



201027917 EFR32MG12 Package Type BGA125 Revision C

PRCN Issue Date: 10/27/2020

Effective Date: 2/2/2021

PCN Type: Product Revision

Description of Change

Silicon Labs is pleased to announce hardware revision C for the EFR32MG12 Package Type BGA125 devices. The new revision is a pin-compatible replacement for the previous revision B devices.

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

Reason for Change

IC revision to fix errata.

Impact on Form, Fit, Function, Quality, Reliability

The new revision is a pin compatible replacement for the previous revision B devices. There have been no changes to device pin-out (fit), quality or reliability.

Product Identification

Existing Part #	Replacement Part #	DropInCompInd.
EFR32MG12P332F1024GL125-B	EFR32MG12P332F1024GL125-C	Yes
EFR32MG12P332F1024GL125-BR	EFR32MG12P332F1024GL125-CR	Yes
EFR32MG12P432F1024GL125-B	EFR32MG12P432F1024GL125-C	Yes
EFR32MG12P432F1024GL125-BR	EFR32MG12P432F1024GL125-CR	Yes
EFR32MG12P433F1024GL125-B	EFR32MG12P433F1024GL125-C	Yes
EFR32MG12P433F1024GL125-BR	EFR32MG12P433F1024GL125-CR	Yes

Kit Identification

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

Last Date of Unchanged Product: 2/2/2021

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

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

Please see attached Qualification Report in the Appendix.

EFR32xG12 Qualification Report							
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Part Rev C, TSMC Fabrication, SPIL 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 - BGA							
HAST	JA110 110°C, 85%RH Vcc=3.8V, 264 hours	3 lots, N=>25	Q039924	0/28	1	3 lots 0/84	Pass
			Q039925	0/28	1		
			Q039926	0/28	1		
UHASt	JA118 130°C, 85%RH 96 hours	3 lots, N=>25	Q039915	0/28	1	3 lots 0/84	Pass
			Q039916	0/28	1		
			Q039917	0/28	1		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>25	Q039918	0/27	1	3 lots 0/83	Pass
			Q039919	0/28	1		
			Q039920	0/28	1		
HTSL	JA103 150°C, 1000hr	3 lots, N=>25	Q039921	0/27	1	3 lots 0/83	Pass
			Q039922	0/28	1		
			Q039923	0/28	1		
Test Group A – Accelerated Environment Stress Tests - QFN							
HAST	JA110 130°C, 85%RH Vcc=3.8V, 96 hours	3 lots, N=>25	Q039879	1/30	2, 5	4 lots 1/120	Pass
			Q040220	0/30	2		
			Q039877	0/30	2		
			Q039878	0/30	2		
UHASt	JA118 130°C, 85%RH 96 hours	3 lots, N=>25	Q039876	0/30	2	3 lots 0/90	Pass
			Q039875	0/30	2		
			Q039874	0/30	2		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>25	Q039882	0/30	2	3 lots 0/90	Pass
			Q039881	0/30	2		
			Q039880	0/30	2		
HTSL	JA103 150°C, 1000hr	3 lots, N=>25	Q038038	0/28	2	3 lots 0/81	Pass
			Q038124	0/28	2		
			Q037590	0/25	2		

EFR32xG12 Qualification Report



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Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group B – Accelerated Lifetime Simulation Tests							
HTOL	JA108 T _j ≥ 125°C, Dynamic V _{cc} =3.8V, 1000 hours	3 lots, N=>77	Q039946	0/77		3 lots	Pass
			Q040071	0/77			
			Q040505	0/80			
LTOL	JA108 T _A = -10°C, Dynamic V _{cc} =3.8V, 1000 hours	1 lot, N=>32	Q040261	0/35		1 lots	Pass
				0/35			
ELFR	JA108 T _j ≥ 125°C, Dynamic V _{cc} =3.8V, 48 hours	3 lots, N=>500	Q039943	0/500		3 lots	Pass
			Q040035	0/502			
			Q040504	0/500			
NVM Endurance, Retention and Operating Life	JESD22-A117 25°C 500 hours	3 lots, N=>39	Q040213	0/40	3	3 lots	Pass
			Q040274	0/40	3		
			Q040278	0/40	3		
NVM Endurance, Retention and Operating Life	JESD22-A117 125°C 1000 hours	3 lots, N=>39	Q040279	0/40	4	3 lots	Pass
			Q040275	0/40	4		
			Q040214	0/40	4		
Test Group E – Electrical Verification							
ESD-HBM	JS-001	1 lot, N=>3	Q039756			2 kV	Class 2
ESD-CDM	JS-002	1 lot, N=>3	Q042050		6	500 V	Class C2A
			Q042047		7	650 V	Class C2A
			Q042046		8	1000 V	Class C3
			Q042048		9	500 V	Class C2A
Latch Up	JESD78 ±100mA	1 lot, N=>3	Q039757	25 °C			Pass
Latch Up	JESD78 ±100mA	1 lot, N=>3	Q039764	125 °C			Pass

Notes:

- Parts are Pre-conditioned at MSL3/260°C
- Parts are Pre-conditioned at MSL2/260°C
- Preconditioned with 10K write/erase cycles at 25°C
- Preconditioned with 10K write/erase cycles at 125°C
- Failure analysis on the failure was inconclusive. An additional 30 units were stressed from the same assembly lot (Q040220) to reduce the LTPD% below the requirement. JEDEC sample size requirement of 25 units per lot has LTPD% = 9.21 at 90% confidence with 0 fails. With larger sample size = 60, LTPD% = 6.48 at 90% confidence with 1 failure.

