ESCC

APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: TRANSISTORS, MICROWAVE, SMALL SIGNAL, BIPOLAR, BASED ON TYPE BFY 640, 640B, 650B, 740B

Executive Member: DLR Date: 23/10/2018

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Appl. No. 322C

Components (including series and families) submitted for Extension of Qualification Approval: 1

ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
5611/009	01 to 03		BFY 640	BFY640-04(ES)	
5611/010	01 to 04		BFY 640B, 650B		
5611/011	01		BFY 740B		

2 Component Manufacturer
Infineon Technologies AG

3 Location of Manufacturing Plant(s)
Am Campeon 1-12
D- 85579 Neubiberg
Germany

4 Date of original qualification approval:
Date: 01/09/2012

Certificate Ref No. 322

5 ESCC Specifications used for Maintenance of qualification testing:
Generic: 5010 Issue: 02
Detail(s): 5611/009 Issue: 02
5613/004 Issue: 02

6 Deviations to LVT testing and Detail Specification used:
No ☒ Yes ☑ (supply details in Box 15)
Deviation from current Specifications:
No ☒ Yes ☑ (Supply details)

7 Qualification Extension Report reference and date:
1814LR10, Iss 1, April 2018
1814LR11, Iss 1, April 2018

8 Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first)

Project Name	Testing Level	LAT	Date code	Quantity Delivered

9 PID changes since last MoQ
None ☐
Minor* ☒
Major* ☐ *Provide details in box: Please see Detail PIDs

10 Current PID Verified by: B. Gökgöz
Name of Executive Representative
Ref No: Generic PID: A63500-GEPID-P000, Issue 2c, 18.10.2018
Detail PID: **BFY640:** A63500-T580-P000, Issue 3a, 18.10.2018
Rest: A63500-T1580B-P000, Issue 3a, 18.10.2018
Issue: See above Date: See above
Rev Date: 26/10/2018

11 Current Manufacturing facilities surveyed by: T. Kaupisch on 17-18/10/2018
(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: IFX-AUD-2018

12

Failure Analysis, DPA, NCCS available: Yes ☐ No ☒ (Supply data)

Ref. No's and purposes:

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The undersigned hereby certifies on behalf of the ESCC Executive - that the above information is correct; - that the appropriate documentation has been evaluated; - that full compliance to all ESCC requirements is evidence (except as stated in box 15;) - that the reports and data are available at the ESCC Executive and therefore applies on behalf of DLR as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date: 23/10/2018

B. Gökgöz

(Signature of the Executive Coordinator)

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Continuation of Boxes above:

ESCC	APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL Component title: TRANSISTORS, MICROWAVE, SMALL SIGNAL, BIPOLAR, BASED ON TYPE BFY 640, 640B, 650B, 740B Executive Member: DLR Date: 23/10/2018	Page 3 Appl. No. 322C

Non compliance to ESCC requirements: 15

No.:	Specification	Paragraph	Non compliance
1	ESCC 5010	CHART F4	No periodic repetition of Endurance Subgroup
2	ESCC 5010 ISSUE 3 (APRIL 2017)		ISS 2 USED FOR MAINTENANCE OF QUALIFICATION

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance: 16

The approved Detail PIDs describe the agreed methodology for maintenance of qualification regarding similarity in § 7

REVISED PID APPROVED IN OCT. 2018

Executive Manager Disposition 17

Application Approval: Yes ☑ No ☐

Action / Remarks:

Date:

(BRITTA SCHADE)

Signature of ESA Head of Product Assurance and Safety Department

ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION

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Tests conducted in compliance with:

- ESCC 5010 generic specification; Chart V (for ESCC/QPL parts);

Tests vehicle identification/description:

1814LR10	BFY640-04(ES), EnvMechSG, AssCapSG, DecapSG, 1709A
1814LR11	CFY67-08(ES), AssCapSG, 1632A

