



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: RESISTOR, FIXED, SURFACE MOUNT, THIN FILM, NON-HERMETICALLY SEALED BASED ON TYPE TNPS ESCC DETAIL SPECIFICATION NO. 4001/029
Executive Member: Germany Space Agency at DLR Date: 05/04/2023

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Components (including series and families) submitted for Extension of Qualification Approval:

Table with 6 columns: ESCC COMPONENT NO., VARIANTS, RANGE OF COMPONENTS, BASED ON, TEST VEHICLE / S, COMPONENT SIMILAR. Row 1: 4001/029, 01-03, all, TNPS 0603, 4001/029-01, etc.

Table with 3 columns: Component Manufacturer (Vishay Electronis GmbH), Location of Manufacturing Plant(s) (Dr.-Felix-Tandman-Platz 1), Date of original qualification approval (01/05/2009).

Table with 3 columns: ESCC Specifications used for Maintenance of qualification testing, Deviations to LVT testing and Detail Specification used, Qualification Extension Report reference and date.

Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first)

Table with 5 columns: Project Name, Testing Level, LAT, Date code, Quantity Delivered. Includes 'See Appendix: Confidential' and 'List of shipped items last 12 month'.

Table with 2 columns: PID changes since start of qualification (Major checked), Current PID Verified by: Burak Gökgöz, DLR. Includes Name of Executive Representative and Date: 23/02/2023.

Table with 1 column: Current Manufacturing facilities surveyed by: Burak Gökgöz, DLR on 28/09/2022. Includes Satisfactory status (Yes checked) and Report Reference: VIS-AUD-DLR-SEP-2022.



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

Ref. No's and purposes:

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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 15;) - that the reports and data are available at the ESCC Executive and therefore applies on behalf of DLR as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

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: 2023.04.06 14:19:24+02'00'  
Foxit PDF Editor Version: 12.1.1

Date: 05/04/2023

**i.A. Burak Gökgoz, DLR**  
(Signature of the Executive Coordinator)

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Continuation of Boxes above:



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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:

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

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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:

TNPS0603 10R0 B1, 56K2 B1, 221K B1	TNPS0805 10R0 B1, 180K B1, 422K B1
TNPS1206 10R0 B1, 160K B1, 1M0 B1	

Detail Specification reference: ESCC 4001-029, Issue 4

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental /Mechanical Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2039 A	45	0	
	Rapid Change Of Temperature	<input checked="" type="checkbox"/>	IEC 60068-2-14	2039 A	45	0	
	Vibration	<input type="checkbox"/>	IEC 60068-2-6		N/A		Deviation detail spec ESCC 4001-029, Issue 3 §2.1.1.2 for Chart F4
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	2039 A	45	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A		
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2039 A	18	0	
	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	2039 A	18	0	
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	2039 A	18	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A		
	Resistance to Soldering Heat	<input checked="" type="checkbox"/>	IEC 60068-2-20	2039 A	18	0	
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2039 A	18	0	
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	2039 A	18	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A		
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31		N/A		
	Insulation Resistance	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.2	2039 A	45	0	
Endurance Subgroup	Voltage Proof	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.3	2039 A	45	0	
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	2039 A	162	0	
	Operating Life	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.13	2039 A	162	0	
Assembly Capability Subgroup	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A		
	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-20	2039 A	18	0	
	Permanence of marking	<input type="checkbox"/>	ESCC 24800	2039 A	N/A		Permanence of Marking is not applicable - see PCN-DBR-00011-2022-REV-0:
	Operating Life	<input type="checkbox"/>	ESCC 4001, Para 8.13		N/A		Failure Rate Endurance Testing (8000h) not requested
Additional Tests	Seal Test	<input type="checkbox"/>	IEC 60068-2-17		N/A		
		<input type="checkbox"/>					
		<input type="checkbox"/>					

Remark: Tested Quantity of 162 pieces refers to 3 component types of 3 different R-values (low, medium high) = 9 test lots with 18 pieces tested per test lot.  
 Tested Quantity of 45 pieces refers to 3 component types of 3 different R-values (low, medium high) = 9 test lots with 5 pieces tested per test lot.  
 Tested Quantity of 18 pieces refers to 3 component types of 3 different R-values (low, medium high) = 9 test lots with 2 pieces tested per test lot.



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**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.