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Product Change Notification **CN-202609004F**

Issue date: 09 Sep 2026

Effective date: 22 Dec 2026



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For more details please contact your respective Nexperia CSR/AM.

Introduction of additional front-end manufacturing site of Phenitec: Kagoshima in addition to Okayama

Change Category

[ ] Wafer Fab Process	[ ] Assembly Process	[ ] Product Marking	[ ] Test Location	[ ] Design
[ ] Wafer Fab Materials	[ ] Assembly Materials	[ ] Mechanical Specification	[ ] Test Process	[ ] Errata
		[ ] Packing/Shipping/Labeling	[ ] Test Equipment	[ ] Electrical spec./Test coverage

[X] Wafer Fab Location	[ ] Assembly Location

Details of this change

Introduction of additional front-end manufacturing site of Phenitec: Kagoshima in addition to existing site in Okayama. Existing products will be dual sourced. The manufacturing process will stay unchanged.

SelfQualificationReport.pdf: https://qcm.nexperia.com/Document/DOC-616148/SelfQualificationReport.pdf

CN-202609004FPCN-FORM-Rev_5_2_0.xlsm: https://qcm.nexperia.com/Document/DOC-616149/CN-202609004FPCN-FORM-Rev_5_2_0.xlsm

CN-202609004FPCN-Delta-Qualification-Matrix-ZVEI-5_2_1.xlsm: https://qcm.nexperia.com/Document/DOC-616150/CN-202609004FPCN-Delta-Qualification-Matrix-ZVEI-5_2_1.xlsm

Why do we implement this change?

This change will increase supply chain safety and flexibility, providing additional production capacity at front-end manufacturer Phenitec.

Identification of affected products

Product Identification does not change

Tracking based on date code

Management summary

Introduction of additional front-end manufacturing site of Phenitec: Kagoshima in addition to Okayama

Product availability

Production

Planned first shipment: 22 Dec 2026

Sample information

Samples are available upon request

Impact

No impact to the product's functionality anticipated

Data sheet revision

No impact to existing datasheet

Disposition of old products

NA, previous flow stays valid

Feedback

Your acknowledgement of this change, conform JEDEC J-STD-046, is expected till 09 Oct 2026. Lack of acknowledgement of the PCN constitutes acceptance of the change.

Additional information

View Change Notification Online

Contact and support

For all Quality Notification content inquiries, please contact your local Nexperia Sales Support Team.

For specific questions on this notice or the products affected please contact our specialist directly: pcn@nexperia.com

In case of distribution, please contact you distribution partner.

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Saleslten_name	Saleslten_cebrobtaPartNumber	SalesOrder_customerPartNumber	ProductType_name	BasicType_description	PackageOutlineVersion_description	PackageType_description	Saleslten_state	Saleslten_discontinuationType	Saleslten_availability	Saleslten_source	Saleslten_isnTimeMpDate	Saleslten_isnTimeSkpDate	Saleslten_customerSpecificIndicator	Replacement_Saleslten_cebrobtaPartNumber	Replacement_Saleslten_name	Replacement_ProductType_name	Replacement_BasicType_description	BusinessLine_description
0540639895215	2N7002BK,215	2N7002BK,215	2N7002BK	2N7002BK	SOT23	TO-236AB	FIPS						No					MOS Discretes
0540639895235	2N7002BKR,	2N7002BKR,	2N7002BK	2N7002BK	SOT23	TO-236AB	FIPS						No					MOS Discretes
0540641322115	2N7002P,215	2N7002P,215	2N7002P	2N7002P	SOT23	TO-236AB	FIPS						No					MOS Discretes
0540641322235	2N7002P,235	2N7002P,235	2N7002P	2N7002P	SOT23	TO-236AB	FIPS						No					MOS Discretes
0540644892115	BSS138P,215	BSS138P,215	BSS138P	BSS138P	SOT23	TO-236AB	FIPS						No					MOS Discretes

CN-202609004F

Dual sourcing of Front-end site for Phenitec: Kagoshima in addition to Okayama

Revision: 01 September 2026 **Self Qualification Report**

Document Information

Information	Content	
Author	Fabian Kloodt-Twesten	
Supplier	Nexperia	
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Revision History

Revision Date	Description
01 September 2026	New document

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1. Subject

CN-202609004F provides detailed information regarding the qualification of a second front-end manufacturing location from Phenitec in Kagoshima. This site will be released in addition to the existing, qualified facility from Phenitec in Okayama.

