APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Page 1

Component Title: DIODES, MICROWAVE, SILICON, MULTIPLIER, PIN AND VARACTOR, BASED ON TYPES DH 2XX, DH 50XXX AND DH76XXX

Appl. No. 225 H

Executive Member: CNES Date: 05/06/2019

1 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
5512/023			DH76XXX	5512/023-37	All other variants
				5512/023-65	All other variants
5512/016			DH2XX	5512/016-41	All other variants

2 Component Manufacturer
COBHAM MICROWAVE

3 Location of Manufacturing Plant(s)
31, avenue de la Baltique
91978 Villebon Sur Yvette
France

4 Date of original qualification approval:
Date: 01/06/1995

Certificate Ref No. 225

5 ESCC Specifications used for Maintenance of qualification testing:
Generic: 5010 Issue: 3
Detail(s): 5512-023 Issue: 6
5512-016 Issue: 7

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:
2019-0311867-223 dated 26/03/2019
2018-0510100-223 dated 18/05/2018
2018-0910775-223 dated 20/09/2018
2018-1211398-223 dated 23/04/2019

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		LAT2/chart F4	1805, 1848	> 1500

9 PID changes since start of qualification
None ☐
Minor* ☐
Major* ☒ *Provide details in box:

10 Current PID Verified by: J.L. Roux
Name of Excutive Representative
Ref No: 350
Issue: F Date: 05/06/2019
Rev Date: 01/05/2019

11 Current Manufacturing facilities surveyed by: ESA and CNES on 24/09/2014
(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: COBH-CIRC-AUD-2014

12

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

Ref. No's and purposes: 2CCOB901

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: 15/07/2019

JP. BUSSENOT

(Signature of the Executive Coordinator)

14

Continuation of Boxes above:

9 : PID of PIN diodes (ref. 350 issue E) and varactors diodes (ref. 304 issue G) have been merged into a single document (ref. 350 issue F).

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
NC2CC OB901	5512/0xx and 5513/0xx		Qualification Lapse since expiration date

16

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

The close-out of the Maintenance of Qualification in 2019 has been agreed between the ESCC Executive and Cobham (this form).

The commonalities between the scope of qualification for diodes previously qualified under certificates 225 and 273 has been found sufficient to merge both qualifications under one certificate, 225, from this update to iss. H. Therefore, the validity certificate No. 273 will no longer be extended.

17

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

Tests conducted in compliance with:

- ESCC 5010 generic specification; Chart V (for ESCC/QPL parts);
- Or PID-TFD [illegible] (for ESCC/QML parts)

Tests vehicle identification/description:

DH252-541 (5512016-41)	DH40144
DH76150 (5512023-65)	

Detail Specification reference: 5512/016

Chart F4	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 Cycling	☒	ESCC 5010 Para. 8.8.2	DC1810-05P004	6	0	Performed on DH40144
	Mechanical Shock Test	☐	MIL-STD-750 Test Method 2016				Not applicable
	Vibration Test	☐	MIL-STD-750 Test Method 2056				Not applicable
	Constant Acceleration	☐	MIL-STD-750 Test Method 2006				Not applicable
	Seal Test	☐	MIL-STD-750 Test Method 1071				Not applicable
	Moisture Resistance	☒	MIL-STD-750 Test Method 1021	DC1810-05P004	6	0	Performed on DH40144
	Seal Test	☒	MIL-STD-750 Test Method 1071	DC1810-05P004	6	0	Performed on DH40144
	Electrical Measurements at Room Temp.	☒	Table 2 of the Detail Specification	DC1810-05P004	6	0	Performed on DH40144
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	DC1810-05P004	6	0	Performed on DH40144
Endurance Subgroup	Operating Life	☒	MIL-STD-750 Test Method 1026	DC1848-13H005B DC1805-17H003B1 DC1803-17J002A	3 x 8	0	
	Electrical Measurements during Endur. Test	☒	Table 6 of the Detail Specification	DC1848-13H005B DC1805-17H003B1 DC1803-17J002A	3 x 8	0	
	Seal test	☒	MIL-STD-750 Test Method 1071	DC1848-13H005B DC1805-17H003B1	2 x 8	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	DC1848-13H005B DC1805-17H003B1	2 x 8	0	

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Assembly Capability Suggroup Tests	Solderability Test	☒	MIL-STD-750 Test Method 2026	DC1848-13H005B	2	0	
	Permanence of Marking	☒	ESCC Basic Specification No. 24800	DC1848-13H005B	2	0	
De-encapsulation Subgroup	Terminal Strength	☒	MIL-STD-750 Test Method 2036	DC1848-13H005B	2	0	
	Thermal Impedance Test	☒	MIL-STD-750 Test Method 3101	DC1848-13H005B DC1805-17H003B1 DC1803-17J002A	3 x 4	0	
	Forward Voltage Test	☒	MIL-STD-750 Test Method 4011	DC1848-13H005B DC1805-17H003B1 DC1803-17J002A	3 x 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.