Process Change Notice #1611215

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PCN Issue Date: 11/21/2016	**Effective Date:** 2/24/2017
Title: CP2102N Datasheet and Errata update	

PCN Type:

☒ **Datasheet**	☐ **Foundry**	☐ **Packing**
☐ **Product Revision**	☐ **Assembly**	☐ **Labeling**
☐ **Discontinuance**	☐ **Test**	☒ **Other**

Last Order Date: NA

PCN Details

Description of Change:
Silicon Labs is pleased to announce the following datasheet update:
The CP2102N data sheet was updated from Revision 1.0 to Revision 1.1.

1. Updated the minimum Operating Supply Voltage on VDD to 3.0 V in 1. Feature List and Ordering Information, 3.1.1 Recommended Operating Conditions, 3.1.4 Configuration Memory, and Figure 2.3 Connection Diagram with Voltage Regulator Not Used on page 3.
2. Updated 4.3.6 Clock Output (CLK) to specify that the clock is not present when the device is in USB Suspend.
3. Updated QFN24 bottom pad label to GND instead of VSS.
4. Adjusted D, E, and aaa in QFN28 Package Dimensions.
5. Adjusted D, E, and L in QFN24 Package Dimensions.

Silicon Labs is also pleased to announce the following Errata update:
The CP2102N A01 errata includes the following errata for A01 revision. These issues will be solved in A01 devices with a date code of 1639 or later.

1. Systems using CP2102N may see devices fail to respond until a power-on reset. If a device fails to respond properly, remove and replace power until the device properly responds. Devices with a date code of 1639 or later will not have this issue.
2. CP2102N devices can fail to notify the host of an error flag if an error occurs while the host is reading the UART status. Devices with a date code of 1639 or later will not have this issue.
3. Devices may draw additional current on the order of normal operation mode when not connected to USB and in the self-powered configuration. The devices may not enter suspend mode properly if the USB host if disconnected. This issue is fixed in devices with a date code of 1639 or later.

Reason for Change:
Silicon Labs has announced an errata document and updated datasheet for CP2102N A01 devices. Please visit www.silabs.com for more information.

Impact on Form, Fit, Function, Quality, Reliability:
This change is considered a minor change which does not affect form, fit, function, quality, or reliability.

Product Identification:
CP2102N-A01-GQFN20
CP2102N-A01-GQFN24
CP2102N-A01-GQFN28
CP2102N-A01-GQFN20R
CP2102N-A01-GQFN24R
CP2102N-A01-GQFN28R

Last Date of Unchanged Product: 2/17/2017

Qualification Samples:
Available upon request

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.haggar@silabs.com

Qualification Data:
Please see appendix for qualification report.

Appendix

CP2102N AEC-Q100 Qualification Report

W7101F1 - Product Qualification Report Record Rev. H

CP2102N, 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		Q037190	0/77	1		
	130°C, 85%RH	3 lots, N=>77	Q037191	0/80	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q037192	0/80	1	0/237	
UHAST	JA110		Q037199	0/81	1		
	130°C, 85%RH	3 lots, N=>77	Q037200	0/80	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q037202	0/82	1	0/243	
Temp Cycle	JA104		Q037196	0/80	1		
	Cond C: -65°C to 150°C	3 lots, N=>77	Q037197	0/80	1	3 lots	Pass
	500 cycles		Q037198	0/80	1	0/240	
HTSL	JA103		Q037193	0/30	1		
	150°C, 1000hr	1 lot, N=>45	Q037194	0/30	1	3 lots	Pass
			Q037195	0/30	1	0/90	
Test Group A – Accelerated Environment Stress Tests - 24QFN - CuPd Wire UTACTH							
HAST	JA110		Q035792	0/80	1		
	130°C, 85%RH	3 lots, N=>77	Q035788	0/77	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q035789	0/80	1	0/237	
UHAST	JA110		Q037163	0/80	1		
	130°C, 85%RH	3 lots, N=>77	Q037164	0/80	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q037165	0/80	1	0/240	
Temp Cycle	JA104		Q038520	0/80	1		
	Cond C: -65°C to 150°C	3 lots, N=>77	Q038521	0/80	1	3 lots	Pass
	500 cycles		Q038522	0/80	1	0/240	
HTSL	JA103		Q035682	0/30	1		
	150°C, 1000hr	1 lot, N=>45	Q037977	0/80	1	3 lots	Pass
			Q037159	0/30	1	0/140	
Test Group A – Accelerated Environment Stress Tests - 28QFN - CuPd Wire UTACTH							
HAST	JA110		Q035792	0/80	1		
	130°C, 85%RH	3 lots, N=>77	Q035788	0/77	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q035789	0/80	1	0/237	
UHAST	JA110		Q037163	0/80	1		
	130°C, 85%RH	3 lots, N=>77	Q037164	0/80	1	3 lots	Pass
	Vcc=3.6V, 96 hours		Q037165	0/80	1	0/240	
Temp Cycle	JA104		Q037160	0/80	1		
	Cond C: -65°C to 150°C	3 lots, N=>77	Q037161	0/80	1	3 lots	Pass
	500 cycles		Q037162	0/80	1	0/240	
HTSL	JA103		Q035682	0/30	1		
	150°C, 1000hr		Q037977	0/80	1		
		1 lot, N=>45	Q037159	0/30	1	4 lots	Pass
			Q037806	0/45	1	0/185	

