

PCN Number: 1319
Chgnot.doc rev. 13 1/14

Product/Process Change Notification (PCN)

Customer: Newark

Date: November 20, 2014

Customer Part # affected:

A1120ELHLT-T	A1122LLHLT-T	A1220LLHLT-T
A1120ELHLX-T	A1122LLHLX-T	A1220LLHLX-T
A1120LLHLT-T	A1125ELHLT-T	A1221LLHLT-T
A1121ELHLT-T	A1125ELHLX-T	A1221LLHLX-T
A1121LLHLT-T	A1125LLHLT-T	A1223ELHLT-T
A1121LLHLX-T	A1126LLHLT-T	A1223LLHLT-T
A1122ELHLT-T	A1126LLHLX-T	A1250LLHLT-T
A1122ELHLX-T	A1220ELHLT-T	A3290KLHLT-T

Originator: Stelios Kalakonas

Phone: 603-626-2484

Fax: 603-641-5336

Duration of Change:

Permanent

☒

Temporary (explain)

☐

Summary description of change: Part Change:

☐

Process Change:

☒

Other:

☐

In 2011 Allegro MicroSystems, LLC qualified a sub-contractor assembly site in Perak, Malaysia for our SOT-23W package. In addition we have recently installed and qualified a new in-house SOT-23W assembly line at Allegro's Manila, Philippines facility that replicates the line at our subcontractor. The product referenced in this document will be transitioning from aging SOT-23W assembly lines to dual assembly sites using modern equipment and the latest assembly techniques.

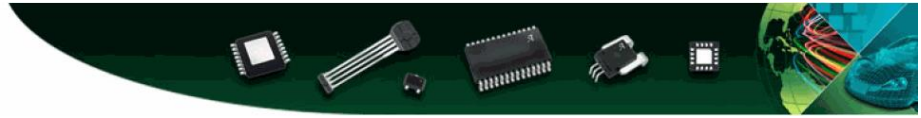
What is the part or process changing from (provide details)?

1. Assembly Location:

Existing Allegro standard SOT-23W assembly line located at our facility in Manila, Philippines.

2. Top Branding:

Please see attached picture of top brand for the existing AMPI assembled SOT-23W package.



What is the part or process changing to (describe the anticipated impact of this change on form, fit and/or function)?

1. Assembly Location:

New dual source SOT-23W assembly lines located at our subcontractor's facility in Perak, Malaysia and Allegro's new line in Manila, Philippines. Parts from these two assembly lines are in full compliance with the electrical and dimensional parameters on the existing Allegro published datasheet.

2. Top Branding:

Please see attached picture of top brand for the Subcontractor and new AMPI high-density (HD) assembled SOT-23W package

Other minor changes in the flow and BOM internal to the package will be provided in the PPAP.

Is a PPAP update required?

Yes ☒

No ☐

Is reliability testing required?
(If yes, refer to attached plan)

Yes ☒

No (explain) ☐



Reliability Qualification Results

Device: **1101**

Assy Lot #: **1409434DDAA**

Fab Location: **PSL**

Package: **LH (SOT23W)**

Number of Leads: **3**

Assembly Location: **Ampi**

Tracking Number: **2641**

Lead Finish: **100% Sn**

Reason For Qualification: **1101- Continuous-Time Switch Family (AMPI LH Qualification)**

