



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: Resistor, ficed, surface mount, film, non-hermetically sealed based on type MS1

Executive Member: German Space Agency at DLR Date: 15/12/2022

Page 1
Appl. No.
256 M

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
4001/022-01	01	all	MS1 ESA	ESCC 4001/022-01 – 10R0 / F3	
				ESCC 4001/022-01 – 2053 / B2	
				ESCC 4001/022-01 – 1504 / F3	

Component Manufacturer Vishay Electronics GmbH	2	Location of Manufacturing Plant(s) Dr.-Felix-Zandman-Platz 1 D-95100 Selb Germany	3	Date of original qualification approval: Date: 01/10/1999	4
				Certificate Ref 256 No.	

ESCC Specifications used for Maintenance of qualification testing: Generic: 4001 Issue: 5 Detail(s): 4001/022 Issue: 5	5	Deviations to LVT testing and Detail Specification used: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (supply details in Box 15) Deviation from current Specifications: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (Supply details)	6	Qualification new Coating System Report reference and date: Report No. 256/2022/024 E Date: 30/11/2022 Re-Qualification legacy Coating System Report reference and date: Report No. 256/2022/024 O Date: 30/11/2022 Comparison of Coating Systems Report reference and date: Report No. 256/2022/024 EO Date: 30/11/2022	7
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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
				See attached file / Confidential: List of shipped MS1_(last 14 months) Period September 2021 to November 2022 Date: 01/12/2022

PID changes since start of qualification None <input type="checkbox"/> Minor* <input checked="" type="checkbox"/> Major* <input checked="" type="checkbox"/> *Provide details in box: See Appendix 2, Box 19	9	Current PID Verified by: <u>Burak Gökgöz, German Space Agency at DLR</u> Name of Excutive Representative Ref No: 142210 ESA Issue: 6 Rev Date: 01/12/2022	10	Date: 15/12/2022
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Current Manufacturing facilities surveyed by: <u>Burak Gökgöz, German Space Agency at DLR</u> on <u>27/09/2022 + 28/09/2022</u> (Name of Excutive Representative) (Date)	11
Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain	
Report Reference: <u>VIS-AUD-DLR-SEP-2022 Issue 1</u>	



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Page 2

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Appl. No.

Executive Member: German Space Agency at DLR Date: 15/12/2022

256 M

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 for ESCC qualification status to be extended to the component(s) listed herein.

Date: 13/03/2023

Digital signiert von Burak Goekgoez
DN: C=DE, S=Nordrhein-Westfalen, L=Koeln, O=Deutsches Zentrum fuer Luft- und Raumfahrt e.V. (DLR), SN=Goekgoez, G=Burak, CN=Burak Goekgoez
Grund: Ich bin der Verfasser dieses Dokuments
Ort: Bonn
Datum: 2023.03.13 22:44:31+01'00'
Foxit PDF Editor Version: 12.1.1

i.A. Burak Gökgoz

(Signature of the ESCC Executive Coordinator)

14

Continuation of Boxes above:



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

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Executive Member: German Space Agency at DLR Date: 15/12/2022

Page 3

Appl. No.

256 M

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



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Appl. No.

Executive Member: German Space Agency at DLR

Date: 15/12/2022

256 M

ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION

18

Tests conducted in compliance with:

- ESCC 4001 generic specification; Chart F4 (for ESCC/QPL parts);
- or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

MS1 10R F3, 205K B2, 1M5 F3 (DC 2234 A)	New Coating System, Material No.: 425531
MS1 10R F3, 205K B2, 1M5 F3 (DC 2234 B)	Legacy Coating System, Material No.: 424970

Detail Specification reference: ESCC 4001/022, Issue 5

Chart F4	Test	Tick when done	Conditions	New Coating System, Material No.: 425531			Legacy Coating System, Material No.: 424970			Comments if not performed. Comments on Rejection
				Date Code	Tested Qty	N° of Rejects	Date Code	Tested Qty	N° of Rejects	
Environmental / Mechanical Subgroup	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31		N/A			N/A		
	Rapid Change Of Temperature	<input type="checkbox"/>	IEC 60068-2-14		N/A			N/A		
	Vibration	<input type="checkbox"/>	IEC 60068-2-6		N/A			N/A		
	Climatic test Sequence	<input type="checkbox"/>	ESCC 4001, Para 8.10		N/A			N/A		
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A			N/A		
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2234 A	6	0	2234 B	6	0	
	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	2234 A	6	0	2234 B	6	0	
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	2234 A	6	0	2234 B	6	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A			N/A		
	Resistance to Soldering Heat	<input checked="" type="checkbox"/>	IEC 60068-2-20	2234 A	6	0	2234 B	6	0	
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2234 A	6	0	2234 B	6	0	
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	2234 A	6	0	2234 B	6	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A			N/A		
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31		N/A			N/A		
	Endurance Subgroup	Insulation Resistance	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.2	2234 A	15	0	2234 B	15	0
Voltage Proof		<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.3	2234 A	15	0	2234 B	15	0	
Mounting		<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2234 A	54	0	2234 B	54	0	
Assembly Capability Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.13	2234 A	54	0	2234 B	54	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A			N/A		
Additional Tests	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-20	2234 A	6	0	2234 B	6	0	
	Permanence of marking	<input checked="" type="checkbox"/>	ESCC 24800	2234 A	6	0	2234 B	6	0	
Additional Tests	Operating Life	<input type="checkbox"/>	ESCC 4001, Para 8.13		N/A			N/A		Failure Rate Endurance Testing (8000h) not requested
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A			N/A		

Remark: Tested Quantity of 54 pieces refers to 3 different R-values (low, medium high) = 3 test lots with 18 pieces tested per test lot.
 Tested Quantity of 15 pieces refers to 3 different R-values (low, medium high) = 3 test lots with 5 pieces tested per test lot.
 Tested Quantity of 6 pieces refers to 3 different R-values (low, medium high) = 3 test lots with 2 pieces tested per test lot.



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Page 6

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256 M

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.