Approved by: Vincent Hidajat 1 of 3 Prepared on: 16-Dec-15

CP2102N AEC-Q100 Qualification Report

W7101F1 - Product Qualification Report Record Rev. H

CP2102N, HHGrace Fabrication, ASECL and UTACTH Assembly

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 $T_J \geq 125°C$, Dynamic Vcc=3.6V, 1000 hours	3 lots, N=>77	Q035684 Q035685 Q037250	0/84 0/84 0/80		3 lots 0/248	Pass
LTOL	JA108 -40°C, Dynamic Vcc=3.6V, 1000 hours	1 lot, N=>32	Q036550	0/35		1 lots 0/35	Pass
ELFR	AEC-Q100-008 $T_J \geq 125°C$, Dynamic Vcc=3.6V, 48 hours	3 lots, N=>800	Q035681 Q036910 Q037251 Q036509	0/839 0/839 0/836 0/840		4 lots 0/3354	Pass
Data Retention High Temp	AEC Q100-005 150°C, 1000hrs	3 lots, N=>39	Q035781 Q035783 Q037252	0/45 0/44 0/45		3 lots 0/134	Pass
Data Retention Low Temp	AEC Q100-005 25°C, 1000hrs	3 lots, N=>38	Q035784 Q035786 Q037253	0/45 0/45 0/45		3 lots 0/135	Pass
NVM P/E Cycling High Temp	AEC Q100-005 85°C, 1000hrs	3 lots, N=>77	Q035787 Q035782 Q037254	0/84 0/84 0/84		3 lots 0/252	Pass
NVM P/E Cycling Lowtemp	AEC Q100-005 55°C, 1000hrs	3 lots, N=>77	Q035791 Q035785 Q037255	0/80 0/80 0/84		3 lots 0/244	Pass
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 24QFN	Q038577	0/5	4	1 lots 0/5	Pass

Approved by: Vincent Hidajat 2 of 3 Prepared on: 16-Dec-15

CP2102N AEC-Q100 Qualification Report

W7101F1 - Product Qualification Report Record Rev. H

CP2102N, HHGrace Fabrication, ASECL and UTACTH Assembly

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		Q036561		5		2 kV
		1 lot, N=>3	Q035689		5		2 kV
			Q037643		5		2 kV
ESD-CDM	AEC-Q100-011		Q036705		2		1500 V
			Q035688		3		1250 V
			Q037648		3		1250 V
		1 lot, N=>3	Q036558		3		1500 V
			Q038628		4		1500 V
Latch Up	AEC-Q100-004		Q037647	125 °C			Pass
	±200mA	1 lot, N=>6	Q037674	25 °C			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-QFN
5. Five USB-related pins passed 8 kV. They are D+, D-, VBUS, VSS, VREGIN.

This report applies to the following part numbers:
CP2102N-A01-GQFN20
CP2102N-A01-GQFN24
CP2102N-A01-GQFN28