

PCN Number: 1604-2  
Chgnot.doc rev. \_\_ 2/16

### Product/Process Change Notification (PCN)

**Customer:** DIGI-KEY CORPORATION

**Date:** 24 August 2016

**Customer Part # affected:**

A1101EUA-T	A1104EUA-T	A1202EUA-T	A1210EUA-T	A1213EUA-T
A1101LUA-T	A1104LUA-T	A1202LUA-T	A1210LUA-T	A1213LUA-T
A1102EUA-T	A1106EUA-T	A1203EUA-T	A1211EUA-T	A1214EUA-T
A1102LUA-T	A1106LUA-T	A1203LUA-T	A1211LUA-T	A1214LUA-T
A1103EUA-T	A1201EUA-T	A1205EUA-T	A1212EUA-T	
A1103LUA-T	A1201LUA-T	A1205LUA-T	A1212LUA-T	
<i>Including all finishing suffix variations of the sales root listed</i>				

**Originator:** Stylianos Kalakonas

**Phone:** 603-626-2300

**Fax:** 603-641-5336

**Duration of Change:**

Permanent

Temporary (explain)

**Summary description of change:** Part Change:

Process Change:

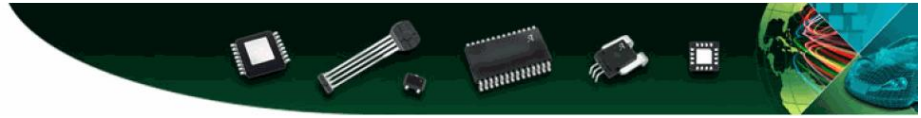
Other:

**1. Package:**

Allegro is discontinuing its legacy UA 3-pin single inline package (SIP) as we invest in our next generation UA SIP featuring advancements in assembly technology, a matrix high density (HD) leadframe, and state of the art mold compound. Please take note of the minor dimensional and material changes.

**2. Wafer Fabrication:**

The subject device will also change from Polar Semiconductor, LLC's (PSL) 6" wafer line to PSL's 8" wafer line using the same DABIC5 design process technology. The transfer is consistent with the industry's trend to pare down older capacity (< 8"). In addition to the inherent quality improvements associated with this transfer Allegro will be able to extend the products life and remain competitive by mitigating the escalating costs of maintaining the 6" wafer line which is scheduled to close with final wafer starts in the 2nd half of 2017.



## What is the part or process changing from?

### 1. Package:

Allegro's legacy UA package. Please reference DWG-0949.

Mold Compound: MG35F

Package lead length: 15.75 +/- 0.51 mm

Lead Finish: Trim after tin plate

Dam bar from package: 2.16 mm

Mold gate top of the package: None

No Draft Angle from Top Mold to back of package

### 2. Wafer Fabrication:

This device is manufactured from wafers fabricated on PSL's 6" wafer line. This line is located in a class 100 clean room with 0.50 um process capability. The 6" wafer line uses batch processing with a combination of automatic, semi-automatic and manual equipment with limited automatic recipe download capabilities.

### 3. Top Branding:

See attached picture for existing Allegro legacy UA package branding.

## What is the part or process changing to?

### 1. Package:

Allegro's Matrix HD UA package. Please reference DWG-9067.

Mold Compound: G700-LS, Rohs compliant low stress, green mold compound

Package lead length: 14.99 +/- 0.25 mm

Lead Finish: Trim before Tin plate resulting in plating of the dambar with no exposed Cu in this area

Dam bar from package: 1.02 mm

Mold gate top of the package: The redesigned with mold "pull-backs" in the gate and tie bar areas prevent mold flashing and burrs from protruding beyond the gate and tie bars.

10° Draft Angle from Top Mold to back of package: Improve with the mold ejection during prob.

