



201117929 EFM8 BB3 Silicon Revision D

PRCN Issue Date: 11/17/2020

Effective Date: 2/23/2021

PCN Type: Product Revision

Description of Change

Silicon Labs is pleased to announce the release of revision D of EFM8BB3 devices.

This release is accompanied by version 1.4 of the EFM8BB3 Datasheet, version 1.0 of the EFM8BB3 errata, and version 0.7 of the EFM8BB3 reference manual.

Note: After the effective date of the PRCN, Silicon Labs reserves the right not to accept orders for the old revision.

Reason for Change

Revision D devices resolve 2 errata issues related to LIN communication and external crystal oscillators. LIN communication will now function correctly as errata item UART1_E101 has been resolved. External crystal oscillators are now supported on revision D devices as errata item XOSC_E101 has been resolved.

Please view the version 1.0 of the errata for details on the errata items.

Please see the revision history section of version 1.4 of the datasheet for details on updates made.

Please see the revision history section of version 0.7 of the reference manual details on updates made.

Impact on Form, Fit, Function, Quality, Reliability

There is no impact for form, fit, quality or reliability. Function is impacted as described in the change reason section and relevant errata items.

Product Identification

Existing Part #	Replacement Part #	DropInCompInd.
EFM8BB31F16A-C-4QFN24	EFM8BB31F16A-D-4QFN24	Yes
EFM8BB31F16A-C-4QFN24R	EFM8BB31F16A-D-4QFN24R	Yes
EFM8BB31F16A-C-5QFN32	EFM8BB31F16A-D-5QFN32	Yes
EFM8BB31F16A-C-5QFN32R	EFM8BB31F16A-D-5QFN32R	Yes
EFM8BB31F16G-C-QFN24	EFM8BB31F16G-D-QFN24	Yes
EFM8BB31F16G-C-QFN24R	EFM8BB31F16G-D-QFN24R	Yes
EFM8BB31F16G-C-QFN32	EFM8BB31F16G-D-QFN32	Yes
EFM8BB31F16G-C-QFN32R	EFM8BB31F16G-D-QFN32R	Yes
EFM8BB31F16G-C-QFP32	EFM8BB31F16G-D-QFP32	Yes
EFM8BB31F16G-C-QFP32R	EFM8BB31F16G-D-QFP32R	Yes
EFM8BB31F16G-C-QSOP24	EFM8BB31F16G-D-QSOP24	Yes
EFM8BB31F16G-C-QSOP24R	EFM8BB31F16G-D-QSOP24R	Yes
EFM8BB31F16I-C-4QFN24	EFM8BB31F16I-D-4QFN24	Yes
EFM8BB31F16I-C-4QFN24R	EFM8BB31F16I-D-4QFN24R	Yes
EFM8BB31F16I-C-5QFN32	EFM8BB31F16I-D-5QFN32	Yes
EFM8BB31F16I-C-5QFN32R	EFM8BB31F16I-D-5QFN32R	Yes
EFM8BB31F16I-C-QFN24	EFM8BB31F16I-D-QFN24	Yes
EFM8BB31F16I-C-QFN24R	EFM8BB31F16I-D-QFN24R	Yes
EFM8BB31F16I-C-QFN32	EFM8BB31F16I-D-QFN32	Yes
EFM8BB31F16I-C-QFN32R	EFM8BB31F16I-D-QFN32R	Yes
EFM8BB31F16I-C-QFP32	EFM8BB31F16I-D-QFP32	Yes
EFM8BB31F16I-C-QFP32R	EFM8BB31F16I-D-QFP32R	Yes