2. Introduction

In order to increase supply security Nexperia has qualified a second front-end manufacturing location from our established foundry Phenitec in Kagoshima. This PCN covers the qualification and release of all devices specified in Table 2 for the additional location. The process steps, used materials, in-line tests and control plans remain unchanged. There is no effect on fit, form and function of the affected products.

3. Changed assembly and final testing location

All products listed in Table 2 (Affected Products) will be released with the Kagoshima facility qualified as an additional front-end manufacturing site. The added location operates using the same processes and materials as the current Phenitec site in Okayama. In contrast, the mid-end processing—including back-grinding, back-metallization, wafer testing, and all related process steps—remains unchanged.

Table 1: Front-end manufacturing location

Current/ As is	New/ To be
Front-end location: Okayama Fab 1 (6833 Kinoko, Ibara, Okayama 715-8601 Japan)	**Front-end location:** Okayama Fab 1 (6833 Kinoko, Ibara, Okayama 715-8601 Japan) Or Kagoshima (1770-1 Kitakata, Yusui-cho, Aira-gun, Kagoshima 899-6202, Japan)

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4. Affected product types

The product types to be released with this PCN are shown in Table 2.

Table 2: Affected product types

Product	12NC	Foundry	Type of change: additional Front-end location
			Kagoshima
2N7002P/G	934670317215	Phenitec	•
2N7002P	934064132215	Phenitec	•
	934064132235	Phenitec	•
BSS138P/G	934670320215	Phenitec	•
BSS138P	934064988215	Phenitec	•
2N7002BK/G	934670313215	Phenitec	•
2N7002BK	934063609215	Phenitec	•
	934063609235	Phenitec	•

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5. Reliability test program

In line with AEC-Q101 and Nexperia General Quality Specification, an extensive qualification program has been performed to validate the assembly quality and reliability performance.

5.1 Qualification strategy

The qualification plan has been developed based on FMEA risk assessment. Potential failures have been identified and were addressed in qualification.

5.2 Test vehicles

Table 3: Qualification leader types used for qualification

Product	Package	Front-end location
2N7002P	SOT23	Kagoshima
BSS138P	SOT23	Kagoshima
2N7002BK	SOT23	Kagoshima

6. Qualification plan

The qualification as reported in the summary below has been carried out to release the product type mentioned in this PCN.

Table 4: Qualification plan

Test Group A – Accelerated Environment Stress Tests

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
A1	**PC** Pre-conditioning	JEDEC/IPC J-STD-020, JESD22-A-113, TEST before and after PC	acc. to MSL 1	2N7002P BSS138P 2N7002BK	- see notes -		0
	Notes:	All qualification parts prior to tests #A2alt H^3TRB, #A3 UHAST, #A4 TC/TCHT/TCDT, #A5 IOL/PTC and #C8 RSH.					
A2	**HAST** Highly Accelerated Stress Test	JEDEC JESD22-A-110 T_A = 130 °C, RH = 85 %, VDS = see notes	96 hours	NA	NA	NA	NA
	Notes:	Omitted in lieu of alternative test, see test #A2 alt.					
A2 alt	**H^3TRB** High Humidity High Temperature Reverse Bias	JEDEC JESD22-A-101 T_A = 85 °C, RH = 85 %, V_{DS} = see notes	1000 hours	2N7002P BSS138P 2N7002BK	1 1 1	77	0

