | | Pass |
| | | | Q041621 | 0/27 | 1 | 3 lots | |
| | | | Q041116 | 0/27 | 1 | 0/81 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041119 | 0/28 | 1 | | Pass |
| | | | Q041624 | 0/28 | 1 | 3 lots | |
| | | | Q041609 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q041608 | 0/28 | 1 | | Pass |
| | | | Q041118 | 0/28 | 1 | 3 lots | |
| | | | Q041623 | 0/28 | 1 | 0/84 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q041607 | 0/28 | 1 | | Pass |
| | | | Q041622 | 0/28 | 1 | 3 lots | |
| | | | Q041117 | 0/28 | 1 | 0/84 | |



EFM32GG11 Qualification Report

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| Part Rev B, TSMC Fabrication, ASEKR Assembly except as noted | | | | | | | |
|--|---|---------------|-----------------|------------------|-------|---------|--------|
| Test Name | Test Condition | Qualification | Lot ID or Start | Fail/Pass or End | Notes | Summary | Status |
| Test Group A – Accelerated Environment Stress Tests - 10x10 LFBGA | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q040951 | 0/28 | 1 | | Pass |
| | | | Q041803 | 0/28 | 1 | 3 lots | |
| | | | Q041807 | 0/28 | 1 | 0/84 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041802 | 0/28 | 1 | | Pass |
| | | | Q040950 | 0/28 | 1 | 3 lots | |
| | | | Q041806 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q042208 | 0/27 | 1 | | Pass |
| | | | Q042695 | 0/27 | 1 | 3 lots | |
| | | | Q042694 | 0/27 | 1 | 0/81 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q040952 | 0/27 | 1 | | Pass |
| | | | Q041804 | 0/27 | 1 | 3 lots | |
| | | | Q041808 | 0/27 | 1 | 0/81 | |
| Test Group A – Accelerated Environment Stress Tests - 8x8 LFBGA | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q040951 | 0/28 | 1 | | Pass |
| | | | Q041803 | 0/28 | 1 | 3 lots | |
| | | | Q041807 | 0/28 | 1 | 0/84 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041802 | 0/28 | 1 | | Pass |
| | | | Q040950 | 0/28 | 1 | 3 lots | |
| | | | Q041806 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q042457 | 0/30 | 1 | | Pass |
| | | | Q042531 | 0/30 | 1 | 3 lots | |
| | | | Q042530 | 0/30 | 1 | 0/90 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q040952 | 0/27 | 1 | | Pass |
| | | | Q041804 | 0/27 | 1 | 3 lots | |
| | | | Q041808 | 0/27 | 1 | 0/81 | |
| Test Group A – Accelerated Environment Stress Tests - 9x9 QFN | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q041912 | 0/27 | 1 | | Pass |
| | | | Q041908 | 0/28 | 1 | 3 lots | |
| | | | Q042686 | 0/27 | 1 | 0/82 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041913 | 0/28 | 1 | | Pass |
| | | | Q041909 | 0/28 | 1 | 3 lots | |
| | | | Q042687 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q041914 | 0/27 | 1 | | Pass |
| | | | Q041910 | 0/27 | 1 | 3 lots | |
| | | | Q042688 | 0/27 | 1 | 0/81 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q041915 | 0/27 | 1 | | Pass |
| | | | Q041911 | 0/27 | 1 | 3 lots | |
| | | | Q042689 | 0/27 | 1 | 0/81 | |



