



Revision Change Notice #1601051

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PCN Date: 1/5/2016		Effective Date: 9/11/2015	
Title: Addendum to 1508072 EFM8BB2x Revision C			
Originator: Kafai Leung		Phone: 512-532-5232	Dept: Marketing
Customer Contact: Kathy Haggar		Phone: 512-532-5261	Dept: Sales
PCN Type: <input checked="" type="checkbox"/> Datasheet <input checked="" type="checkbox"/> Product Revision			
PCN Details			
Description of Change: This Addendum is being issued to correct typos in PCN #1508072. The following sentence in the Form, Fit, Function, Quality, Reliability section: <ul style="list-style-type: none"> - The reset value of REVID SFR will read 0x03 for revision C instead of 0x02 for revision B or 0x01 for revision A Is being changed to read: <ul style="list-style-type: none"> - The reset value of REVID SFR will read 0x04 for revision C instead of 0x03 for revision B or 0x02 for revision A. The original PCN with the correction is listed below: Silicon Labs is pleased to announce revision C of the EFM8BB2x devices and revision 1.0 of the corresponding datasheet for these products. Revision C resolves the momentary current spike upon entering Shutdown mode. In addition, for customers using Revision B the change to Revision C eliminates a potential issue with the Timer 3/4 32-bit counter not switching to the low frequency oscillator (LFOSC0) after entering Suspend mode if the system clock divider is set to a value of divide-by-4 or greater. This revision allows system clock divider to be at any value when entering Suspend mode. Datasheet revision 1.0 updates the orderable part number to revision C along with other spec table edits in Port I/O spec in Figure 4.6 and Figure 4.7 together with Table 4.13. After the effective date of this PCN, Silicon Labs reserves the right to deliver EFM8BB2xFxG-C (Revision C) for customers ordering EFM8BB2xFxG-B (Revision B).			
Reason for Change: EFM8BB2x Revision C release EFM8BB2x Datasheet revision 1.0 release			



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Impact on Form, Fit, Function, Quality, Reliability:

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

The following functions are impacted:

- The reset value of REVID SFR will read 0x04 for revision C instead of 0x03 for revision B or 0x02 for revision A.
- Behavior with momentary current spike upon entering Shutdown mode has been addressed.
- Behavior with Timer 3/4 at system when system clock divider value of divide-by-4 or greater has been addressed.

Product Identification:

Existing Part Number	Replacement Part Number	Drop in Compatible Indicator
EFM8BB21F16G-B-QFN20	EFM8BB21F16G-C-QFN20	Yes
EFM8BB21F16G-B-QFN20R	EFM8BB21F16G-C-QFN20R	Yes
EFM8BB21F16G-B-QSOP24	EFM8BB21F16G-C-QSOP24	Yes
EFM8BB21F16G-B-QSOP24R	EFM8BB21F16G-C-QSOP24R	Yes
EFM8BB22F16G-B-QFN28	EFM8BB22F16G-C-QFN28	Yes
EFM8BB22F16G-B-QFN28R	EFM8BB22F16G-C-QFN28R	Yes

Note: The part numbers above include tape and reel variants which are denoted with an "R" at the end of the orderable part number.

Last Date of Unchanged Product: 9/11/2015

Qualification Samples:

Samples are available now. Please contact your Silicon Labs sales representative to order samples. A list of Silicon Labs sales representatives is available at www.silabs.com.

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 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: katherine.hagggar@silabs.com

Qualification Data:

See below qualification report.



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EFM8BB2x AEC-Q100 Qualification Report



W7101F1 - Product Qualification Report Record Rev. H

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EFM8BB2x Rev A2/A3/A4, HHGrace Fabrication, ASECL and UTACTH Assembly							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group A – Accelerated Environment Stress Tests - 20QFN - CuPd Wire ASECL							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q037190	0/77	1	3 lots	Pass
			Q037191	0/80	1		
			Q037192	0/80	1		
UFAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q037199	0/81	1	3 lots	Pass
			Q037200	0/80	1		
			Q037202	0/82	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q037196	0/80	1	3 lots	Pass
			Q037197	0/80	1		
			Q037198	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q037193	0/30	1	3 lots	Pass
			Q037194	0/30	1		
			Q037195	0/30	1		
Test Group A – Accelerated Environment Stress Tests - 28QFN - CuPd Wire UTACTH							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q035792	0/80	1	3 lots	Pass
			Q035788	0/77	1		
			Q035789	0/80	1		
UFAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q037163	0/80	1	3 lots	Pass
			Q037164	0/80	1		
			Q037165	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q037160	0/80	1	3 lots	Pass
			Q037161	0/80	1		
			Q037162	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q035682	0/30	1	4 lots	Pass
			Q037977	0/80	1		
			Q037159	0/30	1		
			Q037806	0/45	1		
Test Group A – Accelerated Environment Stress Tests - 24QSOP - CuPd Wire UTACTH							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q036513	0/80	1	3 lots	Pass
			Q036515	0/80	1		
			Q036519	0/80	1		
UFAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q036526	0/80	1	3 lots	Pass
			Q036527	0/80	1		
			Q036528	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q036523	0/80	1	3 lots	Pass
			Q036524	0/80	1		
			Q036525	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q036520	0/28	1	3 lots	Pass
			Q036521	0/28	1		
			Q036522	0/28	1		