Detail Specification reference: 5613/004 and 5611/009

Chart F4A	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroups	Thermal Shock Test	☒	MIL-STD-202 Test Method 107 Test Condition B, 100 cycle	1709A	10	0	acc. Detail Spec
	Shock Test	☐	MIL-STD-750 Test Method 2016				n.a. acc. Detail Spec
	Vibration Test	☐	MIL-STD-750 Test Method 2056				n.a. acc. Detail Spec
	Constant Acceleration	☐	MIL-STD-750 Test Method 2006				n.a. acc. Detail Spec
	Seal Test (Fine and Gross Leak)	☒	MIL-STD-750 Test Method 1071	1709A	10	0	
	Moisture Resistance	☒	MIL-STD-750 Test Method 1021	1709A	10	0	
	Electrical Measurements at Room Temp.	☒	Table 2 of the Detail Specification	1709A	10	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	1709A	10	0	
Endurance Subgroup*	Operating Life	☐	MIL-STD-750 Test Method 1026				Former data from Wafer available
	Electrical Measurements during Endur. Test	☐	Table 6 of the Detail Specification				Former data from Wafer available
	External Visual Inspection	☐	ESCC Basic Specification No. 20500				Former data from Wafer available

* LAT2 on actual wafer was performed satisfactorily on Assembly Lot 1041.1, Date Code: 1043A

Chart V	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Assembly Capability Tests	Solderability Test	☒	MIL-STD-750 Test Method 2026	1632A	2 4	0 0	
	Permanence of Marking	☒	ESCC Basic Specification No. 24800	1632A	2 4	0 0	
	Terminal Strength	☒	MIL-STD-750 Test Method 2036	1632A	2 4	0 0	
De-encapsulation Tests	Internal visual inspection	☒	ESCC Basic Specification No. 20400	1632A 1709A	2 6	0 0	
	Bond Strength	☒	MIL-STD-750 Test Method 2037	1632A 1709A	2 6	0 0	
	Die Shear	☒	MIL-STD-750 Test Method 2017	1632A 1709A	2 6	0 0	

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL

ENTRIES

Form heading	shall indicate: - the title of the component as given in its detail specification or the name of the series, family; - the Executive Member; - the entering date; - the certificate number and its sequential suffix.
Box 1	shall provide details given in the table; in particular there shall be listed: - the variants or range of variants; - the range of components (the ESCC code is recommended to indicate the values or values range, the tolerance, the voltage, etc); the designation given in the detail specification as 'base on'; - under Test Vehicle enter either an ESCC code or the specific characteristic capable of identifying the component tested (e.g., voltage of coil for a relay); - under component similar enter a cross if relevant.
Box 2; 3 and 4	As per QPL entry; otherwise, an explanation of the changes must be supplied.
Box 5	Will show the ESCC Generic and Detail specifications, including issue number and revision letter, current at the time the tests reported were performed. If the specifications are different from those current on the date of the application, see Box 6.
Box 6	Will show the deviations from the Generic and Detail Specifications listed in Box 5, in particular deviations from testing. In case of deviations this must be listed in Box 15. In case the referenced specification in Box 5 have currently a different issue and/or revision indicate also whether the test data deviates or not from such current documents.
Box 7	Must reference the report(s) supplied in support of the application.
Box 8	Should provide the details of procurement to the full ESCC System, documentation of all of which should already have been delivered to the ESCC Executive under the terms of the relevant Generic Specification. An appropriate table has been drawn in this box.
Box 9	If the PID evolved after the Original Qualification or after the last Extension of Qualification, adequate details of such evolution shall be provided together with the reasons for the changes. Major changes shall be clearly marked.
Box 10	Identify the current PID issue status, date and actual date of verification. The date of verification of the current PID should be arranged as close as possible to the required date of extension.
Box 11	This box can be completed only after a physical visit to the plant to confirm that no unexplained changes occurred and that the practices, procedures, material, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 12	Provide details of, or reference to, any Destructive Physical Analysis (DPA) and Failure Analysis reports as well as any Nonconformance(s) (NCCS) occurred during the qualification validity period, stating if established corrective action have produced satisfactory results.
Box 13	Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.
Box 14	To be used when there is a need to expand any of the boxes from 1 through 12. Identify box affected and reference the Box 14 in the relevant Box. Box 14 can be broken into 14a, 14b, etc. if several boxes have to be expanded.
Box 15	Fill in Table as requested.
Box 16	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 17	All Executive Manager recommendations on the application itself, special conditions or restrictions, modifications of the QPL or QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 19, signed by the representative for ESA, and dated.
Box 18	Fill in Table as requested.
Box 19	Confidential Details of PID changes including those of a confidential nature, shall be provided.
Box 20	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 16 each nonconformance shall be sequentially numbered. If relevant state 'None'.
Box 21	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 22	Additional Comments.