EFM8BB31F16I-C-QSOP24	EFM8BB31F16I-D-QSOP24	Yes
EFM8BB31F16I-C-QSOP24R	EFM8BB31F16I-D-QSOP24R	Yes
EFM8BB31F32A-C-4QFN24	EFM8BB31F32A-D-4QFN24	Yes
EFM8BB31F32A-C-4QFN24R	EFM8BB31F32A-D-4QFN24R	Yes
EFM8BB31F32A-C-5QFN32	EFM8BB31F32A-D-5QFN32	Yes
EFM8BB31F32A-C-5QFN32R	EFM8BB31F32A-D-5QFN32R	Yes
EFM8BB31F32G-C-QFN24	EFM8BB31F32G-D-QFN24	Yes
EFM8BB31F32G-C-QFN24R	EFM8BB31F32G-D-QFN24R	Yes
EFM8BB31F32G-C-QFN32	EFM8BB31F32G-D-QFN32	Yes
EFM8BB31F32G-C-QFN32R	EFM8BB31F32G-D-QFN32R	Yes
EFM8BB31F32G-C-QFP32	EFM8BB31F32G-D-QFP32	Yes
EFM8BB31F32G-C-QFP32R	EFM8BB31F32G-D-QFP32R	Yes
EFM8BB31F32G-C-QSOP24	EFM8BB31F32G-D-QSOP24	Yes
EFM8BB31F32G-C-QSOP24R	EFM8BB31F32G-D-QSOP24R	Yes
EFM8BB31F32I-C-4QFN24	EFM8BB31F32I-D-4QFN24	Yes
EFM8BB31F32I-C-4QFN24R	EFM8BB31F32I-D-4QFN24R	Yes
EFM8BB31F32I-C-5QFN32	EFM8BB31F32I-D-5QFN32	Yes
EFM8BB31F32I-C-5QFN32R	EFM8BB31F32I-D-5QFN32R	Yes
EFM8BB31F32I-C-QFN24	EFM8BB31F32I-D-QFN24	Yes
EFM8BB31F32I-C-QFN24R	EFM8BB31F32I-D-QFN24R	Yes
EFM8BB31F32I-C-QFN32	EFM8BB31F32I-D-QFN32	Yes
EFM8BB31F32I-C-QFN32R	EFM8BB31F32I-D-QFN32R	Yes
EFM8BB31F32I-C-QFP32	EFM8BB31F32I-D-QFP32	Yes
EFM8BB31F32I-C-QFP32R	EFM8BB31F32I-D-QFP32R	Yes
EFM8BB31F32I-C-QSOP24	EFM8BB31F32I-D-QSOP24	Yes
EFM8BB31F32I-C-QSOP24R	EFM8BB31F32I-D-QSOP24R	Yes
EFM8BB31F64A-C-4QFN24	EFM8BB31F64A-D-4QFN24	Yes
EFM8BB31F64A-C-4QFN24R	EFM8BB31F64A-D-4QFN24R	Yes
EFM8BB31F64A-C-5QFN32	EFM8BB31F64A-D-5QFN32	Yes
EFM8BB31F64A-C-5QFN32R	EFM8BB31F64A-D-5QFN32R	Yes
EFM8BB31F64G-C-QFN24	EFM8BB31F64G-D-QFN24	Yes
EFM8BB31F64G-C-QFN24R	EFM8BB31F64G-D-QFN24R	Yes
EFM8BB31F64G-C-QFN32	EFM8BB31F64G-D-QFN32	Yes
EFM8BB31F64G-C-QFN32R	EFM8BB31F64G-D-QFN32R	Yes
EFM8BB31F64G-C-QFP32	EFM8BB31F64G-D-QFP32	Yes
EFM8BB31F64G-C-QFP32R	EFM8BB31F64G-D-QFP32R	Yes
EFM8BB31F64G-C-QSOP24	EFM8BB31F64G-D-QSOP24	Yes
EFM8BB31F64G-C-QSOP24R	EFM8BB31F64G-D-QSOP24R	Yes
EFM8BB31F64I-C-4QFN24	EFM8BB31F64I-D-4QFN24	Yes
EFM8BB31F64I-C-4QFN24R	EFM8BB31F64I-D-4QFN24R	Yes
EFM8BB31F64I-C-5QFN32	EFM8BB31F64I-D-5QFN32	Yes
EFM8BB31F64I-C-5QFN32R	EFM8BB31F64I-D-5QFN32R	Yes
EFM8BB31F64I-C-QFN24	EFM8BB31F64I-D-QFN24	Yes
EFM8BB31F64I-C-QFN24R	EFM8BB31F64I-D-QFN24R	Yes
EFM8BB31F64I-C-QFN32	EFM8BB31F64I-D-QFN32	Yes
EFM8BB31F64I-C-QFN32R	EFM8BB31F64I-D-QFN32R	Yes
EFM8BB31F64I-C-QFP32	EFM8BB31F64I-D-QFP32	Yes
EFM8BB31F64I-C-QFP32R	EFM8BB31F64I-D-QFP32R	Yes
EFM8BB31F64I-C-QSOP24	EFM8BB31F64I-D-QSOP24	Yes
EFM8BB31F64I-C-QSOP24R	EFM8BB31F64I-D-QSOP24R	Yes

Kit Identification

Kits impacted by the above product are listed below.
 Orders for the following obsolete kits will no longer be accepted.

Existing Kit #	Replacement Kit #
NA	NA

Last Date of Unchanged Product: 2/23/2021

Qualification Samples

Commercial and industrial grade device samples available, automotive grade 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.