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
	Notes:	VDS: 2N7002P =48V, BSS138P =48V, 2N7002BK =48V.					
A3	**UHAST** Unbiased HAST	JEDEC JESD22-A-118 T_A = 130 °C, RH = 85 %	96 hours	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	-					
A3 alt	**AC** Autoclave	JEDEC JESD22-A-102 T_A = 121 °C, RH = 100 %, p = 15 psig	96 hours	NA	N/A	N/A	N/A
	Notes:	Omitted in lieu of alternative test, see test #A3.					
A4	**TC** Temperature Cycling	JEDEC JESD22-A-104 Appendix 6 T = -65 °C to 150°C	1000 cycles	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	-					
A4a	**TCHT** Temperature Cycling Hot Test	JEDEC JESD22-A-104 Appendix 6	1000 cycles	N/A	N/A	N/A	N/A
	Notes:	See A4a alt.					
A4a alt	**TCDT** Delamination Test	JEDEC JESD22-A-104 Appendix 6, J-STD-035	1000 cycles	N/A	N/A	N/A	N/A
	Notes:	-					
A5	**IOL** Intermittent Operational Life	MIL-STD-750 Method 1037 T = 25 °C, $\Delta T_j \geq 100$ °C, $t_{on} = t_{off} = 2$ min	1000 hours	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	-					
A5 alt	**PTC** Power and Temperature Cycle	JESD22-A-105	1000 hours	N/A	N/A	N/A	N/A
	Notes:	Omitted in lieu of alternative test, see test # A5 (IOL).					

Test Group B – Accelerated Lifetime Simulation Tests

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
B1	**HTRB** High Temperature Reverse Bias	MIL-STD-750-1 M1038 Condition A or M1039 Condition A $T_j = T_{jmax}$, V_{DS} = see notes	1000 hours	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	VDS: 2N7002P =48V, BSS138P =48V, 2N7002BK =48V.					
B1a	**ACBV** AC blocking voltage	MIL-STD-750-1 M1040 Test condition A	1000 hours	N/A	N/A	N/A	N/A

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
	Notes:	ACBV is required for Thyristors only. Reported parts are not Thyristors.					
B1b	**SSOP** Steady State Operational	MIL-STD-750-1 M1038 Condition B (Zeners)	1000 hours	N/A	N/A	N/A	N/A
	Notes:	SSOP is required for Zener diodes only. Reported parts are not Zener diodes.					
B2	**HTGB** High Temperature Gate Bias	JEDEC JESD22-A-108 $T_j = T_{jmax}$, V_{DS} = 20V	1000 hours	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	-					

Test Group C – Package Assembly Integrity Tests

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
C1	**DPA** Destructive Physical Analysis	AEC-Q101-004 Section 4 2 devices each after HAST AEC-Q101-004 Section 4 2 devices each after TC	-	2N7002P BSS138P 2N7002BK 2N7002P BSS138P 2N7002BK	1 1 1 1 1 1	2	0
	Notes:	-					
C2	**PD** Physical Dimensions	JEDEC JESD22-B-100	-	N/A	N/A	N/A	N/A
	Notes:	-					
C3	**WBP** Wire Bond Pull Strength	MIL-STD-750-2 Method 2037 / AEC-Q006 (Cu-wire)	-	2N7002P BSS138P 2N7002BK	1 1 1	5	0
	Notes:	-					
C4	**WBS** Wire Bond Shear Strength	AEC-Q101-003, JEDEC JESD22-B116	-	2N7002P BSS138P 2N7002BK	1 1 1	5	0
	Notes:	-					
C5	**DS** Die Shear	MIL-STD-750-2 Method 2017	-	2N7002P BSS138P 2N7002BK	1 1 1	5	0
	Notes:	-					
C6	**TS** Terminal Strength	MIL-STD-750-2 Method 2036 evaluate lead integrity of through-hole leaded parts only	-	N/A	N/A	N/A	N/A

