APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

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Component Title: Capacitors, Microwave, Silicon, MOS, Naked Die based on Types 101M, 201M, 400M and 401M

Appl. No. 286E

Executive Member: CNES Date: 30/04/2019

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

ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
5711/002	01 to 31	40V to 200 V	400M	101M104A100M	
				400M106A100M	
				400M108C680M	

2 Component Manufacturer

Cobham Microwave

3 Location of Manufacturing Plant(s)

31, avenue de la Baltique
91978 Villebon-sur-Yvette Cedex
France

4

Date of original qualification approval:
Date: 15/12/2008

Certificate Ref No. 286

5

ESCC Specifications used for Maintenance of qualification testing:

Generic: 5010 Issue: 3

Detail(s): 5711/002 Issue: 3

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:

2017098652-223 dated 25/09/2017
2018019456-223 dated 18/01/2018
20181211476-223 dated 03/01/2019

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
Various		Chart F4B	2017 - 2018	>16 000

9

PID changes since start of qualification

None ☐
Minor* ☒
Major* ☐

*Provide details in box:

10

Current **PID** Verified by: CNES (JLR)

Name of Excutive Representative

Ref No: PID 302
Issue: I Date: 18/04/2019
Rev Date: 18/04/2019

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Current Manufacturing facilities surveyed by: (F. Martin) ESA and CNES (JLR) on 24/09/2014

(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: COBH-CIRC-AUD-2014 (ref. ESA-TECQES-RP-0508)

12

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

Ref. No's and purposes:

13

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 CNES as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date: 30/04/2019

JP. BUSSENOT

(Signature of the Executive Coordinator)

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Continuation of Boxes above:

Box 9 :

Editorial changes : new edition of ESCC 5010 (Issue 3) and Detailed Specification ESCC (Issue 4), updated organisation chart.

Box 11 :

The audit performed on Sept. 2014 focussed on the manufacturer's isolator and circulator products. However some areas (back end, screening) and general topics (quality, organisation, ...) are common with the sicilon components manufacturing and have benefited from it.

15

Non compliance to ESCC requirements:

No.:	Specification	Paragraph	Non compliance

16

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

THE P10 EVOLUTION IS RELATED TO THE ADOPTION OF THE LATEST UPDATE OF ESCC 5010 SPECIFICATION.

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Executive Manager Disposition

Application Approval: Yes ☑ No ☐

Action / Remarks:

Date:

B. Schade, Head of ESA 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);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

101M104A100M	400M106A100M
400M108C680M	

Detail Specification reference: 5711/002

Chart F4B	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	☐	ESCC 5010 Para. 9.5.2				Not required (naked die)
	Shock Test	☐	MIL-STD-750 Test Method 2016				Not required (naked die)
	Vibration Test	☐	MIL-STD-750 Test Method 2056				Not required (naked die)
	Constant Acceleration	☐	MIL-STD-750 Test Method 2006				Not required (naked die)
	Seal Test	☐	MIL-STD-750 Test Method 1071				Not required (naked die)
	Moisture Resistance	☐	MIL-STD-750 Test Method 1021				Not required (naked die)
	Seal Test	☐	MIL-STD-750 Test Method 1071				Not required (naked die)
	Electrical Measurements at Room Temp.	☐	Table 2 of the Detail Specification				Not required (naked die)
	External Visual Inspection	☐	ESCC Basic Specification No. 20500				Not required (naked die)
Endurance Subgroup	Operating Life	☒	MIL-STD-750 Test Method 1026	1730 1805 1844	8 + 8 + 8	0	
	Electrical Measurements during Endur. Test	☒	Table 6 of the Detail Specification	1730 1805 1844	8 + 8 + 8	0	
	External Visual Inspection	☐	ESCC Basic Specification No. 20500				Not required (naked die)

Chart F4B	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Electrical Subgroup – Electrical Measurements	Electrical Measurements at Room Temp.	☐	Table 2 of the Detail Specification				Not required (naked die)
	Electrical Measurements at High & Low Temp's	☐	Table 3 of the Detail Specification				Not required (naked die)
	External Visual Inspection	☐	ESCC Basic Specification No. 20500				Not required (naked die)
	Special Testing	☐	The Detail Specification				Not required (naked die)
Electrical Subgroup – Assembly Capability Tests	Solderability Test	☐	MIL-STD-750 Test Method 2026				Not required (naked die)
	Permanence of Marking	☐	ESCC Basic Specification No. 24800				Not required (naked die)
	Terminal Strength	☐	MIL-STD-750 Test Method 2036				Not required (naked die)
De-encapsulation Sub group	Internal Visual Inspection	☐	ESCC Basic Specification No. 20400				Not required (naked die)
	Bond Stregth	☒	MIL-STD-750 Test Method 2037	1730	4	0	
	Die Shear	☒	MIL-STD-750 Test Method 2017	1730	4	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.