



Customer Information Notification

202306024I : MC33981ADHFK/R2, MC33982EHFK/R2 and MC33984EHFK/R2 Qualified With NXP ICN8 LFET1T 45V Technology and NXP CHD SMOS5 Technology

Note: This notice is NXP Company Proprietary.

Issue Date: Jul 23, 2023 **Effective date:** Jul 24, 2023

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Management summary

Notification to inform customers about the successful qualification of new orderable part numbers MC33981ADHFK/R2 (VIPERL), MC33982EHFK/R2 (SPSSL), and MC33984EHFK/R2 (SPD4L) using the LFET1T 45V technology from NXP ICN8 Wafer Manufacturing Site and the SMOS5 technology from NXP CHD Wafer Manufacturing Site.

Change Category

<input checked="" type="checkbox"/> Wafer Fab Process	<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Product Marking	<input type="checkbox"/> Test Process	<input type="checkbox"/> Design
<input type="checkbox"/> Wafer Fab Materials	<input type="checkbox"/> Assembly Materials	<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Equipment	<input type="checkbox"/> Errata
<input checked="" type="checkbox"/> Wafer Fab Location	<input type="checkbox"/> Assembly Location	<input type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Location	<input type="checkbox"/> Electrical spec./Test coverage
<input checked="" type="checkbox"/> Other: Data Sheet Update (ICN8 Fab New Orderable Part Numbers and Technical Clarifications / Corrections)				

PCN Overview

Description

Previously, NXP Semiconductors announced the decision to scale down operations at our Oak Hill Wafer Manufacturing Site, located in Austin, Texas, through General Notification 202009009G and Product Discontinuation Notification 202009030DN for a number of identified Oak Hill Fab End-of-Life products. Later, updated notification 202009030DNU01 announced details for selected products with alternative replacement products.

This new Customer Information Notification 202306024I informs customers about the successful qualification of new orderable part numbers MC33981ADHFK/R2, MC33982EHFK/R2 and MC33984EHFK/R2 as alternative replacement products for discontinued end-of-life part numbers (see Parts Affected list in the report attached).

All of these products are dual dice composed of one control die and one power die in the same package.

Control die: consist of SMOS5 technology. No change on control die design, size or technology, only the manufacturing site has changed. New production site is NXP CHD Wafer Manufacturing Site, located in Chandler, Arizona, USA. CHD Fab is the major manufacturing site for SMOS5 since 2007. Power die: MC33981ADHFK/R2 consist of HDTMOS3 technology while MC33982EHFK/R2 and MC33984EHFK/R2 consist of HDTMOS5 technology. HDTMOS3 and HDTMOS5 are obsolete technologies which will be end-of-life with the scale down operations at our Oak Hill Fab. Therefore, NXP has qualified the power die with newer and well known LFET1T 45V technology. LFET1T 45V is currently in production at two NXP sites: Oak Hill Wafer Manufacturing Site, located in Austin, Texas, and ICN8 Wafer Manufacturing Site, located in Nijmegen, Netherlands. LFET1T 45V technology was qualified in ICN8 Fab in December 2020.

This qualification was performed in three phases:

- 1) Qualification of the power die with LFET1T 45V technology in Oak Hill Fab, while LFET1T 45V technology was under qualification in ICN8 Fab. This first step was completed in June 2020. However, no production was launched due to the announcement of the scale down operations in Oak Hill Fab.
- 2) Qualification of LFET1T 45V technology in ICN8 Fab. This second step was completed in December 2020.
- 3) Qualification of MC33981ADHFK/R2, MC33982EHFK/R2 and MC33984EHFK/R2 with the power die from ICN8 Fab (LFET1T 45V) and the control die from CHD Fab (SMOS5). This third step is now completed, as announced with CIN 202306024I.

The qualification strategy was defined according to the NXP Reliability Policy & Requirements and AEC-Q100. Please refer to the qualification report attachment.

