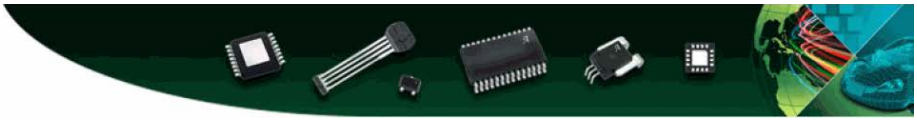

PCN Number: SM040317
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Product/Process Change Notification (PCN)

Customer: Digi-Key **Date: 04/03/2017**

Customer Part # and/or Lot# affected: A4407KLPTR-T

Originator: Scott Mitti **Phone: 508-854-5627**

Duration of Change: Permanent [x] Temporary (explain) [ ]

Summary description of change: Part Change: [ ] Process Change: [x] Other: [ ]

1. Allegro currently manufactures the A4407KLPTR-T at wafer fab, Polar Semiconductor LLC (PSL), Bloomington, MN, USA, utilizing 8" ABCD5 technology. Allegro will be changing wafer fab manufacturing to the 8" ABCD5 technology wafer line at United Microelectronics Corporation (UMC), Hsinshu, Taiwan.
2. Allegro will permanently close its wafer probe operations in Worcester, Massachusetts, USA by March 31, 2018. Wafer probe operations will be moved to Allegro MicroSystems Philippines, Inc. (AMPI) located in Manila, Philippines for the part numbers listed in this PCN.
3. The above listed device will have an additional final test location: Allegro MicroSystems (Thailand) Co., Ltd. (AMTC).

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

1. Allegro currently manufactures the A4407KLPTR-T at wafer fab, Polar Semiconductor LLC (PSL), Bloomington, MN, USA, utilizing 8" ABCD5 technology.
2. Currently the device listed is probed in Allegro's Worcester facility.
3. In addition to the current Allegro MicroSystems, test facility location in Manila Philippines, a second test facility referred to as Allegro MicroSystems (Thailand) Co., Ltd. (AMTC) located in Saraburi, Thailand will be added as a primary site.a second test facility referred to as Allegro MicroSystems (Thailand) Co., Ltd. (AMTC). Saraburi, Thailand will be added as a primary site.

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

1. Allegro will be changing wafer fab manufacturing to the 8" ABCD5 technology wafer line at United Microelectronics Corporation (UMC), Hsinshu, Taiwan.
2. Probe location for the listed device(s) will be moved to AMPI. Allegro is utilizing the same probe equipment, test programs and test methodologies in its Philippine facility as is currently being performed in its US facility. Relocation of probe operations reduces movement of wafers between factories shortening overall cycle time and minimizing

waferhandling. All expansions of probe capability and capacity will now occur at AMPI to support Allegro's future business growth.

3. Allegro will be expanding its manufacturing capabilities with the addition of a new, whollyowned integrated circuit test facility located in Saraburi, Thailand. The same make and model test equipment will be utilized and test site transfer buy off data will be on file for each device before production begins.

Note: Validation of equivalence within a specific application is at the discretion of the Customer

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Is a PPAP update required? Yes [ ] No [X]

Is reliability testing required? (If Yes, refer to attached plan) Yes [X] No (explain) [ ]

Reliability Qualification Results

Device: 4407 (944071)
Assy Lot #: 1626625UAAA
Number of Leads: 24
Fab Location: UMC

Package: LP (eTSSOP)
Assembly Location: Unisem
Lead Finish: 100% Sn
Tracking Number: 3614

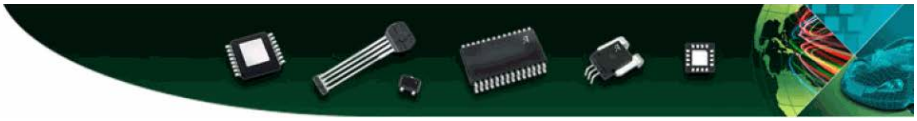
Reason for Qualification: 4407 (944071) - *2.2 MHz Constant On-Time Buck Regulator with Two External and Two Internal Linear Regulators*

Reliability Qualification Results						
4407 (944071), STR#3614					Requirements	
Stress Test	Abv.	Test #	Test Method	Test Conditions	S.S.	Results
Preconditioning	PC	A1	JESD22-A113 / J-STD-020	85°C/60% RH, 168 hrs, Peak Reflow=260°C; MSL2, (HAST, AC, TC)	231	0 Rejects
HAST	HAST	A2	JESD22-A110	Ta=130°C, 2 ATM, 85% RH, 0, 96 hrs	77	0 Rejects
Autoclave	AC	A3	JESD22-A102	Ta=121°C, 100% RH, 15 psig, 0, 96 hrs	77	0 Rejects
Temperature Cycle	TC	A4	JESD22-A104	Ta = -65°C to +175°C, 0, 500, 1000 Cycles	77	0 Rejects
High Temperature Operating Life	HTOL	B1	JESD22-A108	Ta = 125°C, 0, 1000 hrs	77	0 Rejects
High Temperature Reverse Bias Life Test	HTRB	B1	JESD22-A108	Ta = 150°C, 0, 1000 hrs	77	0 Rejects
Early Life Failure Rate	ELFR	B2	AEC-Q100-008 / JESD22-A108	Ta = 150°C, 0, 48 hrs	800	0 Rejects
Wire Bond Pull	WBP	C2	Mil-Std-883 Method 2011	Temp conditions and sample size are defined in the test method. (after TC)		0 Rejects; Ppk>1.67
Electrostatic Discharge Human Body Model(STR#3813)	HBM	E2	AEC-Q100-002 / JS-001-2014	Test Conditions, Sampling Size are defined in the Test Method		Classification 2, HBM =2.0 kV
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	JESD78	Test Conditions, Sampling Size are defined in the Test Method		Class II, Level B
Electrical Distributions	ED	E5	AEC Q100-009	Tri-Temp Electrical Distributions	30 pcs	0 Rejects; Cpk>1.67

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

Approved by:

Bob Demers
Bob Demers
Product Safety and Reliability
Allegro MicroSystems, LLC



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Expected completion date for internal qualification: Complete

Expected PPAP availability date: N/A

Target implementation date: December 2017

Estimated date of first shipment: January 2018

Expected sample availability date: Available Upon Request

Customer Approval Required:		
Yes	☐	**Date Required:**
No	X	**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: Date: Title:
cc: Allegro Sales/Marketing/Quality