

		APPLICATION FOR ESCC QUALIFICATION APPROVAL			Page 1 Appl. No. 368
Component Title: Power Schottky Barrier Diodes based on types 1N5819U, 1N5822U and STPS		Executive Member: CNES		Date: 03/09/2020	
Components (including series and families) submitted for Qualification Approval					1
ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
5106/021	02, 03	LCC2B	1N5819U	33712001ZS LCC2B	
5106/020	01, 02	LCC2B	1N5822U	33819002YR LCC2B	
5106/016	05, 06, 07, 11	TO-254, SMD0.5, SMD1	STPS20100	33420006ZM TO254	
5106/017	01, 02	SMD0.5	STPS1045	33510003ZE SMD.5	
5106/018	02	SMD1	STPS6045	33652003ZU SMD.5	
5106/019	03, 05	TO254, SMD1	STPS40100	33633001ZZ SMD1	
5106/023	01, 02	SMD.5, TO-254AA	STPS60A150 STPS80A150	33648006ZZ SMD.5	
5106/024	01, 02, 03	SMD.5, TO-254AA	STPS40A150	33652003ZU SMD.5	
Component Manufacturer STMicroelectronics		Location of Manufacturing Plant 3, rue de Suisse BP4199, 35041 Rennes Cedex		ESCC Specification used for Qualification Generic: 5000 issue 8 Detail/s: 5106/021 issue 4 5106/020 issue 3 5106/016 issue 9 5106/017 issue 6 5106/018 issue 7 5106/019 issue 8 5106/023 issue 3 5106/024 issue 1	
Qualification Report Reference and date: 1N5819U01B 33712001ZS Chart F4 DC 1820 1N5822U02B 33819002YR Chart F4 Sg2 DC 1906			5	PID used for manufacturing Qualification Lot Ref No: Generic: 8097046 Rev 23 and Diodes: 8122351 rev 16 Issue: 23 & 16 Date: 31/01/2020 and 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 Name of Executive Representative Agency Ref No: Generic: 8097046 Rev 23 and Diodes: 8122351 rev 16 Issue: 23 & 16 Date: 28/05/2020	
Current Manufacturing facilities surveyed by: JB Sauveplane, CNES (Name of Executive Responsible Agency) 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: Currently qualified under certificates 302 and 272.			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: 11/09/2020

F. Vacher, CNES

(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

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

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Executive Manager Disposition

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Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

Digitally signed
by Britta Schade
Date: 2020.09.29
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B. Schade: Head of the Product Assurance
and Safety Department



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ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION

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Tests conducted in compliance with:

- ESCC 5000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

5106/021/002 1N5819U01B 33712001ZS	Full chart F4 DC1820
5106/022/002 1N5822U02B 33819002YR	Chart F4 Sg2 DC1906

Detail Specification reference: 5106/021-5106/022

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	1820	15		
	Vibration	<input checked="" type="checkbox"/>	MIL-STD-750 TM2056	1820	15		
	Constant acceleration	<input checked="" type="checkbox"/>	MIL-STD-750 TM2006	1820	15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1820	15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1820	15		
	External Visual	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1820	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	1820	15		
	Moisture Resistance	<input checked="" type="checkbox"/>	MIL-STD-750 TM1021	1820	15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1820	15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1820	15		
	External Visual	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1820	15		
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 5000 Para. 8.19	1820 & 1906	15 + 15		
	Electrical Measurement	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements	1820 & 1906	15 + 15		
	Seal Fine leak Gross leak	<input checked="" type="checkbox"/>	MIL-STD-750 TM1071	1820 & 1906	15+ 15		
	External/Internal Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic spec 20500	1820 & 1906	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	1820	5		
	Internal Visual	<input checked="" type="checkbox"/>	ESCC Basic Spec 20400	1820	5		
	Bond Strength	<input checked="" type="checkbox"/>	MIL-STD-750 TM 2037	1820	3		
	Die Shear	<input checked="" type="checkbox"/>	MIL-STD-750 TM 2017	1820	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