Reliability Qualification Results						
1101, STR#2641					Requirements	
Stress Test	Abv.	Test #	Test Method	Test Conditions	S.S.	Results
Preconditioning	PC	A1	JESD22-A113/ J-STD-020	85°C/85% RH, 168 hrs, Peak Reflow=260°C;	323	0 Rejects
Temperature Humidity Bias	THB	A2	JESD22-A101	85°C, 85% RH, 0, 1000 hrs	77	0 Rejects
HAST	HAST	A2	JESD22-A110	130°C, 2 ATM, 85% RH, 0, 96 hrs	77	0 Rejects
Autoclave	AC	A3	JESD22-A102	121°C, 100% RH, 15 PSIG, 0, 96 hrs	77	0 Rejects
Temperature Cycle	TC	A4	JESD22-A104	-65°C to +175°C, 0, 500, 1000 Cycles	77	0 Rejects
High Temperature Storage Life	HTSL	A6	JESD22-A103	175°C, 0, 1000 hrs	77	0 Rejects
High Temperature Operating Life	HTOL	B1	JESD22-A108	150°C, 0, 408, 1000 hrs	77	0 Rejects
Early Life Failure Rate	ELFR	B2	AEC-Q100- 008 / JESD22-A108	150°C, 0, 48 hrs	800	0 Rejects
Wire Bond Pull	WBP	C2	800021	Temp conditions and sample size are defined in the test method.		0 Rejects; Cpk>1.33
Solderability	SD	C3	JESD22-B102	Meniscograph	15	0 rejects; > 95% Lead Coverage
Electrostatic Discharge Human Body Model	HBM	E2	AEC-Q100- 002	Test Conditions, Sampling Size are defined in the Test Method		Classification H3A, HBM = 8.0kV
Electrostatic Discharge Charged Device Model	CDM	E3	AEC-Q100- 011	Test Conditions, Sampling Size are defined in the Test Method		Classification = C6, > 1kV
Latch-Up	LU	E4	AEC Q100- 004	Test Conditions, Sampling Size are defined in the Test Method		Class II, Level A
Electrical Distributions	ED	E5	AEC Q100- 009	Tri-Temp Electrical Distributions	30 pcs/lot	0 Rejects; Cpk>1.67

This device qualification is considered to be passing all environmental stress evaluations per the *Allegro MicroSystems, LLC*. 900019 specification and AEC-Q100.

Approved by:

Bob Demers

Bob Demers
Quality and Reliability Engineering
Allegro MicroSystems, LLC



Reliability Qualification Results

Device: **1101**
 Assy Lot #: **1409435DDAA**
 Fab Location: **PSL**
 Package: **LH (SOT23W)**

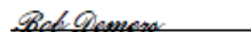
Number of Leads: **3**
 Assembly Location: **Ampi**
 Tracking Number: **2642**
 Lead Finish: **100% Sn**

Reason For Qualification: **1101- Continuous-Time Switch Family (AMPI LH Qualification)**

Reliability Qualification Results						
1101, STR#2642					Requirements	
Stress Test	Abv.	Test #	Test Method	Test Conditions	S.S.	Results
Preconditioning	PC	A1	JESD22-A113/ J-STD-020	85°C/85% RH, 168 hrs, Peak Reflow=260°C;	323	0 Rejects
Temperature Humidity Bias	THB	A2	JESD22-A101	85°C, 85% RH, 0, 1000 hrs	77	0 Rejects
HAST	HAST	A2	JESD22-A110	130°C, 2 ATM, 85% RH, 0, 96 hrs	77	0 Rejects
Autoclave	AC	A3	JESD22-A102	121°C, 100% RH, 15 PSIG, 0, 96 hrs	77	0 Rejects
Temperature Cycle	TC	A4	JESD22-A104	-65°C to +175°C, 0, 500, 1000 Cycles	77	0 Rejects
High Temperature Storage Life	HTSL	A6	JESD22-A103	175°C, 0, 1000 hrs	77	0 Rejects
High Temperature Operating Life	HTOL	B1	JESD22-A108	150°C, 0, 408, 1000 hrs	77	0 Rejects
Early Life Failure Rate	ELFR	B2	AEC-Q100- 008 / JESD22-A108	150°C, 0, 48 hrs	800	0 Rejects
Wire Bond Pull	WBP	C2	800021	Temp conditions and sample size are defined in the test method.		0 Rejects; Cpk>1.33
Solderability	SD	C3	JESD22-B102	Meniscograph	15	0 rejects; > 95% Lead Coverage
Latch-Up	LU	E4	AEC Q100- 004	Test Conditions, Sampling Size are defined in the Test Method		Class II, Level A
Electrical Distributions	ED	E5	AEC Q100- 009	Tri-Temp Electrical Distributions	30 pcs/lot	0 Rejects; Cpk>1.67

This device qualification is considered to be passing all environmental stress evaluations per the *Allegro MicroSystems, LLC*. 900019 specification and AEC-Q100.

