



Title of Change:	ARX550 3 photo layer design revision to improve quality performance.
Proposed Changed Material First Ship Date:	15 January 2020 <i>or earlier upon customer approval.</i>
Current Material Last Order Date:	31 July 2019 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.
Current Material Last Delivery Date:	30 November 2019 The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory.
Product Category:	Active components – Integrated circuits
Contact information:	Contact your local ON Semiconductor Sales Office or < Geethakrishnan.narasimhan@onsemi.com >
Samples:	Contact your local ON Semiconductor Sales Office to place sample order or < PCN.samples@onsemi.com > Sample requests are to be submitted no later than 45 days after publication of this change notification.
Sample Availability Date:	15 February 2019
PPAP Availability Date:	1 March 2019
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or < Amy.Wu@onsemi.com >
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 12 months prior to implementation of the change or earlier upon customer approval. ON Semiconductor will consider this proposed change and its 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 .
Change Category	Type of Change
Design	Design Change in Active Elements
Process – Wafer Production	Process integrity: tuning within specification

Description and Purpose:

This final product change notification announces that the three photo layer (poly, contact and metal1 mask) design revision for ARX550 product to detect and screen parts that can potentially fail during operational lifetime has passed qualification. No additional changes in wafer manufacturing, probe, assembly or final test flows were required i.e. changes are fully compatible with current manufacturing flow.

The incident i.e. potential failures reduction involves the following change: a) layout changes in SRAM cell to add a redundant rectangular contact (i.e. change in design element but no change in routing), redundant connection through poly layer (i.e. no change in routing) in SRAM, critical dimension bias adjustment and revised OPC (Optical Proximity Correction) correction to improve manufacturing process window of Metal1 photo mask. The changes are summarized below.

Material to be changed	Before Change Description	After Change Description
Poly mask	Circuit element only connected by Metal1	Added a poly routing parallel to Metal1 connection. No new connection.
Contact mask	Circuit element only connected by Metal1	Added a slotted contact that runs parallel to Metal1 connection. No new connection.
Metal1 mask	--Metal1 connection in SRAM marginal for manufacturing. --Older version of OPC (Optical proximity correction).	--CD Bias change in Metal1 to improve margin for manufacturability. --Revised OPC algorithm to improve manufacturing process window.

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

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



Reason / Motivation for Change:	<ul style="list-style-type: none"> - Risk for late release for customer would result in the product not meeting quality expectations. - Quality improvement – Yes <p>These changes are being done to reduce potential failures (i.e. incidents) and improve quality (i.e. lower defect ppm)</p> <ul style="list-style-type: none"> - The changes in poly and contact mask, along with the current probe flow, will enable detection and screening of parts that can potentially fail during operation. - The changes in metal1 mask will improve manufacturing process window and reduce probability of failure. 	
Anticipated impact on fit, form, function, reliability, product safety or manufacturability	<p>No impact to form, fit or function. 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 ON Semiconductor in relation to the PCN, associated risks are verified and excluded.</p> <p>No anticipated impacts.</p>	
Sites Affected:	ON Semiconductor Sites: ON Santa Clara, CA	External Foundry/Subcon Sites: LFoundry
Marking of Parts/ Traceability of Change:	Affected parts will be identified with a date code.	

Reliability Data Summary:

QV Device Name: ARX550AT2C00XPEA0

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta= 105°C, 100 % max rated Vcc	1008 hrs	0/240
ELFR	AEC Q100-008	Ta=125°C, 100 % max rated Vcc	24 hrs	0/2400
PC	J-STD-020	30°C/60%RH for 192hrs + 3X IR Reflow	-	0/240
TC	JESD22-A104	-55°C - 125°C	1000 cycles	0/240
TEST	Test program to supplier datasheet or user specification	Pre- and Post-Stress Function/Parameter to meet datasheet and user specification	-	Pass
ED	AEC Q100-009	Electrical Distribution (Test @ C/R/H);	-	0/90

Note: AEC-1pager is 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/s

Electrical Characteristic Summary:

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](#).

Current Part Number	Qualification Vehicle
ARX550HDSC00XPEA0-DRBR	ARX550AT2C00XPEA0
ARX550HDSC00XPEA0-DRBR1	
ARX550HDSC00XPEA0-TRBR	
ARX550AT2C00XPEA0-DRBR	
ARX550AT2C00XPEA0-TRBR	

Appendix A: Changed Products

Product	Customer Part Number	New Part Number	Qualification Vehicle
ARX550AT2C00XPEA0-DRBR		NA	ARX550AT2C00XPEA0
ARX550AT2C00XPEA0-TRBR		NA	ARX550AT2C00XPEA0
ARX550HDSC00XPEA0-DRBR		NA	ARX550AT2C00XPEA0
ARX550HDSC00XPEA0-DRBR1		NA	ARX550AT2C00XPEA0
ARX550HDSC00XPEA0-TRBR		NA	ARX550AT2C00XPEA0