ESCC

APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: INTEGRATED CIRCUITS, SILICON MONOLITHIC, PULSE WIDTH MODULATOR

Executive Member: CNES

Date: 12/01/2023

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Appl. No.
344C

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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
9108 020	01; 02		Type ST1843	9108 020 01F	All variant
9108 021	01; 02		Type ST1845	9108 021 01R	All variant

2

Component Manufacturer

ST Microelectronics

3

Location of Manufacturing Plant(s)

Rennes 35041 – France

4

Date of original qualification approval:

Date: 14/11/2016

Certificate Ref No. 344

5

ESCC Specifications used for Maintenance of qualification testing:

Generic: 9000 Issue: 11

Detail(s): 9108/020 Issue: 5
9108/021 5

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:

33311002Z0 DC 2126A ST1843FKG Endurance Sg
33306005Z6 DC 2215A ST1845RKG Full F4

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 start of qualification

None ☒

Minor* ☐

Major* ☐ *Provide details in box:

10

Current **PID** Verified by: CNES (L. Baczkowski)

Name of Excutive Representative

Ref No: 8303834 (PWM) & 8097046 (generic)

Issue: 6 & 36 Date: 12/01/2022

Rev Date: 27/11/2018 & 03/10/2022

11

Current Manufacturing facilities surveyed by: CNES (JB Sauveplane) on 08/10/2021

(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: CR-Visite Octobre 2021

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: 13/01/2023

G. QUADRI,CNES

(Signature of the Executive Coordinator)

Continuation of Boxes above:

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ESCC	**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL** Component title: INTEGRATED CIRCUITS, SILICON MONOLITHIC, PULSE WIDTH MODULATOR Executive Member: CNES Date: 12/01/2023	 Appl. No. 344C

Non compliance to ESCC requirements: 15

No.:	Specification	Paragraph	Non compliance

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

Executive Manager Disposition 17

Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

B. Schade: Head of the 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 9000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

ESCC 9108 020 01 ST1843FKG (33311002Z0) DC 2126 Chart F4 Endurance Subgroup	ESCC 9108 021 01 ST1845RKG (lot id. 33306005Z6 DC 2215A Full Chart F4

Detail Specification reference: 9108/020 ; 9108/021

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 Subgroup	Mechanical Shock	☒	MIL-STD-883, Test Method 2002	2215A	15	0	
	Vibration	☒	MIL-STD-883, Test Method 2007	2215A	15	0	
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001	2215A	15	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-883, Test Method 1014	2215A	15	0	
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification	2215A	15	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	2215A	15	0	
	Thermal Shock	☒	MIL-STD-883. Test Method 1011	2215A	15	0	
	Temperature cycling	☒	MIL-STD-883, Test Method 1010	2215A	15	0	
	Moisture Resistance	☒	MIL-STD-883, Test Method 1004	2215A	15	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-883, Test Method 1014	2215A	15	0	
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification	2215A	15	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	2215A	15	0	

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance Subgroup	Operating Life	☒	MIL-STD-883, Test Method 1005	2215A + 2126A	15 + 15	0	
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification	2215A + 2126A	15 + 15	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-883, Test Method 1014	2215A + 2126A	15 + 15	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	2215A + 2126A	15 + 15	0	
Assembly Capability Subgroup	Permanence of Marking	☐	ESCC Basic Specification No. 24800				Not applicable for laser marking
	Terminal Strength	☒	MIL-STD-883, Test Method 2004	2215A	5	0	
	Internal Visual Inspection	☒	ESCC Basic Specification No. 20400	2215A	5	0	
	Bond Strength	☒	MIL-STD-883 Test Method 2011	2215A	2	0	
	Die Shear or Substrate Attach Strength	☒	MIL-STD-883 Test Method 2019 or 2027	2215A	2	0	
Additional Tests	RGA	☐	MIL-STD-883 Test Method 1018.7				Only applicable to single phase qualification of Wire-bonded Integrated Circuits

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.