Approved by:



Bob Demers
 Quality and Reliability Engineering
 Allegro MicroSystems, LLC



Reliability Qualification Results

Device: 1228
 Assy Lot #: 1411906DDAA
 Fab Location: PSL
 Package: LH (SOT23W)

Number of Leads: 3
 Assembly Location: Amp
 Tracking Number: 2643
 Lead Finish: 100% Sn

Reason For Qualification: 1228 - Chopper Stabilized Precision Hall Effect Latch (AMPI LH Qualification)

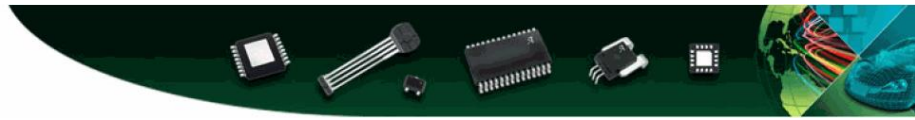
Reliability Qualification Results						
1228, STR#2643					Requirements	
Stress Test	Abv.	Test #	Test Method	Test Conditions	S.S.	Results
Preconditioning	PC	A1	JESD22-A113/ J-STD-020	85°C/85% RH, 168 hrs, Peak Reflow=260°C;	323	0 Rejects
Temperature Humidity Bias	THB	A2	JESD22-A101	85°C, 85% RH, 0, 1000 hrs	77	0 Rejects
HAST	HAST	A2	JESD22-A110	130°C, 2 ATM, 85% RH, 0, 96 hrs	77	0 Rejects
Autoclave	AC	A3	JESD22-A102	121°C, 100% RH, 15 PSIG, 0, 96 hrs	77	0 Rejects
Temperature Cycle	TC	A4	JESD22-A104	-65°C to +175°C, 0, 500, 1000 Cycles	77	0 Rejects
High Temperature Storage Life	HTSL	A6	JESD22-A103	175°C, 0, 1000 hrs	77	0 Rejects
High Temperature Operating Life	HTOL	B1	JESD22-A108	150°C, 0, 408, 1000 hrs	77	0 Rejects
Early Life Failure Rate	ELFR	B2	AEC-Q100- 008 / JESD22-A108	150°C, 0, 48 hrs	800	0 Rejects
Wire Bond Pull	WBP	C2	800021	Temp conditions and sample size are defined in the test method.		0 Rejects; Cpk>1.33
Solderability	SD	C3	JESD22-B102	Meniscograph	15	0 rejects; > 95% Lead Coverage
Electrostatic Discharge Human Body Model	HBM	E2	AEC-Q100- 002	Test Conditions, Sampling Size are defined in the Test Method		Classification H2, HBM = 3.0kV
Electrostatic Discharge Charged Device Model	CDM	E3	AEC-Q100- 011	Test Conditions, Sampling Size are defined in the Test Method		Classification = C6, > 1kV
Latch-Up	LU	E4	AEC Q100- 004	Test Conditions, Sampling Size are defined in the Test Method		Class II, Level A
Electrical Distributions	ED	E5	AEC Q100- 009	Tri-Temp Electrical Distributions	30 pcs/lot	0 Rejects; Cpk>1.67

This device qualification is considered to be passing all environmental stress evaluations per the Allegro MicroSystems, LLC. 900019 specification and AEC-Q100.

