		APPLICATION FOR ESCC QUALIFICATION APPROVAL			Page 1 Appl. No. 369
Component Title: Bipolar (PN) Power Diodes based on types BYV, BYW and STTH		Executive Member: CNES			Date: 5/11/2020
Components (including series and families) submitted for Qualification Approval					1
ESCC COMPONENT. NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
5101/014	13, 14	LCC2A	1N5806	336090004Z7	
5101/013	11, 12	LCC2B	1N5811	33142008YS	
5101/027	07, 08, 09	LCC2D	1N6640U	33528001YC	
5101/026	07, 08,	LCC2D	1N6642U	33528001ZQ	
5103/029 5103/031	05, 07, 08 02, 05	TO254, SMD.5 TO254, TO254AA	BYW81-200 BYV54-200	33518002ZW 33443001ZP	
5103/032 5103/033	01 01, 02, 03	SMD1, TO-254AA, SMD1	STTH60400 STTH40200 STTH60200	33625001ZN 33648007ZZ	
Component Manufacturer STMicroelectronics		2 Location of Manufacturing Plant 3, rue de Suisse BP4199, 35041 Rennes Cedex	3 ESCC Specification used for Qualification Generic: 5000 issue 8 Detail/s: 5101/013 issue 6 5101/014 issue 5 5101/026 issue 6 5101/027 issue 5 5103/029 issue 9 5103/031 issue 9 5103/032 issue 3 5103/033 issue 2	4	
Qualification Report Reference and date: ID33443001ZP BYV54S200HYG Chart F4 DC1908 ID33625001ZN STTH60400SAG Chart F4 Sg2 DC1923			5	PID used for manufacturing Qualification Lot 6 Ref No: Generic: 8097046 Rev 23 and Diodes: 8122351 rev 16 Issue: 23 & 16 Date: 31/01/2020 & 28/04/2020	
PID changes since start of qualification None <input checked="" type="checkbox"/> Minor* <input type="checkbox"/> Major* <input type="checkbox"/> (* Details not published, provided in confidential annex 2.)			7	Current PID Verified by F. Vacher, CNES 8 Name of Executive Representative Agency Ref No: Generic: 8097046 Rev 23 and Diodes: 8122351 rev 16 Issue: 23 & 16 Date: 31/01/2020 & 28/04/2020	
Current Manufacturing facilities surveyed by: JB Sauveplane, CNES 20/05/2019 (Name of Executive Responsible Agency) (Date) CR-Etude SMD5 ST Mai 2019					9
Report Reference Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain					
Quality and Reliability Data Evaluation testing performed Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Report Ref. No.: NA Date: Equivalent Data: NA Certification: Qualified domain from previous certificates 297, 311 and 274.			10 Failure analysis, DPA, NCCS available Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (supply data) Ref Nos. and purpose:		

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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 13; that the reports and data are available at the ESCC Executive and therefore applies for ESCC qualification status to be given to the component(s) listed herein.

Date: 5/11/2020

F. Vacher

(Signature of the Executive Coordinator)

Continuation of Boxes above: (Only non-confidential comments)

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Non compliance to ESCC requirements:

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No.:	Specification	Paragraph	Non compliance

NCCS NC2CSTM002 related to non compliance with ESCC requirements for 1N5806 diodes in LCC2A packages is still opened. Production of variants 13 and 14 from 5101/014 are stopped while the NCCS is not closed-out. A remark will be included into the QPL document.

14


Executive Manager Disposition

15


Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

 Digitally signed
by Britta Schade
Date: 2020.11.25
18:50:49 +01'00'

B. Schade: Head of the Product Assurance
and Safety Department

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ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION	16
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Tests conducted in compliance with:

- ESCC 5000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD [Click here to enter text](#) (for ESCC/QML parts)

Tests vehicle identification/description:

ID33443001ZP BYV54S200HYG	Full Chart F4 DC1908 TO254
ID33625001ZN STTH60400SAG	Chart F4 Sg2 DC1923 SMD1

Detail Specification reference: [5103/031-5103/032](#)