EFM32GG11 Qualification Report

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| Part Rev B, TSMC Fabrication, ASEKR Assembly except as noted | | | | | | | |
|--|--|----------------|-----------------|------------------|-------|---------|-----------|
| Test Name | Test Condition | Qualification | Lot ID or Start | Fail/Pass or End | Notes | Summary | Status |
| Test Group A – Accelerated Environment Stress Tests - 7x7 VFBGA | | | | | | | |
| HAST | JA110 130°C, 85%RH Vcc=3.8V, 96 hours | 3 lots, N=>77 | Q040951 | 0/28 | 1 | | Pass |
| | | | Q041803 | 0/28 | 1 | 3 lots | |
| | | | Q041807 | 0/28 | 1 | 0/84 | |
| UHAST | JA110 130°C, 85%RH 96 hours | 3 lots, N=>77 | Q041802 | 0/28 | 1 | | Pass |
| | | | Q040950 | 0/28 | 1 | 3 lots | |
| | | | Q041806 | 0/28 | 1 | 0/84 | |
| Temp Cycle | JA104 Cond C: -65°C to 150°C 500 cycles | 3 lots, N=>77 | Q042227 | 0/27 | 1 | | Pass |
| | | | Q041801 | 0/27 | 1 | 3 lots | |
| | | | Q040949 | 0/27 | 1 | 0/81 | |
| HTSL | JA103 150°C, 1000hr | 1 lot, N=>45 | Q040952 | 0/27 | 1 | | Pass |
| | | | Q041804 | 0/27 | 1 | 3 lots | |
| | | | Q041808 | 0/27 | 1 | 0/81 | |
| Test Group B – Accelerated Lifetime Simulation Tests | | | | | | | |
| HTOL | JA108 T _j ≥ 125°C, Dynamic Vcc=3.8V, 1000 hours | 3 lots, N=>77 | Q040945 | 0/89 | | | Pass |
| | | | Q041681 | 0/90 | | 3 lots | |
| | | | Q041680 | 0/90 | | 0/269 | |
| LTOL | JA108 -10°C, Dynamic Vcc=3.8V, 1000 hours | 1 lot, N=>77 | Q040261 | 0/35 | | | Pass |
| | | | | | | 1 lots | |
| ELFR | JESD22-A108 T _j ≥ 125°C, Dynamic Vcc=3.8V, 48 hours | 3 lots, N=>800 | Q040944 | 0/518 | | | Pass |
| | | | Q041474 | 0/519 | | 4 lots | |
| | | | Q041637 | 0/518 | | | |
| | | | Q041637 | 0/518 | | 0/2073 | |
| NVM Endurance, Retention and Operating Life | JESD22-A117 25°C 500 hours | 3 lots, N=>39 | Q041577 | 0/39 | 2 | | Pass |
| | | | Q040960 | 0/40 | 2 | 3 lots | |
| | | | Q041578 | 0/39 | 2 | 0/118 | |
| NVM Endurance, Retention and Operating Life | JESD22-A117 150°C 1000 hours | 3 lots, N=>39 | Q041533 | 0/40 | 3 | | Pass |
| | | | Q041534 | 0/39 | 3 | 3 lots | |
| | | | Q041092 | 0/40 | 3 | 0/119 | |
| Test Group E – Electrical Verification | | | | | | | |
| ESD-HBM | JS-001 | 1 lot, N=>3 | Q040946 | | | 2.5 kV | Class 2 |
| ESD-CDM | JC101 | 1 lot, N=>3 | Q042860 | | 5 | 750V | Class C2B |
| | | | Q041152 | | 6 | -300V | Class C1 |
| | | | Q041153 | | 7 | +450V | Class C1 |
| ESD-CDM | JS-002 | 1 lot, N=>3 | Q042896 | | 4 | 1250 V | Class C3 |
| | | | Q042211 | | 8 | 1000 V | Class C3 |
| | | | Q042314 | | 9 | 800 V | Class C2B |
| | | | Q041837 | | 10 | 1500 V | Class C3 |
| | | | Q042228 | | 11 | 1000 V | Class C3 |
| Latch Up | JESD78 ±100mA | 1 lot, N=>3 | Q040954 | 25 °C | | | Pass |
| | | | Q040953 | 125 °C | | | Pass |