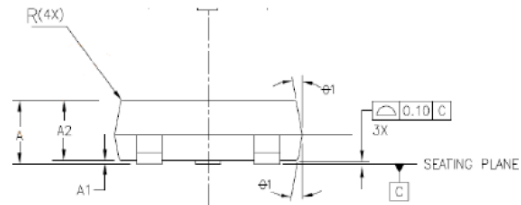
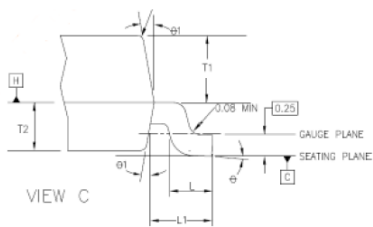
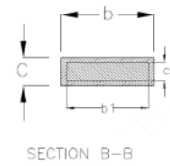
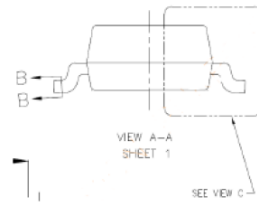
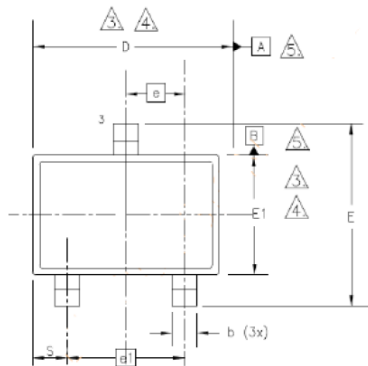
Approved by:

Bob Demers

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 Quality and Reliability Engineering
 Allegro MicroSystems, LLC



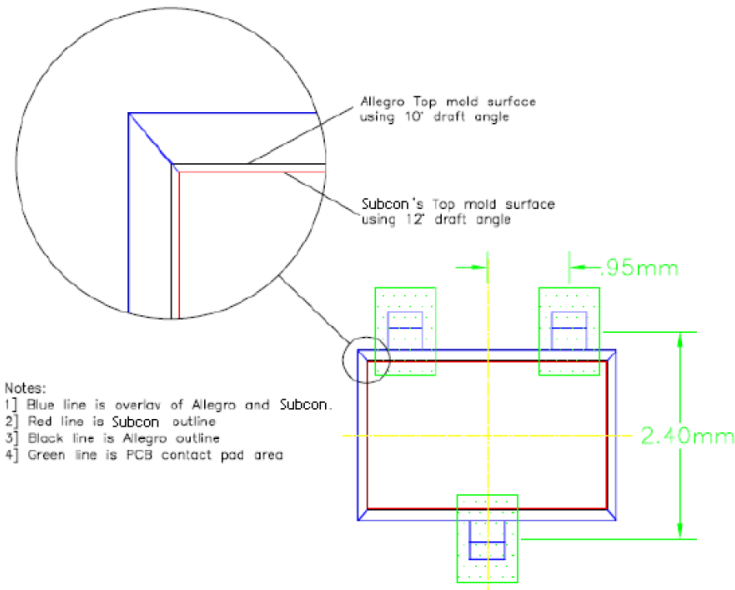
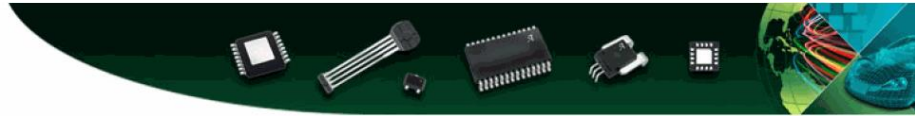
Package Outline Comparison



