

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION PARTICULIERE:

**CONDENSATEURS FIXES
A DIELECTRIQUE EN FILM DE
POLYTEREPHTALATE D'ETHYLENE
METALLISE POUR COURANT CONTINU**

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

**FIXED METALLIZED
POLYETHYLENE-TEREPHTHALATE
FILM DIELECTRIC CAPACITORS
FOR DIRECT CURRENT**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

**FESTKONDENSATOREN MIT
METALLISIERTER KUNSTSTOFF-FOLIE
AUS POLYÄTHYLEN FÜR GLEICHSTROM**



2

Edition
Issue
Ausgabe

CECC 30 401-801

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Documents

Document Sharing Hub

Information about the System may be obtained from:



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or from the National Authorized Institutions
of the participating countries listed
who can supply copies of:

- 1 The Internal Regulations of the FEN e.V.
- 2 The Rules of Procedure of the System
- 3 CECC Specifications of the FEN and National Specifications for the System
- 4 CECC 00 200: Qualified Products List (QPL)
- 5 CECC 00 300: List of CECC European Standards (ENs), CECC Publications and related national documents
- 6 CECC 00 301: List of CECC Specifications and related Detail Specifications
- 7 Other CECC Publications and publicity documents

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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This specification should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification, the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the addresses shown on the blue fly sheet.

PREFACE

This specification was prepared by CECC WG 3: "Capacitors", and is an editorially reviewed version of CECC 30 401-801, Issue 1, including amendments.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission.

The text of this specification was circulated to the members of CECC WG3 and was approved for publication under the accelerated procedure for the acceptance of detail specifications in accordance with Decisions 10, 11 and 12 of the minutes of the CECC CD meeting in document CECC(Sec)1838.

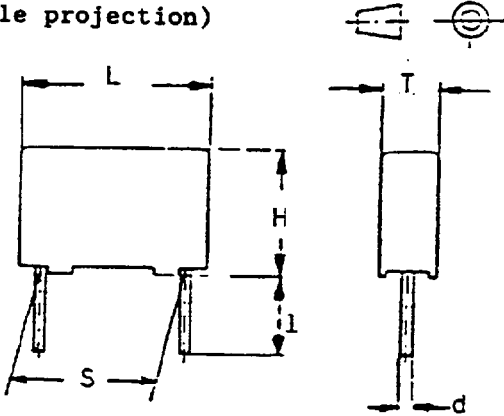
This second issue of CECC 30 401-801 shall become effective for all new qualification approvals on **1st November 1992**. Issue 1 will continue to remain effective to cover all past approvals.

Secretariat Note:

Issue 1 of this specification was originally drafted by members of CECC WG3 and discussed as document WG3(van Kordelaar)1 with the decision to publish it without voting.s

The second issue was prepared by R.A.M. van Kordelaar, Dutch delegate to WG3.

To allow early publication, this detail specification is issued initially in English only. Corresponding versions in French and German will follow on request of ONHs.

Specification available from: CECC General Secretariat	CECC 30 401-801 1992 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY - DETAIL SPECIFICATION IN ACCORDANCE WITH: CECC 30 000, Issue 3 CECC 30 400, Issue 2	Issue 2
Outline and dimensions: (first angle projection)  (Dimensions: see Table 1) All dimensions in mm	DETAIL SPECIFICATION FOR FIXED METALLIZED POLYETHYLENE- TEREPHTHALATE FILM DIELECTRIC D.C. CAPACITORS TYPICAL CONSTRUCTION: rectangular non metallic insulated unidirectional leads intended for use on printed boards Assessment level E Performance level: Grade 1

Quick reference data:

Rated capacitance range: 1 nF to 22 μ F
Tolerance on rated capacitance: $\pm 20\%$, $\pm 10\%$ and $\pm 5\%$
Rated voltages: 63, 100, 250, 400, 630 and 1000 V d.c.
Climatic category: 55/100/56

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200: Register of Firms, Products, and Services Approved under the CECC System.

Note. - It is intended that this detail specification should replace CECC 30 401-011, 30 401-026, 30 401-029, 30 401-039 and 30 401-042.

1. General data1.1 Recommended method of mountingNormal use:

The capacitors are designed for mounting on printed wiring boards and shall be fixed by soldering the leads.

Specified method of mounting for vibration and shock tests

The capacitors shall be pressed down firmly onto a rigid mounting surface and fixed by the leads. For case sizes with a mass > 6 g the capacitors shall be mounted in the same way and the body shall be clamped. See 1.3.2 of CECC 30 400 Issue 2.

1.2 Dimensions

See Table I on page 4

1.3 Ratings and characteristics

Capacitance range:	1 nF to 22 μ F
Tolerance on rated capacitance:	$\pm 20\%$, $\pm 10\%$ and $\pm 5\%$
Rated d.c. voltage:	63 V, 100 V, 250 V, 400 V, 630 V, 1 000 V
Category voltage:	0,8 U_R
Climatic category:	55/100/56
Rated temperature:	+ 85 °C

Tangent of loss angle:	$< 0,008$ for $C_R \leq 1 \mu F$ at 1 kHz
	$\leq 0,01$ for $C_R > 1 \mu F$ at 1 kHz
	$\leq 0,015$ for $C_R \leq 1 \mu F$ at 10 kHz

Insulation resistance:	between terminations:
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$> 15\ 000\ M\Omega$	for $C_R \leq 0,33 \mu F$, $U_R \leq 100\ V$
$> 30\ 000\ M\Omega$	for $C_R \leq 0,33 \mu F$, $U_R > 100\ V$
$> 5\ 000\ s$	for $C_R > 0,33 \mu F$, $U_R \leq 100\ V$
$> 10\ 000\ s$	for $C_R > 0,33 \mu F$, $U_R > 100\ V$

between terminations and case:

$\geq 30\ 000\ M\Omega$

Table 1: Dimensions (mm) and case size

Case size reference	Dimensions max.					l	d	S	
	T	x	H	x	L			Style 1 e = 2,5	Style 2 e = 2,54
21	2,8	x	7	x	7,5	5 + 1,0 - 1,5	0,5 - 0,6	5,0 ± 0,4	5,08 ± 0,4
22	3,5	x	8,2	x	7,5		0,5 - 0,6		
23	3,7	x	9	x	7,5		0,5 - 0,6		
24	4,5	x	10	x	7,5		0,5 - 0,6		
25	5,2	x	11	x	7,5		0,5 - 0,6		
26	6,5	x	11,5	x	7,5		0,5 - 0,6		
27	7,5	x	13	x	7,5		0,5 - 0,6		
31	3,5	x	6,5	x	10,5	5 + 1,0 - 1,5	0,5 - 0,7	7,5 ± 0,4	7,62 ± 0,4
32	3,5	x	8,5	x	10,5		0,5 - 0,7		
33	4	x	8,5	x	10,5		0,5 - 0,7		
34	4,2	x	9,2	x	10,5		0,5 - 0,7		
35	4,5	x	10	x	10,5		0,5 - 0,7		
36	5,5	x	11	x	10,5		0,5 - 0,7		
37	6,5	x	12	x	10,5		0,5 - 0,7		
41	4,5	x	9	x	13	5 + 1,0 - 1,5	0,6 - 0,8	10 ± 0,4	10,12 ± 0,4
42	4,5	x	10,5	x	13		0,6 - 0,8		
43	5	x	11	x	13		0,6 - 0,8		
44	5,5	x	11,5	x	13		0,6 - 0,8		
45	6,5	x	12	x	13		0,6 - 0,8		
61	5,5	x	11	x	18	5 + 1,0 - 1,5	0,8	15 ± 0,4	15,24 ± 0,4
62	6	x	12	x	18		0,8		
63	6,5	x	13	x	18		0,8		
64	7	x	14	x	18		0,8		
65	7,5	x	14,5	x	18		0,8		
66	9	x	15,5	x	18		0,8		
91	6	x	15	x	27	5 + 1,0 - 1,5	0,8	22,5 ± 0,5	22,86 ± 0,5
92	7	x	16	x	27		0,8		
93	7,5	x	16,5	x	27		0,8		
94	8,5	x	17	x	27		0,8		
95	8,5	x	18,5	x	27		0,8		
96	10,5	x	19	x	27		0,8		
97	10,5	x	20,5	x	27		0,8		
111	9	x	17	x	32	5 + 1,0 - 1,5	0,8	27,5 ± 0,5	27,94 ± 0,5
112	11,5	x	21	x	32		0,8		
113	13,5	x	23,5	x	32		0,8		
114	15	x	24,5	x	32		0,8		
115	15	x	26	x	32		0,8		
116	15	x	30	x	32		0,8		
117	18,5	x	34,5	x	32		0,8 - 1,0		
118	22	x	37	x	32		0,8 - 1,0		

Notes 1. - When capacitors to this specification are supplied in tape, the dimension l shall be in accordance with the requirements of IEC 286-2.

2. - Other lead length dimensions may be delivered, provided the dimensional details are given in full in the manufacturer's detail specification.

Table 2A

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 63 V						
Capacitance	Case sizes/lead spacings					
	2e	3e	4e	6e	9e	11e
1,0 nF	21	31/33				
1,5	21	31/33				
2,2	21	31/33				
3,3	21	31/33	41			
4,7	21	31/33	41			
6,8	21	31/33	41			
0,01 μ F	21	31/33	41			
0,015	21	31/33	41			
0,022	21	31/33	41			
0,033	21	31/33	41			
0,047	21/22	31/33	41/42			
0,068	21/22	31/33	41/42			
0,1	21/22	31/33	41/42			
0,15	22/24	31/33	41/42			
0,22	22/24	32/34	41/42			
0,33	24/25	34/36	41/42			
0,47	25	35/36	41/44			
0,68	25/26	36/37	44	61		
1,0	26	37	44/45	61/63		
1,5	26	37	45	62/64		
2,2	27	37	45	64/66		
3,3					92/93	
4,7					93/95	
6,8					95/96	
10						112
12						113
15						113
22						115

Table 2B

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 100 V						
Capacitance	Case sizes/lead spacings					
	2e	3e	4e	6e	9e	11e
1,0 nF	21	31/33				
1,5	21	31/33				
2,2	21	31/33				
3,3	21	31/33	41			
4,7	21	31/33	41			
6,8	21	31/33	41			
0,01 μ F	21/22	31/33	41			
0,015	21/22	31/33	41			
0,022	21/22	31/33	41			
0,033	21/22	31/33	41			
0,047	21/24	32/34	41/42			
0,068	22/24	32/34	41/42			
0,1	22/25	32/34	41/44			
0,15	24/25	34/36	41/44			
0,22	24/25	35/36	41/44			
0,33	26	36/37	44	61		
0,47	27	37	45	61/63		
0,68				62/64		
1,0				64/66		
1,5				65/66	92/93	
2,2					93/95	
3,3					96/97	
4,7						112
6,8						112/114
10						114/116
15						117

Table 2C

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 250 V						
Capacitance	Case sizes/lead spacings					
	2e	3e	4e	6e	9e	11e
1,0 nF	21	31/33				
1,5	21	31/33				
2,2	21	31/33				
3,3	21	31/33	41			
4,7	21	31/33	41			
6,8	21	31/33	41			
0,01 μ F	21	31/33	41			
0,015	22	31/33	41			
0,022	22	31/33	41/42			
0,033	22	32/34	41/42			
0,047	24	33/35	41/42			
0,068	25	35/36	41/42			
0,1	26	36/37	44	61		
0,15	27	37	44	61		
0,22				61/64		
0,33				62/65		
0,47					91/93	
0,68					92/93	
1,0					94/95	
1,5						111/112
2,2						112
3,3						113/114
4,7						114/116
6,8						117
10						118

Table 2D

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 400 V						
Capacitance	Case sizes/lead spacings					
	2e	3e	4e	6e	9e	11e
1,0 nF	21	31/33				
1,5	21	31/33				
2,2	21	31/33				
3,3	21	31/33	41			
4,7	22	31/33	41			
6,8	22	31/33	41			
0,01 μ F	22	32/34	41/42			
0,015	24	33/36	41/42			
0,022	25	34/36	41/42			
0,033	26	36/37	41/44			
0,047	27	37	44	61/63		
0,068				61/64		
0,1				62/64		
0,15				64/66		
0,22					91/93	
0,33					93/95	
0,47					94/97	
0,68						111/112
1,0						112/113
1,5						113/115

Table 2E

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 630 V					
Capacitance	Case sizes/lead spacings				
	3e	4e	6e	9e	11e
1,0 nF	31/33				
1,5	31/33				
2,2	31/33				
3,3	31/33	41			
4,7	34/36	41			
6,8	34/36	41			
0,01 μ F	36	41/42			
0,015	37	43/44			
0,022		45			
0,033			61		
0,047			62/63		
0,068			64/65		
0,1				91/93	
0,15				92/95	
0,22				94/96	
0,33					112
0,47					112/113

Table 2F

Values of capacitance related to voltages, case sizes and lead spacings

Rated voltage: 1000 V					
Capacitance	Case sizes/lead spacings				
	3e	4e	6e	9e	11e
1,0 nF		41			
1,5		41			
2,2		41			
3,3		41			
4,7		42/43			
6,8		44/45			
0,01 μ F			61		
0,015			61/63		
0,022			63/65		
0,033				91/92	
0,047				91/93	
0,068				92/95	
0,1				95/96	
0,15					112
0,22					113/114
0,33					114/115
0,47					117