EFR32xG12 Qualification Report



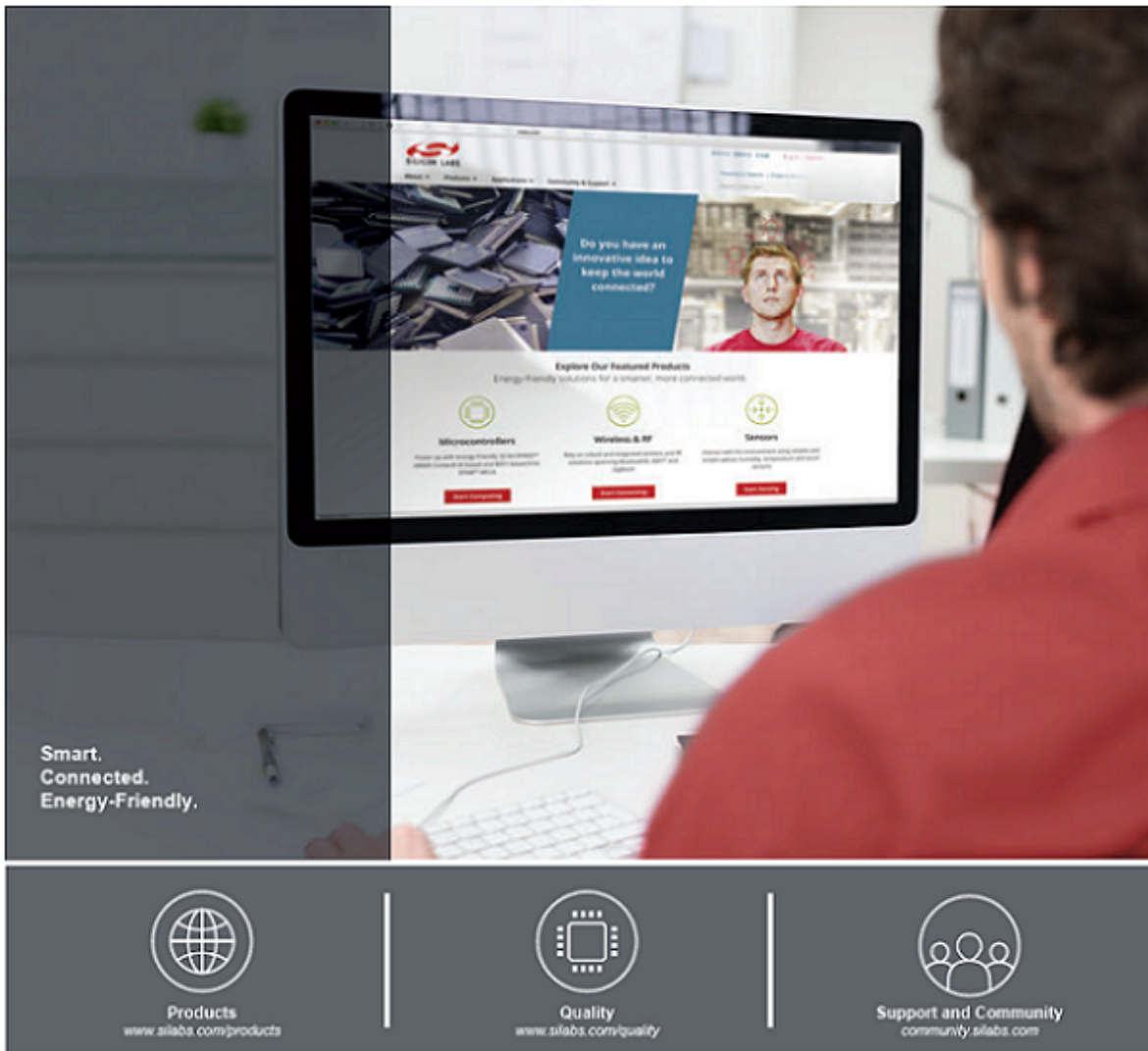
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Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
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- Notes (Continued):
- 6. BGA Package, dual band
 - 7. QFN package, dual band
 - 8. QFN Package, sub GHz
 - 9. QFN Package, 2.4 GHz

This report applies to the following part numbers:		
EFR32BG12P132F1024GL125-C	EFR32FG12P232F1024GL125-C	EFR32MG12P132F1024GL125-C
EFR32BG12P132F1024GM48-C	EFR32FG12P232F1024GM48-C	EFR32MG12P132F1024GM48-C
EFR32BG12P232F1024GL125-C	EFR32FG12P231F1024GL125-C	EFR32MG12P232F1024GL125-C
EFR32BG12P232F1024GM48-C	EFR32FG12P231F1024GM48-C	EFR32MG12P232F1024GM48-C
EFR32BG12P332F1024GL125-C	EFR32FG12P433F1024GL125-C	EFR32MG12P332F1024GL125-C
EFR32BG12P332F1024GM48-C	EFR32FG12P433F1024GM48-C	EFR32MG12P332F1024GM48-C
EFR32BG12P433F1024GL125-C	EFR32FG12P432F1024GL125-C	EFR32MG12P433F1024GL125-C
EFR32BG12P433F1024GM48-C	EFR32FG12P432F1024GM48-C	EFR32MG12P433F1024GM48-C
EFR32BG12P432F1024GL125-C	EFR32FG12P431F1024GL125-C	EFR32MG12P432F1024GL125-C
EFR32BG12P432F1024GM48-C	EFR32FG12P431F1024GM48-C	EFR32MG12P432F1024GM48-C
EFR32BG12P332F1024IM48-C	EFR32FG12P431F1024IM48-C	EFR32MG12P332F1024IM48-C
EFR32MG12P433F1024IL125-C	EFR32MG12P433F1024IM48-C	EFR32MG12P432F1024IM48-C



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