EFM32GG11 Qualification Report

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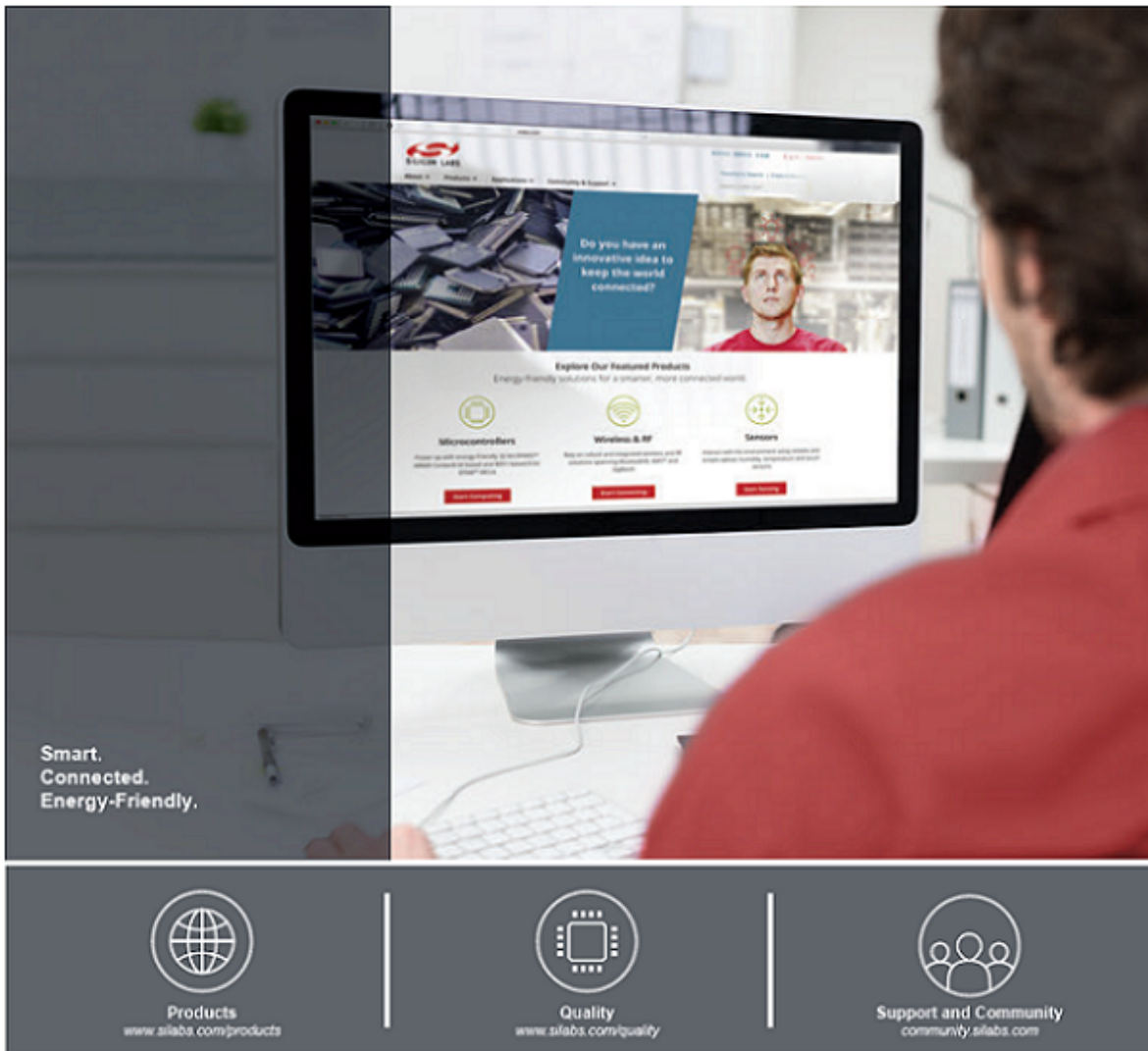
| Part Rev B, TSMC Fabrication, ASEKR Assembly except as noted | | | | | | | |
|--|----------------|---------------|-----------------|------------------|-------|---------|--------|
| Test Name | Test Condition | Qualification | Lot ID or Start | Fail/Pass or End | Notes | Summary | Status |

Notes:

1. Parts are Pre-conditioned at MSL3/260°C
2. Preconditioned with 10K write/erase cycles at 25°C
3. Preconditioned with 10K write/erase cycles at 125°C
4. 10x10 TQFP
5. 7x7 VFBGA
6. 14x14 TQFP Tested to negative polarity only
7. 14x14 TQFP Tested to positive polarity only
8. 10x10 LFBGA
9. 8x8 LFBGA
10. 9x9 QFN
11. 7x7 VFBGA

This report applies to the following part numbers:

| | | |
|--------------------------|---------------------------|---------------------------|
| EFM32GG11B110F2048GM64-B | EFM32GG11B840F1024GQ64-B | EFM32GG11B590F2048GQ100-B |
| EFM32GG11B110F2048IM64-B | EFM32GG11B840F1024IQ64-B | EFM32GG11B820F2048GQ100-B |
| EFM32GG11B120F2048GM64-B | EFM32GG11B110F2048GQ64-B | EFM32GG11B820F2048IQ100-B |
| EFM32GG11B120F2048IM64-B | EFM32GG11B110F2048IQ64-B | EFM32GG11B840F1024GQ100-B |
| EFM32GG11B420F2048GM64-B | EFM32GG11B120F2048GQ64-B | EFM32GG11B840F1024IQ100-B |
| EFM32GG11B420F2048IM64-B | EFM32GG11B120F2048IQ64-B | EFM32GG11B310F2048GL112-B |
| EFM32GG11B510F2048GM64-B | EFM32GG11B420F2048GQ64-B | EFM32GG11B320F2048GL112-B |
| EFM32GG11B510F2048IM64-B | EFM32GG11B420F2048IQ64-B | EFM32GG11B420F2048GL112-B |
| EFM32GG11B520F2048GM64-B | EFM32GG11B510F2048GQ64-B | EFM32GG11B420F2048IL112-B |
| EFM32GG11B520F2048IM64-B | EFM32GG11B510F2048IQ64-B | EFM32GG11B420F2048GL120-B |
| EFM32GG11B820F2048GM64-B | EFM32GG11B520F2048GQ64-B | EFM32GG11B420F2048IL120-B |
| EFM32GG11B820F2048IM64-B | EFM32GG11B520F2048IQ64-B | EFM32GG11B510F2048GL120-B |
| EFM32GG11B840F1024GM64-B | EFM32GG11B820F2048GQ64-B | EFM32GG11B510F2048IL120-B |
| EFM32GG11B840F1024IM64-B | EFM32GG11B820F2048IQ64-B | EFM32GG11B520F2048GL120-B |
| EFM32GG11B110F2048GQ64-B | EFM32GG11B840F1024GQ64-B | EFM32GG11B520F2048IL120-B |
| EFM32GG11B110F2048IQ64-B | EFM32GG11B840F1024IQ64-B | EFM32GG11B820F2048GL120-B |
| EFM32GG11B120F2048GQ64-B | EFM32GG11B310F2048GQ100-B | EFM32GG11B820F2048IL120-B |
| EFM32GG11B120F2048IQ64-B | EFM32GG11B320F2048GQ100-B | EFM32GG11B840F1024GL120-B |
| EFM32GG11B420F2048GQ64-B | EFM32GG11B390F2048GQ100-B | EFM32GG11B840F1024IL120-B |
| EFM32GG11B420F2048IQ64-B | EFM32GG11B420F2048GQ100-B | EFM32GG11B820F2048GL152-B |
| EFM32GG11B510F2048GQ64-B | EFM32GG11B420F2048IQ100-B | EFM32GG11B820F2048IL152-B |
| EFM32GG11B510F2048IQ64-B | EFM32GG11B510F2048GQ100-B | EFM32GG11B840F1024GL152-B |
| EFM32GG11B520F2048GQ64-B | EFM32GG11B510F2048IQ100-B | EFM32GG11B840F1024IL152-B |
| EFM32GG11B520F2048IQ64-B | EFM32GG11B520F2048GQ100-B | EFM32GG11B820F2048GL192-B |
| EFM32GG11B820F2048GQ64-B | EFM32GG11B520F2048IQ100-B | EFM32GG11B840F1024GL192-B |
| EFM32GG11B820F2048IQ64-B | | |



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