New data sheet MC33981 revision 12.0 is attached, and may be obtained at <https://www.nxp.com.cn/docs/en/data-sheet/MC33981.pdf>

New data sheet MC33982 revision 19.0 is attached, and may be obtained at <https://www.nxp.com.cn/docs/en/data-sheet/MC33982.pdf>

New data sheet MC33984 revision 17.0 is attached, and may be obtained at <https://www.nxp.com.cn/docs/en/data-sheet/MC33984.pdf>

In addition, the package outline drawing of these alternative replacement products shows very minor differences, as captured in the updated data sheets and as described in the qualification report attachment.

Please reference the new data sheet revision history section of each for a complete list of changes.

Reason

NXP announces the qualification completion of new orderable part numbers MC33981ADHFK/R2 (VIPERL), MC33982EHFK/R2 (SPSSL), and MC33984EHFK/R2 (SPD4L) using the LFET1T 45V technology from NXP ICN8 Wafer Manufacturing Site, and the SMOS5 technology from NXP CHD Wafer Manufacturing Site. This is required for customer supply assurance with the announcement of the scale down operations at our Oak Hill Fab.

Identification of Affected Products

Replacement part type created, see Parts Affected list

New part numbers created: MC33981ADHFK/R2 (VIPERL), MC33982EHFK/R2 (SPSSL), and MC33984EHFK/R2 (SPD4L).

Anticipated Impact on Form, Fit, Function, Reliability or Quality

No Impact on form, fit, function, reliability or quality

Data Sheet Revision

A new datasheet will be issued

Additional information

Additional documents: view online

Related Notification

Notification	Issue Date	Effective Date	Title
202009009G	Sep 11, 2020		NXP Semiconductors Will Scale Down Operations at Oak Hill Fab
202009030DN	Sep 26, 2020	Sep 27, 2020	NXP Semiconductors Oak Hill Fab Scale Down: Product Discontinuation Notification - Analog, Sensors, Edge Processing
202009030DNU01	Aug 26, 2022	Aug 27, 2022	NXP Semiconductors Oak Hill Fab Scale Down: Product Discontinuation Notification - Select Analog Products Update Aug2022

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For specific questions on this notice or the products affected please contact our specialist directly:

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Orderable Part Number#	12NC	Product Type	Product Description	Package Outline	Package Description	Product Status	Customer Specific Indicator	Product Line
MC33981ABHFK	934070479557	MC33981ABHFK	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	DOD	No	BLC3
MC33981ABHFKR2	934070479528	MC33981ABHFKR2	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	DOD	No	BLC3
MC33981BHFK	934070648557	MC33981BHFK	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	DOD	No	BLC3
MC33981BHFKR2	934070648528	MC33981BHFKR2	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	DOD	No	BLC3
MC33982CHFK	934070462557	MC33982CHFK	SNGL 2MOHMS	HPwrQFN16	SOT1630-1	DOD	No	BLC3
MC33982CHFKR2	934070462528	MC33982CHFKR2	SNGL 2MOHMS	HPwrQFN16	SOT1630-1	DOD	No	BLC3
MC33984CHFK	934070617557	MC33984CHFK	Dual 4mOhms smart	HPwrQFN16	SOT1630-1	DOD	No	BLC3
MC33984CHFKR2	934070617528	MC33984CHFKR2	Dual 4mOhms smart	HPwrQFN16	SOT1630-1	DOD	No	BLC3
MC33981ADHFK	934072502557	MC33981ADHFK	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	ASM	No	BLC3
MC33981ADHFKR2	934072502528	MC33981ADHFKR2	HF 4.0MOHM RDSON SWITCH	HPwrQFN16	SOT1630-2	ASM	No	BLC3
MC33982EHFK	934072504557	MC33982EHFK	SNGL 2MOHMS	HPwrQFN16	SOT1630-2	ASM	No	BLC3
MC33982EHFKR2	934072504528	MC33982EHFKR2	SNGL 2MOHMS	HPwrQFN16	SOT1630-2	ASM	No	BLC3
MC33984EHFK	934072506557	MC33984EHFK	Dual 4mOhms smart	HPwrQFN16	SOT1630-2	ASM	No	BLC3
MC33984EHFKR2	934072506528	MC33984EHFKR2	Dual 4mOhms smart	HPwrQFN16	SOT1630-2	ASM	No	BLC3