Part Rev D, GSMC Fabrication							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group A – Accelerated Environment Stress Tests - 32QFP-ASECL assembly							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q038332	0/82	1	3 lots 0/246	Pass
			Q038502	0/82	1		
			Q038506	0/82	1		
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q038334	0/82	1	3 lots 0/244	Pass
			Q038504	0/82	1		
			Q038508	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q038333	0/86	1	3 lots 0/248	Pass
			Q038501	0/81	1		
			Q038505	0/81	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q038315	0/46	1	3 lots 0/146	Pass
			Q038503	0/50	1		
			Q038507	0/50	1		
Test Group A – Accelerated Environment Stress Tests - 24 QSOP-UTACTH assembly							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q038411	0/78	1	3 lots 0/238	Pass
			Q036513	0/80	1		
			Q036515	0/80	1		
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q038412	0/78	1	3 lots 0/238	Pass
			Q036526	0/80	1		
			Q036527	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q038413	0/79	1	3 lots 0/239	Pass
			Q036523	0/80	1		
			Q036524	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q038366	0/50	1	3 lots 0/106	Pass
			Q036520	0/28	1		
			Q036521	0/28	1		
Test Group A – Accelerated Environment Stress Tests - 24-QFN-ASECL assembly							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q038217	0/80	1	3 lots 0/240	Pass
			Q038218	0/80	1		
			Q038219	0/80	1		
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q038223	0/80	1	3 lots 0/240	Pass
			Q038224	0/80	1		
			Q038225	0/80	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q038220	0/80	1	3 lots 0/240	Pass
			Q038221	0/80	1		
			Q038222	0/80	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q038181	0/48	1	3 lots 0/144	Pass
			Q038182	0/48	1		
			Q038183	0/48	1		

EFM8BB3* AEC-Q100 Qualification Report

Part Rev D, GSMC Fabrication							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group A – Accelerated Environment Stress Tests - 32-TQFN-UTACTH assembly							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q038160	0/84	1	4 lots 0/340	Pass
			Q038359	0/84	1		
			Q038363	0/85	1		
			Q039097	0/87	1		
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q038161	0/85	1	4 lots 0/337	Pass
			Q038360	0/85	1		
			Q038364	0/80	1		
			Q039095	0/87	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>77	Q038158	0/85	1	4 lots 0/353	Pass
			Q038357	0/85	1		
			Q038361	0/85	1		
			Q039098	0/98	1		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q038159	0/50	1	3 lots 0/140	Pass
			Q038358	0/49	1		
			Q039096	0/41	1		
Test Group B – Accelerated Lifetime Simulation Tests							
HTOL	JA108 T _j ≥ 125°C, Dynamic Vcc=3.6V, 1000 hours	3 lots, N=>77	Q038228	0/84		3 lots 0/258	Pass
			Q038640	0/84			
			Q038861	0/90			
LTOL	JA108 -10°C, Dynamic Vcc=3.6V, 1000 hours	1 lot, N=>77	Q036550	0/35		1 lots 0/35	Pass
ELFR	AEC-Q100-008 T _j ≥ 125°C, Dynamic Vcc=3.6V, 48 hours	3 lots, N=>800	Q038355	0/842		3 lots 0/2531	Pass
			Q046686	0/849			
			Q038785	0/840			
Data Retention High Temp	AEC-Q100-005 150°C, 1000 hours	3 lots, N=>39	Q038230	0/44		3 lots 0/138	Pass
			Q038627	0/45			
			Q038848	0/49			
Data Retention Low Temp	AEC-Q100-005 25°C, 1000 hours	3 lots, N=>38	Q038314	0/39		3 lots 0/124	Pass
			Q038622	0/40			
			Q038846	0/45			
NVM P/E Cycling High Temp	AEC-Q100-005 85°C, 1000 hours	3 lots, N=>77	Q038193	0/140		3 lots 0/416	Pass
			Q038588	0/140			
			Q038790	0/136			
NVM P/E Cycling Low Temp	AEC-Q100-005 25°C, 1000 hours	3 lots, N=>77	Q038194	0/40		3 lots 0/125	Pass
			Q038589	0/40			
			Q038788	0/45			

EFM8BB3* AEC-Q100 Qualification Report

Part Rev D, GSMC Fabrication							
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	Q038389	0/5	2	1 lots 0/5	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30	Q038470	0/5	3	1 lots 0/5	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30	Q038480	0/15	4	1 lots 0/15	Pass
Wire Bond Pull	M-STD-883 Performed post-TC	5 units, N=>30	Q038388 Q039289	0/5 0/5	5 5	2 lots 0/10	Pass
Test Group D – Electrical Verification							
ESD-HBM	AEC-Q100-002	1 lot, N=>3	Q043453		2	4 kV	Class 3A
ESD-CDM	AEC-Q100-011	1 lot, N=>3	Q043452 Q038118 Q043616 Q043615		2 3 4 5	1000 V 1000 V 1000 V 1000 V	Class C6 Class C6 Class C6 Class C6
Latch Up	AEC-Q100-004 ±100mA Overvoltage = 5.4V	1 lot, N=>6	Q043450 Q043451	25 °C 105 °C	2 2		Pass Pass
Electromagnetic Compatibility	SAE J1752	1 lot, N=>1	Q039317				Pass

