



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: Resistors, Fixed, Chip, Thick Film, based on type CHPHR and CHPFR

Executive Member: CNES

Date: 27/07/2021

Page 1

Appl. No.

314E

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

ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S PERIODIC TESTING	COMPONENT SIMILAR
4001/026	01 & 06 - 02 & 07 03 & 08	All values 50V to 500V	CHPHR0603 - CHPHR0805 CHPHR1206	4001026062052F4 4001026015R60G6 4001026011004G6 4001026025621F4 4001026034701G4 4001026031003F4	
	04 & 09 05 & 10		CHPHR2010 CHPHR2512	4001026041R50G6 4001026051R20G4 40010260510R0F4 40010260536R5F4	
	11 & 16 12 & 17 13 & 18		CHPFR0603 CHPFR0805 CHPFR1206	- 4001026122003F4 4001026131R00G4	See also box 14 for Failure Rate endurance test vehicles
	14 & 19 15 & 20		CHPFR2010 CHPFR2512	4001026141004G6	

Component Manufacturer VISHAY SA Division SFERNICE	2	Location of Manufacturing Plant(s) 199 Bld de la Madeleine BP 1159 06003 NICE CEDEX 1 - France	3	Date of original qualification approval: Date: 11/10/2011 Certificate Ref No. 314	4
--	---	---	---	--	---

ESCC Specifications used for Maintenance of qualification testing: Generic: 4001 Issue: 5 Detail(s): 4001026 Issue: 7	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 Extension Report reference and date: Report CAZ/21.001, July 2021	7
---	---	--	---	---	---

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 report CAZ/21.001	-	None		Total ≈ 55 000 with CHP HR ≈ 44 000 CHP FR ≈ 11 000
VISHAY Dale THALES DMS				
ALTER Tech. TTI Inc.				
ECOMAL ARROW				

PID changes since start of qualification None <input type="checkbox"/> Minor* <input checked="" type="checkbox"/> Major* <input type="checkbox"/> *Provide details in box:	9	Current PID Verified by: <u>JP Bussenot, CNES</u> Name of Executive Representative Agency Ref No: PID CHP HR FR Issue: 8 Date: 27/07/2021 Rev Date: 23/07/2021	10
---	---	--	----

Current Manufacturing facilities surveyed by: <u>ESA and CNES</u> on <u>07/02/2019</u> (Name of Executive Representative Agencies) (Date)	11
Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain	
Report Reference: <u>CNES DCT/AQ/CQ-2019/0003325, 15/02/2019</u>	



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: Resistors, Fixed, Chip, Thick Film, based on type CHPHR and CHPFR

Executive Member: CNES

Date: 27/07/2021

Page 2

Appl. No.

314E

12

Failure Analysis, DPA, NCCS available: Yes No

Ref. No's and purposes: Vishay SA CAR12005 – NC closed. See box 22. (CHPHR0603L49R9GBW (0603 49.9Ohm) DC1346 and 1823 -unique manufacturing lot)

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: 29/07/2021

JP. BUSSENOT
(Signature of the Executive Coordinator)

14

Continuation of Boxes above:

Report 20 45 104, 02/11/2020

Failure Rate Endurance Testing subgroup of Chart F4 performed on 15 test vehicles (8 000 hours completed);

CHPFR0603, 110 – 2,15k – 750k

CHPFR0805, 178 – 12k – 550k

CHPFR1206, 27 – 30k – 200k

CHPFR2010, 50 – 15k – 221k

CHPFR2512, 68 – 27k – 475k

30 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 2 test vehicles (6 000 hours performed);

CHPFR2512 4,3 – 20k

30 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 12 test vehicles (4 000 hours performed);

CHPFR0603, 22 – 20k – 1M

CHPFR0805, 68,1 – 49,9k – 360k

CHPFR1206, 27 – 30k – 200k

CHPFR2010, 8,25 – 39k – 5,11M

30 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 0 test vehicles (2 000 hours performed);

None

0 part for each lot

FR report 20 45 104 is appended to report CAZ/21.001



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: Resistors, Fixed, Chip, Thick Film, based on type CHPHR and CHPFR

Executive Member: CNES

Date: 27/07/2021

Page 3

Appl. No.

314E

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:

Britta Schade Digitally signed by Britta Schade
Date: 2021.08.31 10:59:37 +02'00'

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



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: Resistors, Fixed, Chip, Thick Film, based on type CHPHR and CHPFR

Executive Member: CNES

Date: 27/07/2021

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:

4001026062052F4 20.5KOhm DC 1938 (0603)	4001026122003F4 200KOhm DC 2001 (0805, FR)
4001026015R60G6 5.6Ohm DC 2037 (0603)	4001026034701G4 4.7KOhm DC 1937 (1206)
4001026011004G6 1MOhm DC 2037 (0603)	4001026131R00G4 1Ohm DC 2018 (1206)
4001026025621F4 5.62KOhm DC 1938 (0805)	4001026031003F4 100KOhm DC 2041 (1206)
4001026141004G6 1MOhm DC 2003 (2010, FR)	4001026051R20G4 1.2Ohm DC 1912 (2512)
4001026041R50G6 1,5 Ohm DC 1918 (2010)	40010260510R0F4 10Ohm DC 2011 (2512)
	40010260536R5F4 36.5Ohm DC 2019 (2512)

Detail Specification reference: 4001/026

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	All	2 x 3 11 x 5	0	
	Rapid Change Of Temperature	<input checked="" type="checkbox"/>	IEC 60068-2-14	All	2 x 3 11 x 5	0	
	Vibration	<input type="checkbox"/>	IEC 60068-2-6				NA
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	All	2 x 3 11 x 5	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	All	2 x 3 11 x 2	0	
	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	All	2 x 3 11 x 2	0	
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	All	2 x 3 11 x 5	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Resistance to Soldering Heat	<input checked="" type="checkbox"/>	IEC 60068-2-20	All	2 x 3 11 x 2	0	Parts are not mounted, therefore it was agreed not to include them in Climatic Sequence (PID before 2020)
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31		11 x 2		NA per agreement (PID before 2020)
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10		11 x 2	0	NA per agreement (PID before 2020)
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31				NA
	Endurance Subgroup	Insulation Resistance	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.2	1918 1912 1938 1938 1937 2001 2003 2011 2019 2018	13 x 5	0
Voltage Proof		<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.1.3	1918 1912 1938 1938 1937 2001 2003 2011 2019 2018	13 x 5	0	
Mounting		<input type="checkbox"/>	IEC 60115-1 clause 4.31				
Endurance Subgroup	Operating Life	<input type="checkbox"/>	ESCC 4001, Para 8.13		-	-	Replaced with FR data in periodic testing (See below and box 14)
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31				
Assembly Capability Subgroup	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-20	All	13 x 2	0	
	Permanence of marking	<input type="checkbox"/>	ESCC 24800				NA
Failure Rate Subgroup	Operating Life 8 000 h	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.13	29 lots	29 x 30	0	5,40 M components.hours
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
Additional Tests	Temperature Coefficient	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.3.3	All	13 x 5	0	Lot DC 1912: One repeatable value at the 1,02Rn = 1,224 Ohm limit
		<input type="checkbox"/>					

**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component title: Resistors, Fixed, Chip, Thick Film, based on type CHPHR and CHPFR

Executive Member: CNES

Date: 27/07/2021

Page 6

Appl. No.

314E

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.