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical shock	<input checked="" type="checkbox"/>	MIL-STD-750 TM2016	1908	15		
	Vibration	<input checked="" type="checkbox"/>	MIL-STD-750 TM2056	1908	15		
	Constant acceleration	<input checked="" type="checkbox"/>	MIL-STD-750 TM2006	1908	15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1908	15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1908	15		
	External Visual	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1908	15		
	Thermal shock	<input type="checkbox"/>	MIL-STD-750 TM1056				Only applicable to axial lead glass diodes
	Temperature Cycling	<input checked="" type="checkbox"/>	MIL-STD-750 TM1051	1908	15		
	Moisture Resistance	<input checked="" type="checkbox"/>	MIL-STD-750 TM1021	1908	15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1908	15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1908	15		
	External Visual	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1908	15		
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 5000 Para. 8.19	1908 1923	15 + 15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1908 1923	15 + 15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1908 1923	15+ 15		
	External/Internal Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1908 1923	15 + 15		
Assembly Capability Subgroup	Permanence of Marking	<input type="checkbox"/>	ESCC Basic spec 24800				Not applicable for laser marking
	Terminal Strength	<input checked="" type="checkbox"/>	ESCC 5000 Para. 8.18	1908	5		
	Internal Visual	<input checked="" type="checkbox"/>	ESCC Basic Spec 20400	1908	5		
	Bond Strength	<input checked="" type="checkbox"/>	MIL-STD-750 TM 2037	1908	3		
	Die Shear	<input checked="" type="checkbox"/>	MIL-STD-750 TM 2017	1908	3		

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NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION APPROVAL**ENTRIES****Form Heading**

shall indicate:— the title of the component as given in its detail specification or the name of the series or family; — the entering date; — the serial number and the suffix of the form.

Box 1

shall provide details given in table; in particular there shall be listed - the variants or range of variants; the range of components by using the ESCC code for values tolerances, etc.; the designation given in detail specification as 'based on'; ---under Test Vehicle enter either a cross or the specific characteristic capable to identify the component tested; — under component similar enter a cross.

Box 2 and 3

Manufacturer's name and location of plant where the components were manufactured and tested.

Box 4

Generic and detail specifications used during qualification program.

Box 5

Reference to test report(s) submitted in support of application.

Box 6

Enter details to identify the PID that was applicable at the time the qualification lot was manufactured.

Box 7

If the PID was evolved after qualification lot manufacture, adequate details of such evolution shall be provided together with reasons for changes. Major changes shall be clearly marked.

Box 8

The box serves to identify the current PID and the Executive Representative that has verified it together with the date of this occurrence.

Box 9

This box can be completed only after a physical visit to the plant to confirm that the practices, procedures, materials, 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 10

Details entered shall be sufficient to evidence that an evaluation program according to ESCC Basic Specification No. 22600 has been performed and that the results thereof are summarized in the survey and test reports. If the evaluation program has not been carried out according to established ESCC documents, the applicant Executive Representative shall provide alternative data and declare its assessed degree of satisfactory compliance with the ESCC basic requirements. Reference shall be made to the reports on Destructive Physical Analysis (DPA), Failure Analysis and Non conformance (NCCS) issued during the Evaluation and/or Qualification Phase.

Box 11

Enter the name of the Executive Coordinator and the signature.

Box 12

To be used when there is a need to expand any of the boxes from 1 through 10. Identify box affected and reference the Box 12 in the relevant Box. Box 12 can be broken into 12a, 12b, etc. if several Boxes have to be expanded.

Box 13

Fill table as requested.

Box 14

Fill in any additional tasks required to achieve full compliance.

Box 15

All Executive recommendations on the application itself, special conditions or restrictions, modifications of the QPL or ESCC QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 15, signed by the ESA Representative.

Box 16

Fill in Table as requested.

Box 17

Confidential details of PID changes shall be provided.

Box 18

State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 18 each nonconformance shall be sequentially numbered. If relevant state 'None'

Box 19

Any additional action deemed necessary by the Executive Representative 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 nonconformance.

Box 20

Additional Comments