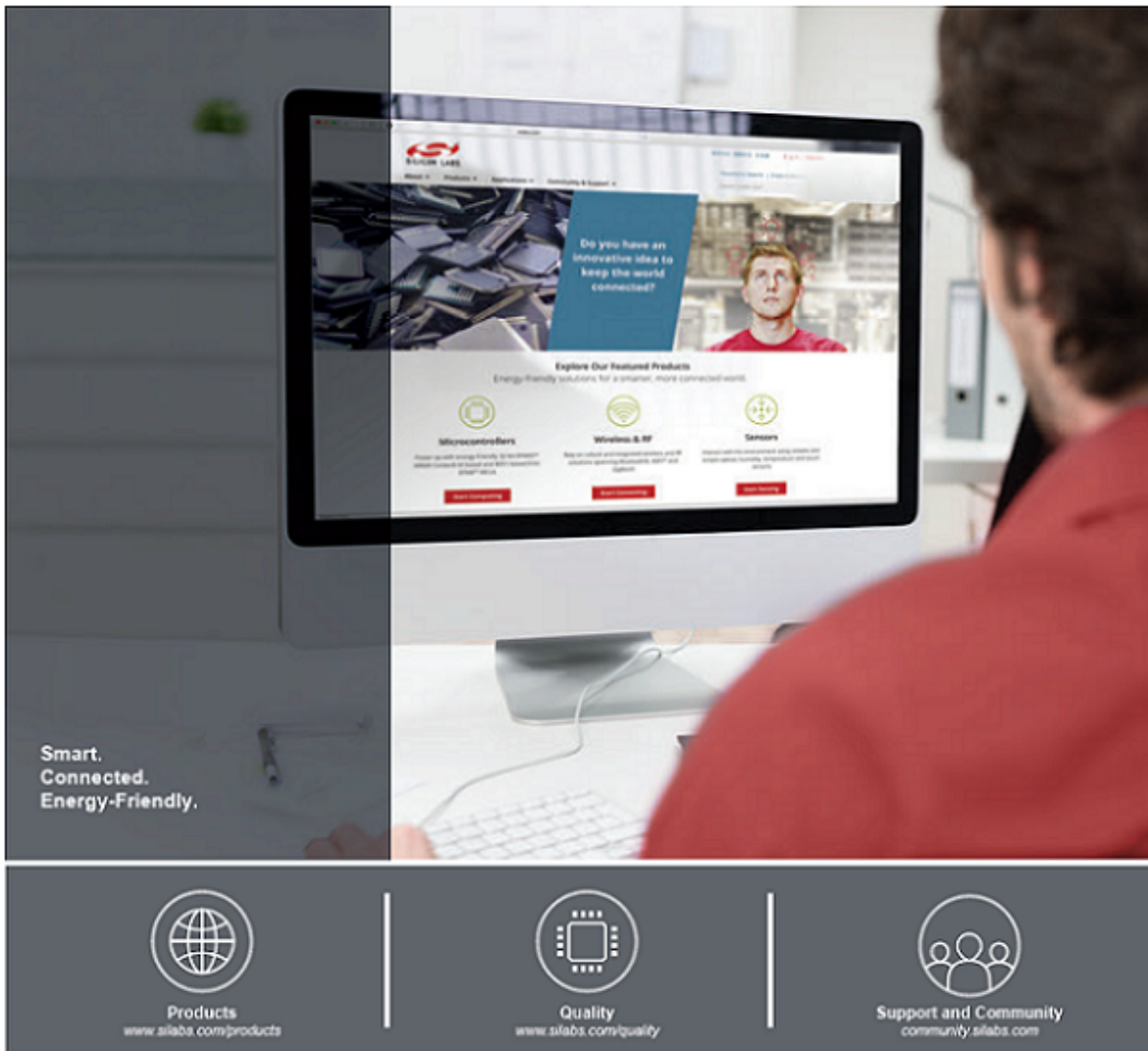
Notes:

1. Parts are Pre-conditioned at MSL2/260°C
2. 32-TQFP
3. 24-QSOP
4. 24-QFN
5. 32-TQFN

This report applies to the following part numbers:

EFM8BB31F*G-D-QFN24	EFM8BB31F*I-D-QFN24	EFM8BB31F*A-D-4QFN24
EFM8BB31F*G-D-QFN32	EFM8BB31F*I-D-QFN32	EFM8BB31F*A-D-5QFN32
EFM8BB31F*G-D-QFP32	EFM8BB31F*I-D-QFP32	EFM8BB31F*I-D-4QFN24
EFM8BB31F*G-D-QSOP24	EFM8BB31F*I-D-QSOP24	EFM8BB31F*I-D-5QFN32

EFM8BB3* AEC-Q100 Qualification Report



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