

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

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Executive Member:

CNES

Date: 30/08/2019

314D

Components (includi	ng series and families) s	ubmitted for Extension	of Qualification	Approval:				1
ESCC COMPONENT NO.	VARIANTS	RANGE OF COI	MPONENTS	BASED ON		TEST VEHICLE / S PERIODIC TESTING	COMPONEN SIMILAR	IT
4001/026	01 & 06 - -	All values 50V to 500	CHPHR0603	k	4001026014532F4 4001026011005G4 4001026011R00G6			
	02 & 07			CHPHR0805	i	4001026023011F4		
	03 & 08			CHPHR1206	ŀ	40010260220R0F4 4001026035R60J6 4001026031004G4 4001026033002F4		
	04 & 09			CHPHR2010	ľ	4001026041002J4 40010260410R0J4 4001026045621F4		
	05 & 10			CHPHR2512		4001026051R20G4 4001026054R30J6		
	11 & 16 12 & 17 13 & 18	_= = x		CHPFR0603 CHPFR0805 CHPFR1206		- 400102612R1004G4	See also box 14 for Failure Rate endu test vehicles	
	14 & 19 15 & 20			CHPFR2010 CHPFR2512		400102614R6R81G4		
Component Ma	anufacturer 2	September 2000 to the control of the	nufacturing Plant	(s) 3				4
VISHAY SA Division SFERNICE		199 Bld de la Madeleine BP 1159 06003 NICE CEDEX 1 - France			Date of original qualification approval: Date: 11/10/2011			
						ertificate Ref No. 14		
	5	6						7
ESCC Specifications Maintenance of quality		Deviations to LVT testing and Detail Specification used:				fication Extension Report ence and date:		
Generic: 4001	Issue: 4	No ⊠ Yes ☐ (supply details in Box			Report CAZ/19.001, July 2019			
Detail(s): 4001026	Issue: 6	15) Deviation from current Specifications:						
		No ⊠ Yes □ (Supply details)						
Summary of procurer	nent or equivalent test re	esults during current va	lidity period in su	nnort of this an	nlicatio	n (those to ESCC listed fi	ret)	8
Project Name	Testing Level	esults during current validity period in support of this ap LAT Date code			Quantity Delivered			
See report CAZ/19.00	01 -					Total 159 000 dont CH	IP HR 150 000 IP FR 9 000	
Charcroft ALTER Tech.								
TTI Inc. THALES DMS	_	LVT 2	1811, 181	3, 1816, 1820,	1851			
ARROW ECOMAL		1						
PID changes since st	art of qualification	9	Current PID V	erified by:		CNES		10
None						Name of Agency Representative		
Minor* ⊠ Major* □	*Provide details in box:		Ref No: PID CHP HR FR Issue: 6					
IMAJOI 🗆	Provide details in box.			4/03/2018		Date.	15/03/2018	
Current Manufacturing facilities surveyed by:			ESA and CNES		on 07/02/2019		02/2019	11
			(Name of Agency	, ,	(Date)			
Satisfactory:	Yes ⊠	No □ Exp	lain					
Report Reference:	CNES DCT/AQ/C 2019/0003325, 15/0							

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

Minor NC Vishay SA 8D119001on 4001026015101F4 (0603 5.1KOhm) dc 1830: closed out. Ref. No's and purposes:

13

14

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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 CNES as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date: 04/09/2019 JP. BUSSENOT

(Signature of the Executive Coordinator)

Report 18 27 107, 04/07/2018

Failure Rate Endurance Testing subgroup of Chart F4 performed on 19 test vehicles (8 000 hours completed): CHPFR0603, 180 - 470 - 9,09k - 47k - 147k

CHPFR0805, 22 - 33 - 36k

Continuation of Boxes above:

CHPFR1206, 6.8 - 562 - 12,4k - 1.27M

CHPFR2010, 6.04 - 22.1 - 22.1k - 100k

CHPFR2512, 20 - 24.9k - 1M

20 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 9 test vehicles (6 000 hours performed);

CHPFR0603, 825k

CHPFR0805 14k - 250k

CHPFR1206 22k - 90.9k

CHPFR2010 68.1k

CHPFR2512 22 - 22k - 24M

20 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 2 test vehicles (4 000 hours performed); CHPFR0805, 150k

CHPFR2010, 7.5k

20 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 24 test vehicles (2 000 hours performed);

CHPFR0603, 10 - 49.9 - 100 - 10k - 500k CHPFR0805, 5.11 - 21.5 - 4k - 13k - 475 k

CHPFR1206, 5.6 - 470 - 50k - 47M

CHPFR2010, 45.3 - 174 - 1.5k - 20k - 10M

CHPFR2512, 7.5 - 150 - 270 - 33k - 47k

20 to 50 parts for each lot

Report 19 24 121, 13/06/2019

Failure Rate Endurance Testing subgroup of Chart F4 (8 000 hours

performed);

None

Failure Rate Endurance Testing subgroup of Chart F4 performed on 24 test vehicles (6 000 hours performed - 8 000 hours completed);

CHPFR0603, 10 - 49.9 - 100 - 10k - 500k CHPFR0805, 5.11 - 21.5 - 4k - 13k - 475 k

CHPFR1206, 5.6 - 470 - 50k - 47M

CHPFR2010, 45.3 - 174 - 1.5k - 20k - 10M

CHPFR2512, 7.5 - 150 - 270 - 33k - 47k

20 to 50 parts for each lot

Failure Rate Endurance Testing subgroup of Chart F4 performed on 2 test vehicles (4 000 hours performed - 8 000 hours completed);

CHPFR0805, 150k CHPFR2010, 7.5k

20 parts for each lot.

