



# Revision Change Notice #1411261

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<b>PCN Date: 11/26/2014</b>		<b>Effective Date: 3/4/2015</b>	
<b>Title: Si7006/7/13/15/20/21/22/23 Transition from A10 to A20</b>			
<b>Originator: Bill Simcoe</b>		<b>Phone: 1-512-532-5810</b>	<b>Dept: APS Marketing</b>
<b>Customer Contact: Kathy Haggar</b>		<b>Phone: 512-532-5261</b>	<b>Dept: Sales</b>
<b>PCN Type:</b>			
<input type="checkbox"/> Datasheet			
<input checked="" type="checkbox"/> Product Revision			
<b>PCN Details</b>			
<b>Description of Change:</b>			
Silicon Labs is pleased to announce the successful qualification and availability of Si7006/7/13/15/20/21/22/23-A20 products, which will replace the existing A10 versions. All of the A20 products contain higher final test coverage. In addition, a condition where the Si7006/13/20/21 I2C devices do not fully enter standby mode after a user register write has been fixed.			
After the effective date of this PCN, Silicon Labs reserves the right to deliver Si7006/7/13/15/20/21/22/23-A20 for customers ordering Si7006/7/13/15/20/21/22/23-A10.			
<b>Reason for Change:</b>			
The higher final test coverage reduces potential defect rates, and improves lead times resulting from better manufacturing yields. For Si7006/13/20/21 I2C devices, the current consumption following a user register write has been reduced.			
<b>Impact on Form, Fit, Function, Quality, Reliability:</b>			
Compared to the previous A10 versions, the Si7006/7/13/15/20/21/22/23-A20 devices are silicon metal revisions that are fully pin-compatible and software-compatible with the previous A10 versions. For Si7006/13/20/21 devices, the supply current after a user register write has been reduced from 20 $\mu$ A(typ) to the normal standby current of 0.06 $\mu$ A(typ). The higher test coverage reduces potential defect rates and improves manufacturing yields. There is no impact to reliability.			



# Revision Change Notice #1411261

## Product Identification:

Existing Part Number	Replacement Part Number	Drop in Compatible Indicator
Si7006-A10-IM	Si7006-A20-IM	Yes
Si7006-A10-IMR	Si7006-A20-IMR	Yes
Si7006-A10-IM1	Si7006-A20-IM1	Yes
Si7006-A10-IM1R	Si7006-A20-IM1R	Yes
Si7007-A10-IM	Si7007-A20-IM	Yes
Si7007-A10-IMR	Si7007-A20-IMR	Yes
Si7007-A10-IM1	Si7007-A20-IM1	Yes
Si7007-A10-IM1R	Si7007-A20-IM1R	Yes
Si7013-A10-GM	Si7013-A20-GM	Yes
Si7013-A10-GMR	Si7013-A20-GMR	Yes
Si7013-A10-GM1	Si7013-A20-GM1	Yes
Si7013-A10-GM1R	Si7013-A20-GM1R	Yes
Si7013-A10-IM	Si7013-A20-IM	Yes
Si7013-A10-IMR	Si7013-A20-IMR	Yes
Si7013-A10-IM1	Si7013-A20-IM1	Yes
Si7013-A10-IM1R	Si7013-A20-IM1R	Yes
Si7015-A10-FM	Si7015-A20-FM	Yes
Si7015-A10-FMR	Si7015-A20-FMR	Yes
Si7015-A10-FM1	Si7015-A20-FM1	Yes
Si7015-A10-FM1R	Si7015-A20-FM1R	Yes
Si7015-A10-GM	Si7015-A20-GM	Yes
Si7015-A10-GMR	Si7015-A20-GMR	Yes
Si7015-A10-GM1	Si7015-A20-GM1	Yes
Si7015-A10-GM1R	Si7015-A20-GM1R	Yes
Si7020-A10-GM	Si7020-A20-GM	Yes
Si7020-A10-GMR	Si7020-A20-GMR	Yes
Si7020-A10-GM1	Si7020-A20-GM1	Yes
Si7020-A10-GM1R	Si7020-A20-GM1R	Yes
Si7020-A10-IM	Si7020-A20-IM	Yes
Si7020-A10-IMR	Si7020-A20-IMR	Yes
Si7020-A10-IM1	Si7020-A20-IM1	Yes
Si7020-A10-IM1R	Si7020-A20-IM1R	Yes
Si7021-A10-GM	Si7021-A20-GM	Yes
Si7021-A10-GMR	Si7021-A20-GMR	Yes
Si7021-A10-GM1	Si7021-A20-GM1	Yes
Si7021-A10-GM1R	Si7021-A20-GM1R	Yes
Si7021-A10-IM	Si7021-A20-IM	Yes
Si7021-A10-IMR	Si7021-A20-IMR	Yes
Si7021-A10-IM1	Si7021-A20-IM1	Yes
Si7021-A10-IM1R	Si7021-A20-IM1R	Yes
Si7022-A10-IM	Si7022-A20-IM	Yes
Si7022-A10-IMR	Si7022-A20-IMR	Yes
Si7022-A10-IM1	Si7022-A20-IM1	Yes



## Revision Change Notice #1411261

Si7022-A10-IM1R	Si7022-A20-IM1R	Yes
Si7023-A10-IM	Si7023-A20-IM	Yes
Si7023-A10-IMR	Si7023-A20-IMR	Yes
Si7023-A10-IM1	Si7023-A20-IM1	Yes
Si7023-A10-IM1R	Si7023-A20-IM1R	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: 3/4/2015**

**Qualification Samples:**

Samples are available now.

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](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: [katherine.haggard@silabs.com](mailto:katherine.haggard@silabs.com)

**Qualification Data:**

See Appendix for Qualification

Appendix, ASECL Qualification

Si700x/Si701x/Si702x AEC-Q100 Qualification Report




W7 101F1 Product Qualification Plan and Report Rev. E

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Part Rev A, TSMC Fabrication, ASECL 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							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q35916	0/80	1, 2	3 lots	Pass
			Q35917	0/80	1, 2		
			Q35918	0/80	1, 2		
UHAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q35897	0/79	1, 2	3 lots	Pass
			Q35896	0/80	1, 2		
			Q35894	0/80	1, 2		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles, Wire pull	3 lots, N=>77 Cpk > 1.33	Q35903	0/79	1, 2	3 lots	Pass Cpk > 1.33
			Q35900	0/80	1, 2		
			Q35901	0/80	1, 2		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q35902	0/50	1, 2	3 lots	Pass
			Q35898	0/49	1, 2		
			Q35899	0/50	1, 2		
Test Group B - Accelerated Lifetime Simulation Tests							
HTOL	JA108 125°C, Dynamic Vcc=3.6V, 1000 hours	3 lots, N=>77	Q34929	0/90	3	3 lots	Pass
			Q34928	0/90	3		
			Q34007	0/85	3		
ELFR	AEC-Q100-008 125°C, Dynamic Vcc=3.6V, 48 hours	3 lots, N=>800	Q35034	0/900	3	4 lots	Pass
			Q34180	0/800	3		
			Q33873	0/800	3		
			Q36470	0/806	3		
Test Group C - Package Assembly Integrity Tests							
Wire Bond Shear	AEC-Q100-001	5 units, N=>30 Cpk > 1.33	P3520C 570E	0/6	2	3 lots	Pass Cpk > 1.33
			P3520C 560E	0/6	2		
			P3520C 550E	0/6	2		
					0/18		
Wire Bond Pull	W-STD-883	5 units, N=>30 Cpk > 1.33	P3520C 570E	0/6	2	3 lots	Pass Cpk > 1.33
			P3520C 560E	0/6	2		
			P3520C 550E	0/6	2		
					0/18		
Physical Dimensions	JB100	3 lots, N=>10 Cpk > 1.33	P3520C 570E	0/30	2	3 lots	Pass Cpk > 1.33
			P3520C 560E	0/30	2		
			P3520C 550E	0/30	2		
Solderability	JB102	1 lot, N=>15	P3520C 570E	0/10	2	3 lots	Pass
			P3520C 560E	0/10	2		
			P3520C 550E	0/10	2		
Test Group E - Electrical Verification							
E5D-HBM	AEC-Q100-002	1 lot, N=>3	Q33875		2kV		Pass

Si700x/Si701x/Si702x AEC-Q100 Qualification Report



W7 101F1 Product Qualification Plan and Report Rev. E

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Part Rev A, TSMC Fabrication, ASECL Assembly except as noted							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
ESD-MMM	AEC-Q100-003	1 lot, N=>3	Q33876		250V		Pass
ESD-CDM	AEC-Q100-011	1 lot, N=>3	Q36478		1.25kV		Pass
Latch Up	AEC-Q100-004 ±200 mA Overvoltage = 5.4V	1 lot, N=>6	Q34161 Q34160	93 C 25 C	2 2		Pass
Gate Leakage	AEC-Q100-006	1 lot, N=>6	Q35092		2		Pass

Notes:

1. Parts are Pre-conditioned at MSL2/260°C
2. Leveraged package family qualification data
3. Leveraged die family qualification data

This report applies to the following part numbers:				
Si7006-A20-IM	Si7013-A20-GM	Si7020-A20-GM	Si7021-A20-GM	Si7022-A20-IM
Si7006-A20-IM R	Si7013-A20-GMR	Si7020-A20-GMR	Si7021-A20-GMR	Si7022-A20-IMR
Si7006-A20-IM 1	Si7013-A20-GM1	Si7020-A20-GM1	Si7021-A20-GM 1	Si7022-A20-IM1
Si7006-A20-IM 1R	Si7013-A20-GM1R	Si7020-A20-GM1R	Si7021-A20-GM 1R	Si7022-A20-IM1R
Si7007-A20-IM	Si7013-A20-IM	Si7020-A20-IM	Si7021-A20-IM	Si7023-A20-IM
Si7007-A20-IM R	Si7013-A20-IMR	Si7020-A20-IMR	Si7021-A20-IM R	Si7023-A20-IMR
Si7007-A20-IM 1	Si7013-A20-IM1	Si7020-A20-IM1	Si7021-A20-IM 1	Si7023-A20-IM1
Si7007-A20-IM 1R	Si7013-A20-IM1R	Si7020-A20-IM1R	Si7021-A20-IM 1R	Si7023-A20-IM1R

Appendix, Amkor Qualification  
Si701x/Si702x AEC-Q100 Qualification Report



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Part Rev A, TSMC Fabrication, Amkor 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							
HAST	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q35039	0/79	1, 2	3 lots 0/236	Pass
			Q34963	0/78	1, 2		
			Q34440	0/79	1, 2		
UHASt	JA110 130°C, 85%RH Vcc=3.6V, 96 hours	3 lots, N=>77	Q34430	0/78	1, 2	3 lots 0/233	Pass
			Q34964	0/77	1, 2		
			Q35040	0/78	1, 2		
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles, Wire pull	3 lots, N=>77 Cpk > 1.33	Q35038	0/80	1, 2	3 lots 0/240	Pass Cpk > 1.33
			Q34917	0/80	1, 2		
			Q34431	0/80	1, 2		
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q34843	0/50	1, 2	3 lots 0/145	Pass
			Q34842	0/49	1, 2		
			Q34080	0/46	1, 2		
Test Group B - Accelerated Lifetime Simulation Tests							
HTOL	JA108 125°C, Dynamic Vcc=3.6V, 1000 hours	3 lots, N=>77	Q34929	0/90	3	3 lots 0/265	Pass
			Q34928	0/90	3		
			Q34007	0/85	3		
ELFR	AEC-Q100-008 125°C, Dynamic Vcc=3.6V, 48 hours	3 lots, N=>800	Q35034	0/900	3	4 lots 0/3306	Pass
			Q34180	0/800	3		
			Q33873	0/800	3		
Q36470	0/806	3					
Test Group C - Package Assembly Integrity Tests							
Wire Bond Shear	AEC-Q100-001	5 units, N=>30 Cpk > 1.33	405B0209	0/6	2	3 lots 0/18	Pass Cpk > 1.33
			405B0215	0/6	2		
			405B0223	0/6	2		
Wire Bond Pull	M-STD-883	5 units, N=>30 Cpk > 1.33	405B0209	0/6	2	3 lots 0/18	Pass Cpk > 1.33
			405B0215	0/6	2		
			405B0223	0/6	2		
Physical Dimensions	JB100	3 lots, N=>10 Cpk > 1.33	405B0209	0/30	2	3 lots 0/90	Pass Cpk > 1.33
			405B0215	0/30	2		
			405B0223	0/30	2		
Solderability	JB102	1 lot, N=>15	405B0209	0/10	2	3 lots 0/30	Pass
			405B0215	0/10	2		
			405B0223	0/10	2		

Si701x/Si702x AEC-Q100 Qualification Report



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Part Rev A, TSMC Fabrication, Amkor Assembly except as noted							
Test Name	Test Condition	Qualification	Lot ID or Start	Fail/Pass or End	Notes	Summary	Status
Test Group E - Electrical Verification							
ESD-HBM	AEC-Q100-002	1 lot, N=>3	Q33875		2kV		Pass
ESD-MMM	AEC-Q100-003	1 lot, N=>3	Q33876		250V		Pass
ESD-CDM	AEC-Q100-011	1 lot, N=>3	Q36479		1.25kV		Pass
Latch Up	AEC-Q100-004 ±200 mA Overvoltage = 5.4V	1 lot, N=>6	Q34161 Q34160	93 C 25 C			Pass
Gate Leakage	AEC-Q100-006	1 lot, N=>6	Q35092				Pass

Notes:

1. Parts are Pre-conditioned at MSL2/260 °C
2. Leveraged package family qualification data
3. Leveraged die family qualification data

This report applies to the following part numbers:					
Si7013-A20-GM	Si7013-A20-YMD	Si7015-A20-GM1	Si7020-A20-YM	Si7021-A20-IM	
Si7013-A20-GM1	Si7013-A20-YM1	Si7020-A20-GM	Si7020-A20-YMD	Si7021-A20-IM1	
Si7013-A20-IM	Si7015-A20-FM	Si7020-A20-GM1	Si7020-A20-YM1	Si7021-A20-YM	
Si7013-A20-IM1	Si7015-A20-FM1	Si7020-A20-IM	Si7021-A20-GM	Si7021-A20-YMD	
Si7013-A20-YM	Si7015-A20-GM	Si7020-A20-IM1	Si7021-A20-GM1	Si7021-A20-YM1	
Si7006-A20-IM	Si7006-A20-IM1	Si7007-A20-IM	Si7007-A20-IM1	Si7022-A20-IM	
Si7022-A20-IM1	Si7022-A20-YMD	Si7022-A20-YM1	Si7023-A20-IM	Si7023-A20-IM1	
Si7023-A20-YMD	Si7023-A20-YM1				