

BRITISH STANDARDS INSTITUTION
2, PARK STREET, LONDON W1A 2BS

B.S. CECC 30 201 - 021

ISSUE 1 AUGUST 1982



SPECIFICATION AVAILABLE FROM:
AS SHOWN IN CECC 00200 AND PD9002 AND
UNION CARBIDE U.K. LIMITED
HILTON ROAD,
AYCLIFFE INDUSTRIAL ESTATE
CO. DURHAM DL5 6DL

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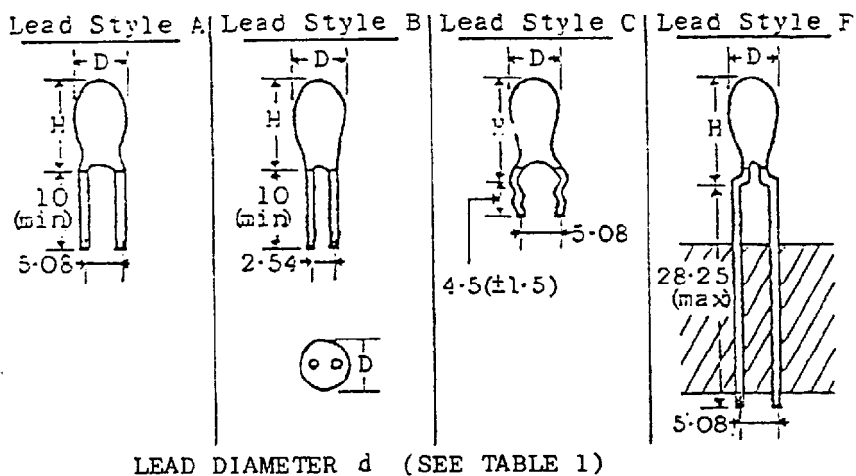
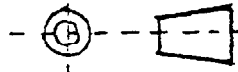
ELECTRONIC COMPONENTS OF ASSESSED QUALITY
DETAIL SPECIFICATION IN ACCORDANCE WITH
CECC 30 000 (1975)
CECC 30 200 (1975)

MANUFACTURERS TYPE NUMBER:

T393

FOR ORDERING INFORMATION
SEE CLAUSE 6

OUTLINE AND DIMENSIONS THIRD ANGLE PROJECTION
SEE TABLE 1.



TANTALUM ELECTROLYTIC
POLAR
SOLID ELECTROLYTIC
RESIN DIPPED
RADIAL TERMINATIONS

COMPLIES WITH THE MINIMUM
REQUIREMENTS OF TABLES 2 & 3
OF BS CECC 30200 1975

1. DIMENSIONS

TABLE 1 (DIMENSIONS IN mm)

CASE SIZE	H MAX			D MAX	$d \pm 0.05$	TYPICAL MASS (g)	CASE SIZE	H MAX			D MAX	$d \pm 0.05$	TYPICAL MASS (g)
	A/B	C	F					A/B	C	F			
A	9.0	10.5	11.0	4.5	0.5	0.21	J	13.0	14.5		8.0	0.5	0.5
B	9.0	10.5	11.0	4.5	0.5	0.22	K	14.0	15.5		8.5	0.5	0.6
C	10.0	11.5	12.0	5.0	0.5	0.23	L	14.0	15.5		9.0	0.5	1.0
D	10.5	12.0	12.5	5.0	0.5	0.24	M	15.0	16.5		9.0	0.5	1.4
E	11.0	12.5	13.0	5.5	0.5	0.25	N	17.0	18.5		9.0	0.5	1.5
F	11.5	13.0	13.5	6.0	0.5	0.28	P	17.0	18.5		11.0	0.5	3.0
G	12.0	13.5	14.0	6.5	0.5	0.36	R	18.5	20.0		11.0	0.5	4.3
H	12.5	13.5		7.5	0.5	0.46	S	19.0	21.5		11.0	0.5	4.4

REFER TO QUALIFIED PRODUCTS LIST PD 9002 AND/OR CECC 00200 FOR DETAILS OF
MANUFACTURERS APPROVED TO THIS SPECIFICATION.

2. SPECIFIED METHOD OF MOUNTING FOR VIBRATION TESTING

Capacitors shall be mounted by the body and the leads as

CECC 30 200 para. 4.12.

3. RATINGS (including limiting conditions of use) AND CHARACTERISTICS

CAPACITANCE RANGE (E6 SERIES, 1EC63).. SEE TABLE 2A

CAPACITANCE TOLERANCE 5%, 10%, 20%

RATED VOLTAGE SEE TABLE 2A

RATED TEMPERATURE..... 85°C

LEAKAGE CURRENT..... SEE TABLE 2B

TANGENT OF LOSS ANGLE..... SEE TABLE 2B

IMPEDANCE..... SEE TABLE 2C

CLIMATIC CATEGORY..... -55/085/21

SURGE VOLTAGE..... SEE TABLE 3A

RIPPLE VOLTAGE RATINGS..... SEE APPENDIX A

NOTE: Lead Style 'F' must be correctly cropped on an automatic insertion machine before applying any mechanical tests.

TABLE 2A

CAPACITANCE AND VOLTAGE CASE SIZE TABLE.

CAPACITANCE (μ F) \ UR	3	6.3	10	16	20	25	35	50
0.1							A	A
0.15							A	A
0.22							A	A
0.33							A	B
0.47							A	B
0.68							A	B
1.0						A	A	C
1.5					A	A	B	E
2.2				A	B	B	C	E
3.3			A	B	C	C	D	G
4.7		A	B	C	D	D	E	H
6.8	A	B	C	D	E	E	F	H
10.0	A	C	D	E	F	F	G	J
15.0	B	D	E	F	G	H	J	K
22.0	C	E	F	G	J	J	K	L
33.0	D	F	G	J	K	K	N	
47.0	E	G	J	K	K	N	N	
68.0	F	J	K	M	N	N		
100.0	G	K	M	N	N			
150.0	J	M	N	N				
220.0	K	N	P	S				
330.0	L	P	S					
470.0	N	S						
680.0	R	S						

TABLE 2B

MAXIMUM VALUES OF
CAPACITANCE CHANGE, TANGENT OF LOSS ANGLE AND LEAKAGE CURRENT

TEMPERATURE	CAPACITANCE CHANGE	TAN. DELTA AT 120Hz	LEAKAGE CURRENT	IMPEDANCE AT 100KHz
$20 \pm 5^{\circ}\text{C}$	-	0.1 - 1.5 μF 0.04 2.2 - 6.8 μF 0.06 10 - 68 μF 0.08 100 - 680 μF 0.10	AS TABLE 2B.1.	AS TABLE 2C
$-55 \pm 2^{\circ}\text{C}$	$\leq 10\%$	AS 20°C VALUE	N/A	AS TABLE 2C
$85 \pm 2^{\circ}\text{C}$	$\leq 15\%$	AS 20°C VALUE	$10 \times$ 20°C VALUE	N/A

4. RELATED DOCUMENTS

I.E.C.68 (BS2011)	Basic environmental testing procedures
I.E.C.63 (BS2488)	Preferred number series for resistors and capacitors.
B.S. 6001	Sample procedures and tables for inspection by attributes
BSE.9000	General requirements for electronic components of assessed quality.
BSE.9070 (CECC 30 000)	Harmonized system of quality assessment for electronic components: Generic specification for fixed capacitors.
BSE.9073 (CECC 30 200)	Sectional specification for tantalum capacitors
CECC 00 200	Qualified Products List
PD 9002	Qualified Products List

TABLE 2B.1.

MAXIMUM D.C. LEAKAGE CURRENT (uA)

CAPACITANCE \ U_R	3	6.3	10	16	20	25	35	50
0.1							0.5	0.5
0.15							0.5	0.5
0.22							0.5	0.5
0.33							0.5	0.5
0.47							0.5	0.5
0.68							0.5	0.5
1.0						0.5	0.5	0.5
1.5					0.5	0.5	0.5	1.0
2.2				0.5	0.5	0.5	1.0	1.0
3.3			0.5	0.5	1.0	1.0	1.0	1.5
4.7		0.5	0.5	1.0	1.0	1.0	1.5	2.5
6.8	0.5	0.5	1.0	1.0	1.5	1.5	2.5	3.5
10.0	0.5	1.0	1.0	1.5	2.0	2.5	3.5	5.0
15.0	0.5	1.0	1.5	2.5	3.0	4.0	5.0	7.5
22.0	1.0	1.5	2.5	3.5	4.5	5.5	7.5	11.0
33.0	1.0	2.0	3.5	5.0	6.5	8.5	10.0	
47.0	1.5	3.0	4.5	7.5	9.5	12.0	16.0	
68.0	2.0	4.5	7.0	10.0	13.5	15.0		
100.0	3.0	6.5	10.0	15.0	20.0			
150.0	4.5	9.5	15.0	20.0				
220.0	6.5	14.0	20.0	25.0				
330.0	10.0	20.0	25.0					
470.0	14.0	25.0						
680.0	20.0	25.0						