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
	Notes:	TS is required for through-hole leaded parts only. Reported parts are not through-hole leaded parts.					
C7	**RTS** Resistance to Solvents	JEDEC JESD22-B107 verify marking permanency	-	N/A	N/A	N/A	N/A
	Notes:	RTS is not required for laser etched parts or parts with no marking. Reported parts are laser etched parts.					
C8	**RSH** Resistance to Solder Heat	JEDEC JESD22-A-111 260 °C ± 5 °C	10 s	N/A	N/A	N/A	N/A
	Notes:	-					
C9	**TR** Thermal Resistance	JEDEC JESD24-3, 24-4, 24-6 as appropriate	-	N/A	N/A	N/A	N/A
	Notes:	Mid-end process is not changed and therefore not applicable					
C10	**SD** Solderability	JEDEC J-STD-002	-	N/A	N/A	N/A	N/A
	Notes:	-					
C11	**WG** Whisker Growth Evaluation	AEC-Q005	-------- according to AEC-Q005 --------				
	Notes:	No change of leadframe outside plating, leadframe material, leadframe dimensions or encapsulation process, therefore WG is not applicable					
C12	**CA** Constant Acceleration	MIL-STD-750-2 Method 2006	-	N/A	N/A	N/A	N/A
	Notes:	CA is required for hermetic packaged parts only. Reported package is not a hermetic package.					
C13	**VVF** Vibration Variable Frequency	JEDEC JESD22-B-103	-	N/A	N/A	N/A	N/A
	Notes:	VVF is required for hermetic packaged parts only. Reported package is not a hermetic package.					
C14	**MS** Mechanical Shock	JEDEC JESD22-B-104	-	N/A	N/A	N/A	N/A
	Notes:	MS is required for hermetic packaged parts only. Reported package is not a hermetic package.					
C15	**HER** Hermeticity	JEDEC JESD22-A-109	-	N/A	N/A	N/A	N/A
	Notes:	HER is required for hermetic packaged parts only. Reported package is not a hermetic package.					

Test Group D – Die Fabrication Reliability Tests

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
D1	**DI** Dielectric Integrity	AEC-Q101-004 Section 3	-	2N7002P BSS138P 2N7002BK	1 1 1	77	0
	Notes:	2N7002BK has internal ESD diode preventing the breakdown of the dielectric					

Test Group E – Electrical Verification Tests

#	Stress	Test method	Duration	Tested part(s)	# of lots	Sample Size / lot	# of Fails
E0	**EV** External Visual	JEDEC JESD22-B101	-	All qualification parts submitting for testing.			0
	Notes:	Inspect part construction, marking and workmanship					
E1	**TEST** Pre- and Post-Stress Electrical Test	According to supplier's standard specification	-	All qualification parts tested per the requirements of the appropriate part specification.			0
	Notes:	Test is performed as specified in the applicable stress reference at room temperature.					
E2	**PV** Parametric Verification	Over part temperature range specified in data sheet.	-	2N7002P BSS138P 2N7002BK	1 1 1	25	0
	Notes:	For parametric verification data, sometimes circumstances may necessitate the acceptance of only one lot by the user.					
E3	**ESDH** ESD – HBM Characterization	AEC-Q101-001	-	2N7002P BSS138P 2N7002BK	1 1 1	30	0
	Notes:	-					
E4	**ESDC** ESD – CDM Characterization	AEC-Q101-005	-	N/A	N/A	N/A	N/A
	Notes:	Small packages are not able to hold enough charge and are therefore exempt of testing according to AEC-Q101-005.					
E5	**UIS** Unclamped Inductive Switching	AEC-Q101-004 Section 2	-	N/A	N/A	N/A	N/A
	Notes:	Only applicable to Power MOS devices					
E6	**SC** Short Circuit Characterization	AEC-Q101-006	-	N/A	N/A	N/A	N/A
	Notes:	SC is required for smart power parts only. Reported parts are not smart power parts.					

7. Electrical and thermal performance

7.1 Electrical performance

Full electrical characterization over temperature range has been performed. Electrical parameters remain unchanged in specification and with the same distribution.

7.2 Thermal performance

Thermal parameters remain unchanged (in specification and with the same distribution).

8. Comparison of visual appearance

There is no change of visual appearance (within specification).

9. Traceability

Changed products can be identified by date code after implementation.

10. Conclusion

The products will not change functionally. Nexperia does not anticipate any negative impact on fit, form, function, and reliability.

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