Failure Rate Endurance Testing subgroup of Chart F4 performed on 9 test vehicles (2 000 hours performed - 8 000 hours completed);

CHPFR0603, 825k CHPFR0805 14k - 250k

CHPFR1206 22k - 90.9k

CHPFR2010 68.1k

CHPFR2512 22 - 22k - 24M

20 parts for each lot.

FR reports 18 27 107 and 19 24 121 as well as FR programme are appended to report CAZ/19.001

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ACCOUNT OF REAL PROPERTY.		

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Announce		Executive f	Member: CNES	Date:	30/08/2019	314D
Non com	pliance to ESCC requirements:					_ 15
No.:	Specification		Paragraph		Non compliance)
Additiona noncompl	I tasks required to achieve full cor	mpliance for I	ESCC qualification or rationale for acceptability	of		16
Horicomp	nance.					
Executive	Manager Disposition					17
Applicatio	n Approval: Yes 🕡 N	√o □				-
Action / R	emarks:					
					2 (1)	
				1	5. 8h	
Date:						
				B. Scl and S	nade, Head of Product Ass afety Department	surance
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ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION

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:

4001026014532F4 45,3KOhm DC 1717 (0603) 4001026011005G4 10MOhm DC 1802 (0603) 4001026011R00G6 10hm DC 1906 (0603) 4001026023011F4 3.01KOhm DC 1719 (0805) 4001026033002F4 30KOhm DC 1809 (1206) 400102614R6R81G4 6,810hm DC 1729 (1206, FR) 4001026041002J4 10KOhm DC 1816 (2010) 40010260410R0J4 10Ohm DC 1842 (2010) 400102612R1004G4 1MOhm DC 1810 (0805, FR) 40010260220R0F4 20Ohm DC 1915 (0805) 4001026035R60J6 5.6 Ohm DC 1746 (1206) 4001026031004G4 1MOhm DC 1804 (1206)

4001026045621F4 5.62KOhm DC 1914 (2010) 4001026051R20G4 1.2Ohm DC 1743 (2512) 4001026054R30J6 4,3Ohm DC 1846 (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
ical Subgroup	Mounting	⊠	IEC 60115-1 clause 4.31	All	2 x 9 13 x 3	0	
	Rapid Change Of Temperature	⊠	IEC 60068-2-14	All	2 x 9 13 x 3	0	
	Vibration		IEC 60068-2-6				NA
	Climatic test Sequence	×	ESCC 4001, Para 8.10	All	2 x 9 13 x 3	0	
	Seal Test		IEC 60068-2-17				NA
	Mounting	⊠	IEC 60115-1 clause 4.31	All	2 x 9 13 x 3	0	
	Robustness of Terminations	⊠	IEC 60068-2-21	All	2 x 9 13 x 3	0	
	Climatic test Sequence	⊠	ESCC 4001, Para 8.10	All	2 x 9 13 x 3	0	
char	Seal Test		IEC 60068-2-17				NA
Environmental Mechanical Subgroup	Resistance to Soldering Heat	⊠	IEC 60068-2-20	All	2 x 10 5 x 5 8 x 3	0	Parts are not mounted, therefore it has been agreed not to include them in Climatic Sequence (PID)
	Mounting		IEC 60115-1 clause 4.31				NA per agreement (PID)
	Climatic test Sequence		ESCC 4001, Para 8.10				NA per agreement (PID)
	Seal Test		IEC 60068-2-17				NA
	Mounting		IEC 60115-1 clause 4.31				NA
	Insulation Resistance		ESCC 4001, Para 8.3.1.2	1804 1816 1809 1842 1846 1906 1915 1914	8 x 5	0	
	Voltage Proof	0	ESCC 4001, Para 8.3.1.3	1804 1816 1809 1842 1846 1906 1915 1914	8 x 5	0	
Endurance Subgroup	Mounting	⊠	IEC 60115-1 clause 4.31	1816	15	0	
	Operating Life	⊠	ESCC 4001, Para 8.13	1816	15	0	Customer LVT2, replaced with FR data in periodic testing
пs	Seal Test		IEC 60068-2-17				NA
Assembly Capability Subgroup	Solderability	⊠	IEC 60068-2-20	All	2 x 3 13 x 2	0	
	Permanence of marking	0	ESCC 24800				NA
Failure Rate Subgroup	Operating Life 8 000 h	⊠	ESCC 4001, Para 8.13	54 lots	38 x 20 4 x 25 1 x 30 11 x 50	0	10,88 M components.hours
e S	Seal Test		IEC 60068-2-17				NA
<u>a</u>	Temperature Coefficient	⊠	ESCC 4001, Para 8,3,3	All	2 x 10 13 x 5	0	
Additional	Climatic test Sequence	Ø	ESCC 4001, Para 8.10	1717 1719	2 x 9	0	
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NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL

N	OTES 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.