



Final Product/Process Change Notification

Document #:FPCN24902X

Issue Date:26 Aug 2022

Title of Change:	AR0521, AR0522 TSMC site transfer for FSI process
Proposed First Ship date:	05 Dec 2022 or earlier if approved by customer
Contact Information:	Contact your local onsemi Sales Office or Mike.Webster@onsemi.com
PCN Samples Contact:	Contact your local onsemi Sales Office. Sample requests are to be submitted no later than 30 days from the date of first notification, Initial PCN or Final PCN, for this change. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.
Additional Reliability Data:	Contact your local onsemi 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 90 days prior to implementation of the change. onsemi will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com
Marking of Parts/ Traceability of Change:	Date code
Change Category:	Wafer Fab Change
Change Sub-Category(s):	Manufacturing Site Transfer

Sites Affected:

onsemi Sites

None

External Foundry/Subcon Sites

TSMC Semiconductor, Taiwan

Description and Purpose:

The proposed change is to transfer all front side CMOS manufacturing of the commercial product family (AR0521, AR0522, AR1335) 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.

In an effort to expand manufacturing capacity at TSMC, we will qualify material to run front-side MFG entirely at the Fab 14 facility. These two facilities use identical manufacturing equipment, processes and maintenance plans. Fab 14 currently manufactures both commercial and automotive products for onsemi. They are located on separate TSMC sites in Taiwan.

The qualification vehicle has demonstrated equivalent performance between sites.

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.



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Reliability Data Summary:

QV DEVICE NAME: AR0521CS, AR0522CS

PACKAGE: mPLCC

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A018	TJ = <u>125</u> °C, 100 % max rated Vcc	1008 hrs	0/231
PC	J-STD-020 JESD22-A113	MSL 4 @ 260 °C		0/240
HTSL	JESD22-A103	Ta= <u>150</u> °C	504 hrs	0/120
TC	JESD22-A104	Ta= <u>-55</u> °C to <u>+125</u> °C	1000 cyc	0/120
THB	JESD22-A101	85°C, 85% RH, with bias	1000 hrs	0/120
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

Electrical Characteristics Summary:

There is no change in electrical characteristics. Anova results for mid-level, dark, BIST showed p-value of <.05 and R² of > 10%.

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](#).

Part Number	Qualification Vehicle
AR0522SRSC09SURA0-DP	AR0521SR2C09SURA0-DR
AR0522SRSC09SURA0-DP1	AR0521SR2C09SURA0-DR
AR0522SRSC09SURA0-DR	AR0521SR2C09SURA0-DR
AR0522SRSC09SURA0-DR1	AR0521SR2C09SURA0-DR
AR0522SRSM09SURA0-DP	AR0521SR2C09SURA0-DR
AR0522SRSM09SURA0-DP1	AR0521SR2C09SURA0-DR
AR0522SRSM09SURA0-DR	AR0521SR2C09SURA0-DR
AR0521SR2C09SURA0-DP	AR0521SR2C09SURA0-DR
AR0521SR2C09SURA0-DP1	AR0521SR2C09SURA0-DR
AR0521SR2C09SURA0-DR	AR0521SR2C09SURA0-DR
AR0521SR2C09SURA0-DR1	AR0521SR2C09SURA0-DR
AR0521SR2C09SURA0-MV-DP	AR0521SR2C09SURA0-DR
AR0521SR2M09SURA0-DP	AR0521SR2C09SURA0-DR
AR0521SR2M09SURA0-DP1	AR0521SR2C09SURA0-DR
AR0521SR2M09SURA0-DR	AR0521SR2C09SURA0-DR



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AR0521SR2M09SURA0-DR1	AR0521SR2C09SURA0-DR
AR0521SR2M09SURA0-MV-DP	AR0521SR2C09SURA0-DR
AR0522SRSM09SURA0-DR1	AR0521SR2C09SURA0-DR