EFM8BB2x AEC-Q100 Qualification Report



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EFM8BB2x Rev A2/A3/A4, HHGrace Fabrication, ASECL and UTACTH Assembly							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group A – Accelerated Environment Stress Tests - 24QFN - CuPd Wire UTACTH							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q035792	0/80	1	3 lots	Pass
			Q035788	0/77	1		
			Q035789	0/80	1		
UHASt	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q037163	0/80	1	3 lots	Pass
			Q037164	0/80	1		
			Q037165	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q038520	0/80	1	3 lots	Pass
			Q038521	0/80	1		
			Q038522	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q035682	0/30	1	3 lots	Pass
			Q037977	0/80	1		
			Q037159	0/30	1		
Test Group B – Accelerated Lifetime Simulation Tests							
HTOL	JA108 T _J ≥ 125°C, Dynamic Vcc=3.6V, 1000 hours	3 lots, N=>77	Q035684	0/84		3 lots	Pass
			Q035685	0/84			
			Q037250	0/80			
LTOL	JA108 -40°C, Dynamic Vcc=3.6V, 1000 hours	1 lot, N=>32	Q036550	0/35		1 lots	Pass
ELFR	AEC-Q100-008 T _J ≥ 125°C, Dynamic Vcc=3.6V, 48 hours	3 lots, N=>800	Q035681	0/839		4 lots	Pass
			Q036910	0/839			
			Q037251	0/836			
			Q036509	0/840			
Data Retention High Temp	AEC Q100-005 150°C, 1000hrs	3 lots, N=>39	Q035781	0/45		3 lots	Pass
			Q035783	0/44			
			Q037252	0/45			
Data Retention Low Temp	AEC Q100-005 25°C, 1000hrs	3 lots, N=>38	Q035784	0/45		3 lots	Pass
			Q035786	0/45			
			Q037253	0/45			
NVM P/E Cycling High Temp	AEC Q100-005 85°C, 1000hrs	3 lots, N=>77	Q035787	0/84		3 lots	Pass
			Q035782	0/84			
			Q037254	0/84			
NVM P/E Cycling Lowtemp	AEC Q100-005 55°C, 1000hrs	3 lots, N=>77	Q035791	0/80		3 lots	Pass
			Q035785	0/80			
			Q037255	0/84			

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Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group C – Package Assembly Integrity Tests							
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30 20QFN	Q037487	0/5	2	1 lots 0/5	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30 28QFN	Q037489	0/5	3	1 lots 0/5	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30 24QSOP	Q037707	0/5	4	1 lots 0/5	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30 24QFN	Q038577	0/5	5	1 lots 0/5	Pass
Test Group E – Electrical Verification							
ESD-HBM	AEC-Q100-002	1 lot, N=>3	Q036561 Q035689 Q037643				2 kV 2 kV 2 kV
ESD-CDM	AEC-Q100-011	1 lot, N=>3	Q036705 Q035688 Q037648 Q036558 Q036512 0		2 3 3 3 4 5		1500 V 1250 V 1250 V 1500 V 1500 V
Latch Up	AEC-Q100-004 ±200mA	1 lot, N=>6	Q037647 Q037674	125 °C 25 °C			Pass Pass
Electromagnetic Compatibility	SAE J1752	1 lot, N=>1	Q038023				Pass

Notes:

1. Parts are Pre-conditioned at MSL2/260°C
2. 20-QFN
3. 28-QFN
4. 24-QSOP
5. 24-QFN

This report applies to the following part numbers:	
EFM8BB21F16G-C-QFN20	EFM8BB22F16G-C-QFN28
EFM8BB21F16G-C-QSOP24	EFM8BB22F16I-C-QFN28
EFM8BB21F16I-C-QFN20	
EFM8BB21F16I-C-QSOP24	