### 2. Wafer Fabrication:

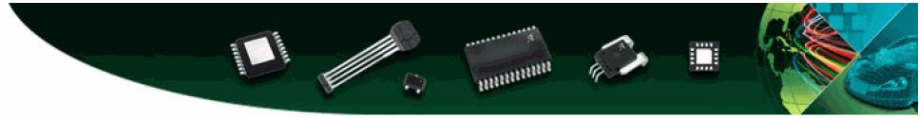
This device will be manufactured from wafers fabricated on PSL's 8" wafer line. This line is located in a class 10 clean room with 0.35 um process capability. The 8" wafer line uses single wafer processing with automatic and robotic equipment with automatic recipe download.

### 3. Top Branding:

Please see attached picture of top brand of Matrix HD UA package.

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

There is no impact to function.



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

---

**Is a PPAP update required?**

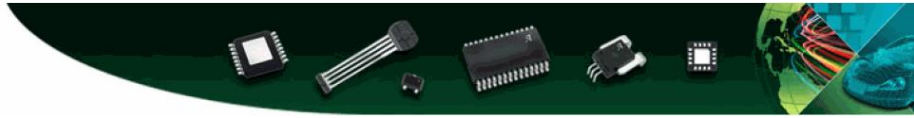
Yes

No

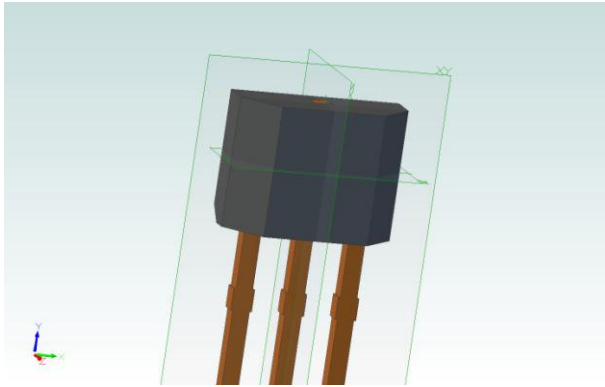
**Reliability testing required?**  
(See attached qual results)

Yes

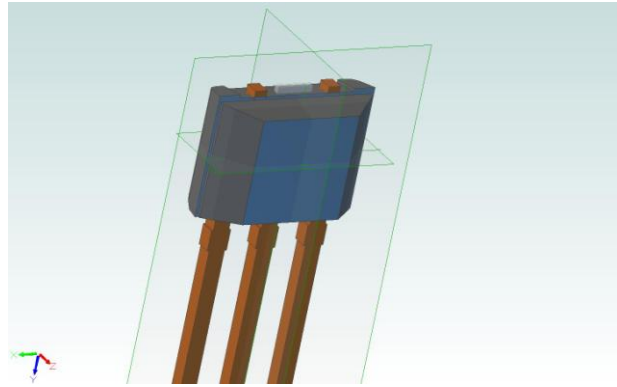
No (explain)



## Legacy UA vs Matrix HD UA - Visual Differences



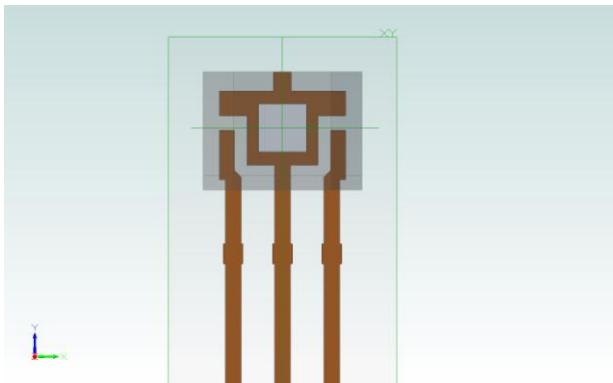
Legacy UA



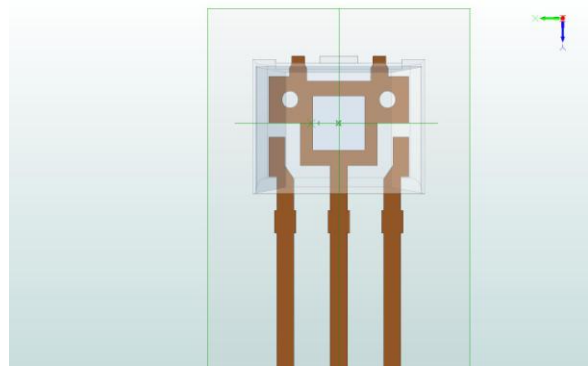
Matrix HD UA

- Top of package on the Matrix HD UA has tie and dam bar protrusions

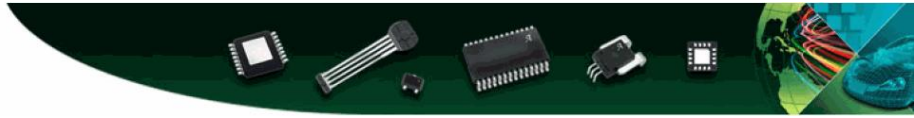
## Legacy UA vs Matrix HD UA – Leadframe Differences



Legacy UA leadframe

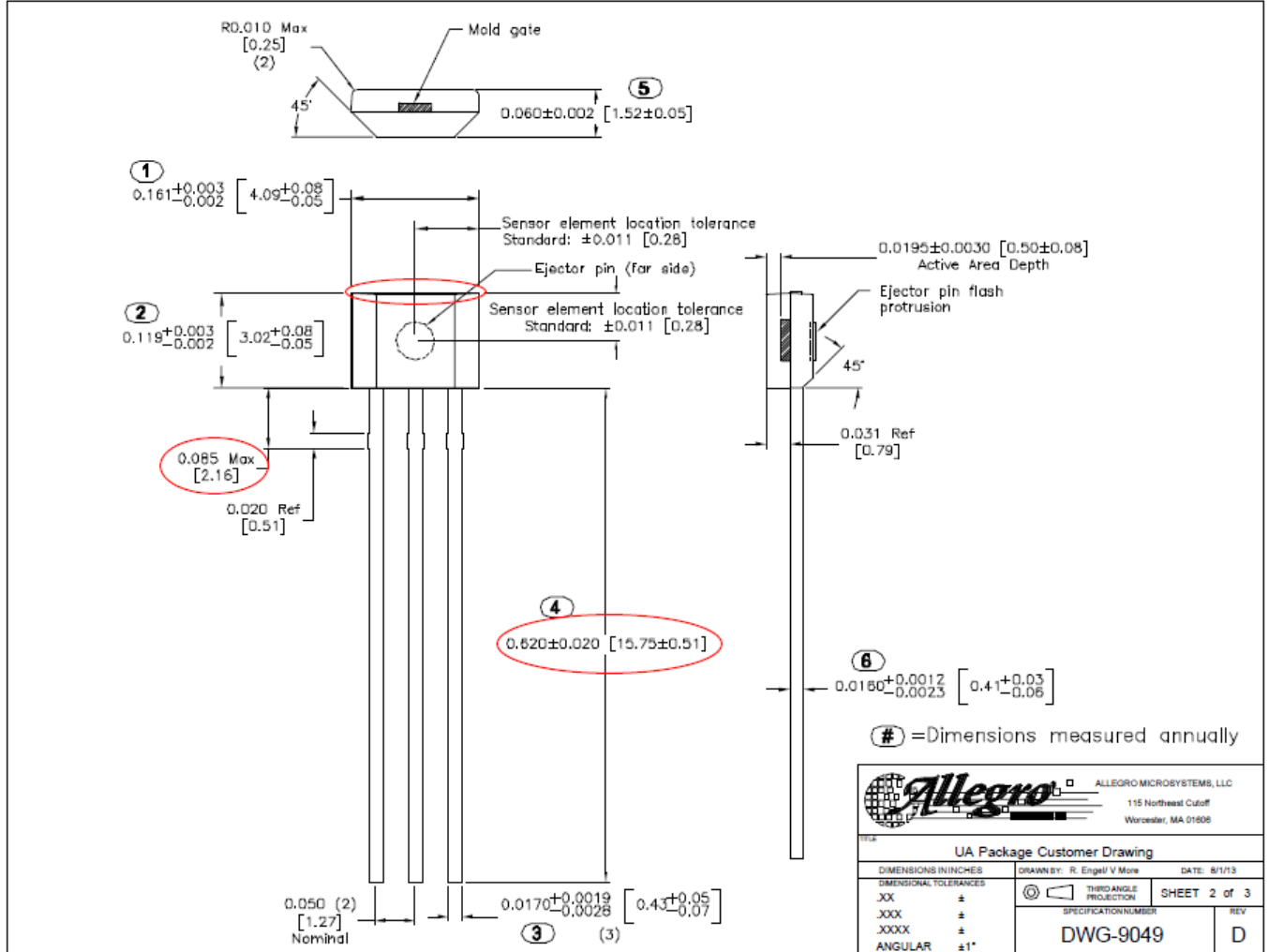


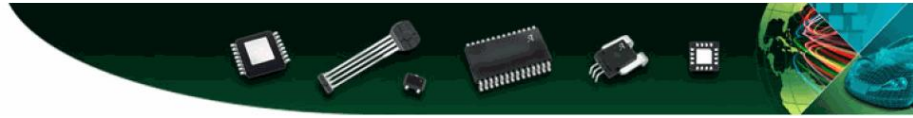
Matrix HD UA leadframe



## Legacy UA vs Matrix HD UA – Dimensional Comparison

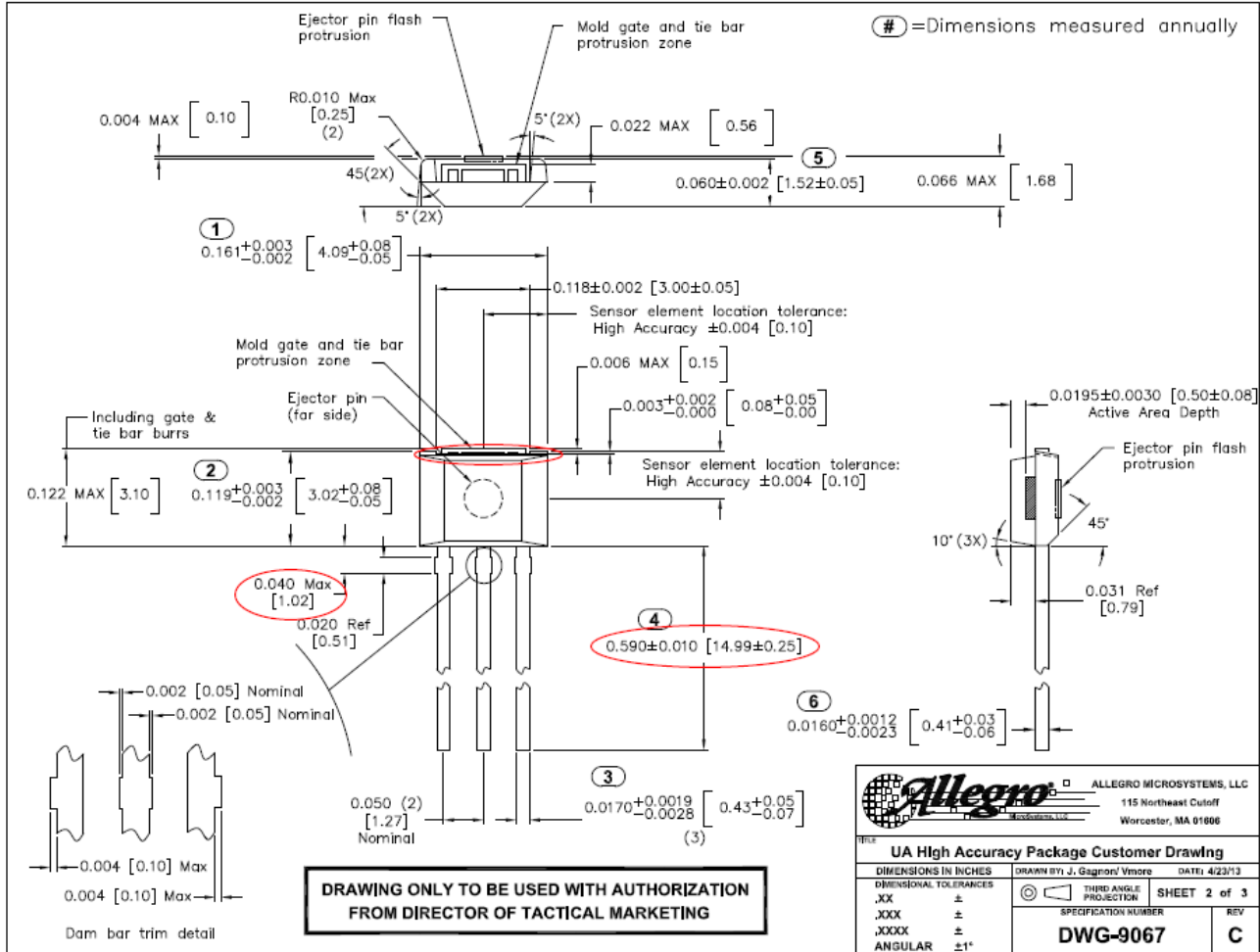
### Legacy UA



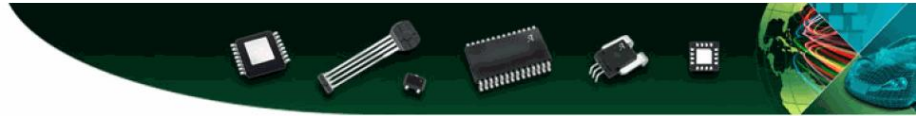


## Legacy UA vs Matrix HD UA – Dimensional Comparison Continued

### Matrix HD UA



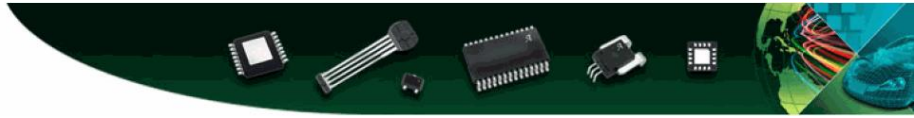
Package	Width (mm)	Height (including tie & gate bar protrusions) (mm)	Lead Length (mm)	Leadframe Mold Offset (mm)
Legacy UA	4.09 (+0.08, -0.05)	3.02 (+0.08, -0.05)	15.75 +/-0.51	+/-0.101
Matrix HD UA	4.09 (+0.08, -0.05)	3.02 (+0.08, -0.05)	14.99 +/-0.25	+/-0.051



## Top Branding Comparison

Legacy UA	Matrix HD UA
<b>01E</b>	<b>101</b>

- **Legacy UA Top Branding:**  
Last two digits of part number + Temperature range designator
- **Matrix HD UA Top Branding:**  
Last three digits of the part number



**Expected completion date for internal qualification:** November 2016

**Expected PPAP availability date:** Dec. 2016 / Jan. 2017  
(Three weeks upon request)

**Estimated date of first shipment:** March 2017

**Expected sample availability date:** Available

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

In the event the customer cannot approve the change Allegro will support Non-Cancellable Non-Returnable Last Time Buy (LTB) orders for the existing solution. LTB purchase orders must have requested delivery no later than 12 months from date below with a quantity that cannot exceed one year of demand unless there is a separate agreement with Allegro.

**Final Date to place LTB orders:** August 2017

**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