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PCN Date: 02Nov10		Effective Date: 02Feb11	
Title: MCU Fabrication - TSMC Fab10 & Assembly Capacity Expansion - ASECL			
Originator: Ross Bannatyne		Phone: +15125325780	Dept: Marketing
Customer Contact: Kathy Hagar		Phone: +15125325261	Dept: Inside Sales
PCN Type:			
<input checked="" type="checkbox"/> Assembly	<input type="checkbox"/> Discontinuance	<input type="checkbox"/> Package	<input type="checkbox"/> Test
<input type="checkbox"/> Datasheet	<input checked="" type="checkbox"/> Fabrication	<input type="checkbox"/> Product Revision	
<input type="checkbox"/> Packing	<input type="checkbox"/> Labeling	<input type="checkbox"/> Location	<input type="checkbox"/> Other
Last Order Date: 02Feb11			
PCN Details			
Description of Change:			
<p>Silicon Laboratories (Silicon Labs) is pleased to announce the successful qualification of Taiwan Semiconductor Manufacturing Company Ltd. (TSMC) Fab 10 (TSMC10) as an additional Fab site and Advanced Semi-conductor Engineering Chung Li (ASECL) as an additional Assembly site for MCU QFN products.</p> <p>TSMC's Fab10 is being added as an additional Fabrication site for Silicon Labs MCU products currently being fabricated in TSMC's Fab3 site. This is a transfer of the same die designs from one TSMC factory to another.</p> <p>ASECL is an existing Assembly site for Silicon Labs QFN products. This facility will be used as an additional assembly site for MCU QFN products currently assembled at UNISEM.</p> <p>Both sites are certified to ISO9001, ISO14001 and ISO/TS16949 and are Sony Green Partners. This PCN outlines MCU products that will be affected by either the Fab site addition, Assembly site addition, or both. Please see the Product Identification section for details.</p>			
Reason for Change:			
<p>The qualification of both TSMC's Fab10 and ASECL increases fabrication and assembly capacity for MCU product. This is necessary to ensure we continue to meet delivery performance to customers as demand and capacity requirements continue to increase.</p>			
Impact on Form, Fit, Function, Quality, Reliability:			
<p>There is no impact on form, fit, function, quality or reliability. The MCU devices fabricated at TSMC's Fab10 or assembled at ASECL comply with Silicon Labs relevant datasheets and quality levels.</p> <p>There is no change required for board layout or soldering profiles for the new ASECL packages. They meet all of the same Moisture Sensitivity Level (MSL) specifications and are a direct, drop-in replacement for existing packages. There are no changes to the mechanical specifications or drawings. They continue to meet all restriction of hazardous substance requirements, including RoHS, where applicable.</p>			

Product Identification:

Products ordered under the following Ordering Part numbers (OPN) are affected by this change. Note that parts with an “*” next to the OPN are available for immediate sampling. All others are available using standard lead times. ASECL QFN products with an “*” next to the OPN may also be used as mechanical samples for any other part in the same table. Parts within the same table use the same BOM and assembly process flow for all parts within that table.

Example using the table titled “ASECL 10-DFN-3X3 Non-Automotive Flow Only”. The parts listed in that table are not being transferred to Fab 10. The only change to parts in this table is the additional availability of the 10-DFN-3x3 package offering from ASECL. The parts with OPN C8051F300 and C8051F301 are available immediately for samples upon request. Either of those two parts may be used for mechanical samples per JEDEC for any other part in the same table (such as SI3461-E02-GM) because they use the same BOM, similar die size and same assembly process flow.

TSMC Fab 3 to Fab 10 Transfer Only No Package Additions	
C8051F310-GQ*	CF310-PX0188GQ
C8051F312-GQ*	CF320-XM0480GQ
C8051F314-GQ	CF320-XM0513GQ
C8051F320-GQ	

TSMC Fab 3 to Fab 10 Transfer + ASECL 20-QFN-4X4 Non-Automotive Flow		
C8051F330-GM*	CP2120-GM*	CF330-PX0208GM
C8051F331-GM	CF330-PM0254GM	CF330-PX0243GM
C8051F332-GM	CF330-PM0266GM	CF330-PX0421GM
C8051F333-GM	CF330-PM0457GM	CF331-PX0330GM
C8051F334-GM	CF330-PM0467GM	CF332-PX0557GM
C8051F335-GM	CF330-PM0493GM	

TSMC Fab 3 to Fab 10 Transfer + ASECL 24-TQFN-4X4 Non-Automotive Flow		
C8051F316-GM*	C8051F317-GM*	

TSMC Fab 3 to Fab 10 Transfer + ASECL 28-QFN-5X5 Non-Automotive Flow		
C8051F311-GM*	CF321-PX0324GM	CP2102SX0155GM
C8051F313-GM*	CF321-SX0067GM	CP2102SX0167GM
C8051F315-GM	CF326-SX0261GM	CP2102SX0214GM
C8051F321-GM*	CF327-PX0313GM	CP2102SX0334GM
C8051F326-GM	CF327-PX0407GM	CP2102SX0435GM
C8051F327-GM*	CF327-PX0418GM	CP2102SX0441GM
CF311-PX0223GM	CF327-PX0464GM	CP2102SX0550GM
CF311-PX0265GM	CF327-PX0534GM	CP2102XM0499GM
CF311-PX0308GM	CF327-PX0541GM	CP2102XX0385GM
CF311-PX0310GM	CF327-PX0556GM	CP2102XX0386GM
CF311-PX0336GM	CP2101-GM	CP2102XX0388GM
CF311-PX0402GM	CP2101SX0143GM	CP2102XX0539GM
CF315-PX0250GM	CP2102-GM*	CP2103-GM*
CF321-PM0161GM	CP2102PX0285GM	CP2103PX0276GM
CF321-PM0226GM	CP2102PX0294GM	CP2103SX0367GM
CF321-PX0320GM		

ASECL 10-DFN-3X3 Non-Automotive Flow Only		
C8051F300-GM*	C8051T606-GM	CF304-XX0395GM
C8051F301-GM*	SI3460-E02-GM	CF305-PX0342GM
C8051F302-GM	SI3460-E03-GM	CF305-PX0485GM
C8051F303-GM	SI3461-E02-GM	CF305-PX0504GM
C8051F304-GM	CF300-PM0317GM	CF305-PX0505GM
C8051F305-GM	CF300-XM0437GM	CF305-PX0506GM
C8051T600-GM	CF301-PX0389GM	CT601-PX0478GM
C8051T601-GM	CF301-PX0423GM	CT602-PX0427GM
C8051T602-GM	CF301-PX0476GM	CT603-PM0459GM
C8051T603-GM	CF301-PX0501GM	CT604-PM0508GM
C8051T604-GM	CF304-PM0297GM	CT604-PX0538GM
C8051T605-GM	CF304-PM0495GM	

ASECL 10-DFN-3X3 Automotive Flow Only		
C8051F520A-IM	C8051F521-IM	C8051F527A-IM
C8051F520-IM	C8051F524A-IM	C8051F527-IM*
C8051F521A-IM	C8051F526-IM	CF527APX0450IM

ASECL 20-QFN-4X4 Non-Automotive Flow Only		
C8051F336-GM*	C8051F813-GM	C8051T633-GM
C8051F337-GM	C8051F814-GM	C8051T634-GM
C8051F800-GM*	C8051F818-GM	C8051T635-GM
C8051F801-GM	C8051F819-GM*	CT632-PX0452GM
C8051F802-GM	C8051F820-GM	CT632-XM0449GM
C8051F806-GM	C8051T630-GM	CT633-PX0436GM
C8051F807-GM	C8051T631-GM	CT634-PX0475GM
C8051F808-GM	C8051T632-GM	CT634-PX0525GM
C8051F812-GM		

ASECL 20-QFN-4X4 Automotive Flow Only		
C8051F530A-IM*	C8051F531-IM	C8051F537A-IM
C8051F530-IM	C8051F534A-IM	C8051F537-IM
C8051F531A-IM	C8051F534-IM	CF534APM0462IM

ASECL 24-TQFN-4X4 Non-Automotive Flow Only		
C8051F338-GM	C8051F557-IM	C8051F997-GM
C8051F339-GM	C8051F717-GM	C8051T616-GM
C8051F542-IM	C8051F901-GM	C8051T617-GM
C8051F543-IM	C8051F902-GM	CF338-PX0377GM
C8051F546-IM	C8051F911-GM	CF338-PX0451GM
C8051F547-IM	C8051F912-GM	CF921-PM0529GM
C8051F550-IM	C8051F921-GM*	CF921-PM0570GM
C8051F551-IM	C8051F931-GM*	CP2104-B01-GM
C8051F552-IM	C8051F986-GM	CP2104-E02-GM
C8051F553-IM	C8051F987-GM	CP2104PX0523GM
C8051F554-IM	C8051F988-GM	CP2104SX0542GM
C8051F555-IM	C8051F989-GM	CP2104XX0522GM
C8051F556-IM	C8051F996-GM*	CP3000-GM

ASECL 28-QFN-5X5 Non-Automotive Flow Only		
C8051F351-GM	C8051F413-GM	CP2201-GM
C8051F353-GM	C8051T326-GM	CT321-PX0524GM
C8051F362-GM*	C8051T611-GM	CT326-PX0566GM
C8051F365-GM	C8051T613-GM	CT326-PX0568GM
C8051F367-GM	C8051T615-GM	SI8250-IM
C8051F369-GM	CF411-PX0323GM	SI8252-IM
C8051F411-GM*		

ASECL 32-QFN-5X5 Non-Automotive Flow Only		
C8051F342-GM	C8051F347-GM	C8051F34B-GM
C8051F343-GM	C8051F349-GM*	CP2501-B01-GM
C8051F346-GM	C8051F34A-GM	

ASECL 32-QFN-5X5 Automotive Flow Only		
C8051F502-IM	C8051F560-IM	C8051F582-IM
C8051F503-IM	C8051F561-IM	C8051F583-IM
C8051F506-IM	C8051F562-IM	C8051F586-IM
C8051F507-IM	C8051F563-IM	C8051F587-IM
C8051F540-IM	C8051F564-IM	C8051F920-GM*
C8051F541-IM	C8051F565-IM	C8051F930-GM
C8051F544-IM	C8051F566-IM	C8051T620-GM
C8051F545-IM	C8051F567-IM	CF930-PX0429GM

Note: Affected Part Numbers also include any additional custom parts made from the above listed base parts and tape and reel equivalents (“R” suffix).

Last Date of Unchanged Product: 02Feb11

Qualification Samples:

Available upon request. Parts listed with an “*” next to their Orderable Part Number (OPN) in the tables above are available for shipment immediately. All other parts are available with standard lead times. The parts with an “*” next to the OPN in a particular table (for example C8051F300-GM* in table “ASECL 10-DFN-3X3 Non-Automotive Flow Only”) can be used as mechanical samples for any of the other products listed in the same table (such as SI3460-E03-GM in table “ASECL 10-DFN-3X3 Non-Automotive Flow Only” for this example). Please contact your local Silicon Labs sales representative to order samples. A list of Silicon Labs sales representatives may be found at www.silabs.com.

Note: Silicon Labs PCN Policy complies with JEDEC Standard JESD46.

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 Appendix A for Qualification Reports

Appendix A: Qualification Reports

TSMC Fab10 Additional Site Qualification Report



W7101F1 Product Qualification Plan and Report Rev. D

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TSMC 0.35um Fab10 Fabrication, Unisem 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							
Temp Cycle	JA104 Cond C: -65°C to 150°C 500 cycles	3 lots, N=>25	Q28754	0/30		3 lots	Pass
			Q28757	0/30			
			Q28760	0/30			
HTSL	JA103 150°C, 1000hr	3 lots, N=>25	Q28783	0/40		3 lots	Pass
			Q28785	0/40			
			Q28787	0/40			
Test Group B - Accelerated Lifetime Simulation Tests							
HTOL	JA108 125°C, Dynamic Vcc=3.3V, 1000 hours	3 lots, N=>77	Q28752	0/82		3 lots	Pass
			Q28755	0/80			
			Q28758	0/80			
ELFR	JA108 125°C, Dynamic Vcc=3.3V, 48 hours	3 lots, N=>500	Q29520	0/500		3 lots	Pass
			Q29521	0/500			
			Q28751	0/500			
Test Group E - Electrical Verification							
ESD-HBM	JA114	1 lot, N=>3	Q28827				2500
ESD-MM	JA115	1 lot, N=>3	Q28826				250
ESD-CDM	JC101	1 lot, N=>3	Q29226 Q28828				2000
Latch Up	JESD78 ±200mA Overvoltage = 3.3V	1 lot, N=>6	Q29230 Q29227	85C 25C			Pass

Notes:

1. These devices are fully qualified and running in high volume production in TSMC Fab3. The move to Fab10 is a family qualification of TSMC 0.35um Embedded flash products in TSMC Fab10 facility per JEDEC JESD47.
2. Devices subjected to moisture preconditioning at MSL1@260°C.

ASECL 3x3, 4x4, 5x5 QFN Qualification Report



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ASECL 10-DFN-3X3 Non-Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29292	0/77		1 lot 0/77	Pass
UHASt	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29293 Q29297 Q29301	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29294 Q29298 Q29302	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29295 Q29299 Q29303	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q28832				2kV

ASECL 10-DFN-3X3 Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29359	0/77		1 lot 0/77	Pass
UHASt	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29360 Q29364 Q29368	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29361 Q29365 Q29369	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29362 Q29366 Q29370	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q28837				2kV

ASECL 3x3, 4x4, 5x5 QFN Qualification Report



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ASECL 20-QFN-4X4 Non-Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29318	0/77		1 lot 0/77	Pass
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29319 Q29323 Q29327	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29320 Q29324 Q29328	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29321 Q29325 Q29329	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q28833				2kV

ASECL 20-QFN-4X4 Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29380	0/77		1 lot 0/77	Pass
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29372 Q29376 Q29381	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29373 Q29377 Q29382	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29374 Q29378 Q29383	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q28835				2kV

ASECL 3x3, 4x4, 5x5 QFN Qualification Report



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ASECL 24-TQFN-4X4 Non-Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29305	0/77		1 lot 0/77	Pass
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29306 Q29310 Q29314	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29307 Q29311 Q29315	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29308 Q29312 Q29316	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q29209				2kV

ASECL 28-QFN-5X5 Non-Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29346	0/78		1 lot 0/78	Pass
UHAST	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29347 Q29351 Q29355	0/77 0/77 0/77		3 lots 0/231	Pass
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29348 Q29352 Q29356	0/77 0/77 0/77		3 lots 0/231	Pass
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29349 Q29353 Q29357	0/77 0/77 0/77		3 lots 0/231	Pass
ESD-CDM	JC101	1 lot, N=>3	Q28834				2kV

ASECL 3x3, 4x4, 5x5 QFN Qualification Report



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ASECL 32-QFN-5X5 Non-Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29331	0/80		3 lots 0/240	Pass
			Q29336	0/80			
			Q29341	0/80			
UHASt	JA110 130°C, 85%RH 96 hours	3 lots, N=>77	Q29332	0/77		3 lots 0/231	Pass
			Q29337	0/77			
			Q29342	0/77			
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29333	0/77		3 lots 0/231	Pass
			Q29338	0/77			
			Q29343	0/77			
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29334	0/77		3 lots 0/231	Pass
			Q29339	0/77			
			Q29344	0/77			
ESD-CDM	JC101	1 lot, N=>3	Q28839				2kV

ASECL 32-QFN-5X5 Automotive Flow							
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=3.3V, 96 hours	1 lot, N=>77	Q29385	0/78		1 lot 0/78	Pass
			Q29386	0/77			
			Q29390	0/77			
UHASt	JA110 130°C, 85%RH Vcc=3.3V, 96 hours	3 lots, N=>77	Q29394	0/77		3 lots 0/231	Pass
			Q29387	0/77			
			Q29391	0/77			
Temp Cycle	JA104 Cond C: -65°C to 150°C 750 cycles	3 lots, N=>77	Q29395	0/77		3 lots 0/231	Pass
			Q29388	0/77			
			Q29392	0/77			
HTSL	JA103 150°C, 1000hr	1 lot, N=>45	Q29396	0/77		3 lots 0/231	Pass
			Q29396	0/77			
			Q29396	0/77			
ESD-CDM	JC101	1 lot, N=>3	Q28838				2kV

Notes:

1. Devices subjected to moisture preconditioning at MSL1@260°C.