



## Final Product/Process Change Notification

Document #:FPCN24416Z

Issue Date:31 Mar 2023

<b>Title of Change:</b>	Transfer front end manufacturing location for AR0323 to TSMC FAB 14
<b>Proposed Changed Material First Ship Date:</b>	01 Jan 2024 or earlier if approved by customer
<b>Current Material Last Order Date:</b>	01 Jun 2023 <i>Orders received after the Current Material Last Order Date expiration are to be considered as orders for new changed material as described in this PCN. Orders for current (unchanged) material after this date will be per mutual agreement and current material inventory availability.</i>
<b>Current Material Last Delivery Date:</b>	29 Dec 2023 <i>The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory</i>
<b>Product Category:</b>	Active components – Integrated circuits
<b>Contact information:</b>	Contact your local onsemi Sales Office or Mike.Webster@onsemi.com
<b>PCN Samples Contact:</b>	Contact your local onsemi Sales Office to place sample order. Sample requests are to be submitted no later than 45 days after publication of this change notification. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.
<b>Sample Availability Date:</b>	14 Apr 2023
<b>PPAP Availability Date:</b>	15 May 2023
<b>Additional Reliability Data:</b>	Contact your local onsemi Sales Office or Amy.Wu@onsemi.com
<b>Type of Notification:</b>	This is a Final Product/Process Change Notification (FPCN) sent to customers. The change will be implemented at 'Proposed Change Material First Ship Date' in compliance to J-STD-46 or ZVEI, or earlier upon customer approval, or per our signed agreements. onsemi will consider this proposed change and it's conditions acceptable, unless an inquiry is made in writing within 45 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com.
<b>Change Category</b>	
<b>Category</b>	<b>Type of Change</b>
Process - Wafer Production	Move of all or part of wafer fab to a different location/site/subcontractor

### Description and Purpose:

The proposed change is to transfer all front side CMOS manufacturing of the AR0323 from TSMC Fab 12 to TSMC Fab 14. The current manufacturing wafer process flow is for front side processing to occur in FAB 12 and then backside processing to occur in Fab 14, with wafers shipping to Fab 14 after completing in Fab 12.

TSMC strategic plan is to move all CMOS imager front end and backside manufacturing out of Fab 12 and move to Fab 14. We have qualified AR0323 material to run entirely at the Fab 14 facility. These two facilities use identical manufacturing equipment, processes and maintenance plans. The are located on separate TSMC sites in Taiwan. There will be no change to form, fit or function of the product.

	Before Change Description	After Change Description
Front end MFG Site	TSMC Fab 12	TSMC Fab 14

There are no product material changes as a result of this change

There is no product marking change as a result of this change

<b>Reason / Motivation for Change:</b>	Source/Supply/Capacity Changes		
<b>Anticipated impact on fit, form, function, reliability, product safety or manufacturability:</b>	<p>The device has been qualified and validated based on the same Product Specification. The device has successfully passed the qualification tests. Potential impacts can be identified, but due to testing performed by onsemi in relation to the PCN, associated risks are verified and excluded.</p> <p>No anticipated impacts.</p>		
<b>Sites Affected:</b>			
<b>onsemi Sites</b>		<b>External Foundry/Subcon Sites</b>	
None		TSMC Semiconductor, Taiwan	
<b>Marking of Parts/ Traceability of Change:</b>	Date code		

## Reliability Data Summary:

**QV DEVICE NAME:** AR0323 and AR0147

**RMS:** N/A

**PACKAGE:** iBGA

Test	Specification	Condition	Result
HTOL	JESD22-A108	Ta = <u>105</u> °C, 100 % max rated Vcc, 1008hrs	0/231
ELFR	AEC Q100-008	Ta= <u>125</u> °C, 24hrs	0/2400
PC	J-STD-020 JESD-A113	MSL 3 @ 260 °C	0/231
HTSL	JESD22-A103	Ta= <u>150</u> °C, 504hr	0/45
TC	JESD22-A104	Ta= -55 °C to <u>+125</u> °C, 1000cyc	0/231
HAST	JESD22-A110	110°C, 85% RH, with bias, 264hrs	0/231
uHAST	JESD22-A118	110°C, 85% RH, unbiased, 264hrs	0/231
WBS	AEC Q100-001 AEC Q003	CPK >1.67	PASS
WBP	MIL-STD883 Method 2011 AEC Q003	CPK >1.67 or 0 Fails after TC (test #A4)	PASS
HBM	AEC Q100-002	0 Fails; 2KV HBM	PASS
CDM	AEC Q100-011	0 Fails: 750V for corner pins, 500V all other pins	PASS
LU	AEC Q100-004	0 Fails	PASS
ED	AEC Q100-009 AEC Q003	Elect. Distribution: (Test @ C/ R/ H)	PASS
TDDDB	JP001	2X IR 245°C	PASS
NBTI	JP001	-	PASS
HCI	JP001	-	PASS
EM	JP001	-	PASS
SM	JP001	-	PASS

All reliability tests pass.

**NOTE:** AEC 1-Page attached.

### To view attachments:

1. Download pdf copy of the PCN to your computer
2. Open the downloaded pdf copy of the PCN
3. Click on the paper clip icon available on the menu provided in the left/bottom portion of the screen to reveal the Attachment field
4. Then click on the attached file.

## Electrical Characteristics Summary:

Key Stage		Parameter Unit	Fab 14 CPK
IO Device	Isat_2N2	A/UM	5.56
	Isat_2P2	A/UM	3.39
	VTI_2N2	V_10/.28	4.61
	VTI_2P2	V_10/.28	5.29
Core Device (SVT)	Isat_N4	A/UM	2.45
	Isat_P4	A/UM	2.86
	VTI_N4	V_.3/.06	2.56
	VTI_P4	V_.6/.06	3.00
Core Device (HVT)	Isat_N4H	A/UM	2.07
	Isat_P4H	A/UM	2.93
	VTI_N4H	V_.3/.06	2.13
	VTI_P4H	V_.6/.06	2.92

Electrical characteristics are not impacted.

## List of Affected Parts:

**Note:** Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the [\*\*PCN Customized Portal\*\*](#).