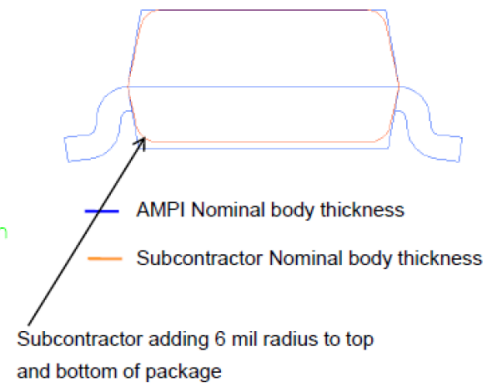
OLD

NEW

	Min	Nom	Max	Min	Nom	Max
A	0.87	1	1.13	0.87	1	1.13
A1	0	0.05	0.15	0	0.05	0.15
b	0.3	0.4	0.5	0.3	0.4	0.5
c	0.127	0.18	0.2	0.127	0.18	0.2
D	2.895	2.975	3.1	2.9	2.975	3.1
E	2.7	2.9	3.0	2.7	2.9	3.0
E1	1.85	1.91	2.1	1.85	1.91	2.1
e		0.95			0.95 bsc	
e1		1.90 bsc			1.90 bsc	
AAD	0.24	0.28	0.32	0.24	0.28	0.32
S		0.55 Ref			0.55 Ref	
R				0.05	0.15	0.2
Foot Angle	0	4	8	0		8
Draft Angle		10 ref		10	12	14

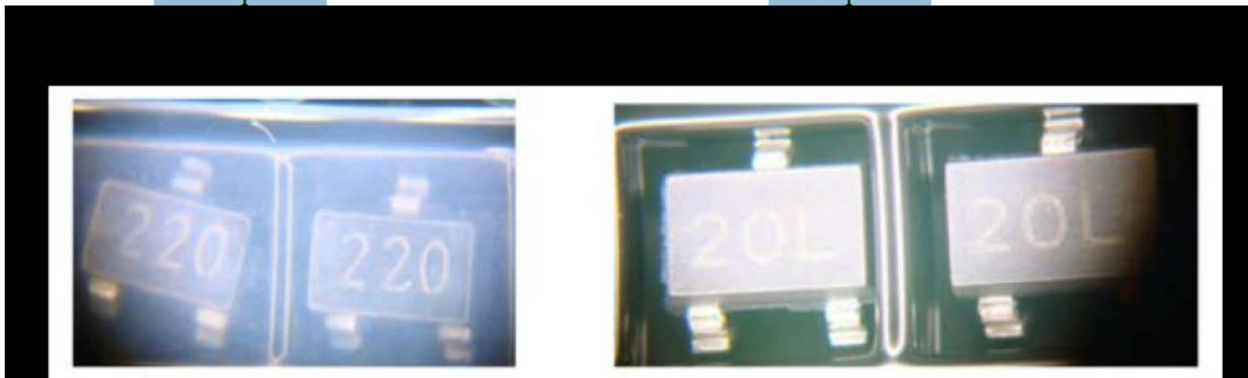


Package Body Overlay

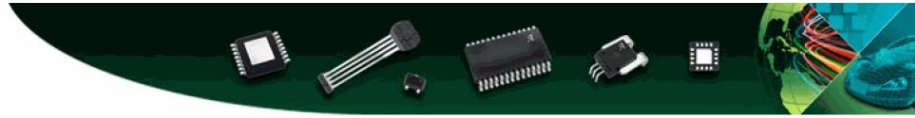


New Top Brand

Old Top Brand



- Old: Last two digits of the part number + Temperature range designator (ex. 20L)
- New: Last three digits of the part number (ex. 220)



Expected completion date for internal qualification: Complete

Expected PPAP availability date: Three weeks from request date

Target implementation date: June 2015

Estimated date of first shipment: June 2015

Expected sample availability date: January 31, 2015

Customer Approval Required:	Yes	<input type="checkbox"/>	Date Required:
	No	<input checked="" type="checkbox"/>	Notification Only

Please note: It is our intention to inform our customer of changes as early as possible. Under Allegro's procedure for product/process change notification, Allegro strives, based on its technical judgment, to provide notification of significant changes that may affect form, fit or function. However, as Allegro cannot ensure evaluation of product/process changes for each and every application; the customer retains responsibility to validate the impact of a change on its application suitability. If samples are needed for validation of a change, requests may be made via the contact information provided herein. Please contact your Account Manager or local Sales contact for any questions. We would kindly request your consideration so we can meet our target date for implementation. Unless both parties agree to extend the implementation date, this change will be implemented as scheduled.

Customer comments/Conditions of Acceptance:

Approved by:
cc: Allegro Sales/Marketing/Quality

Date:

Title: