

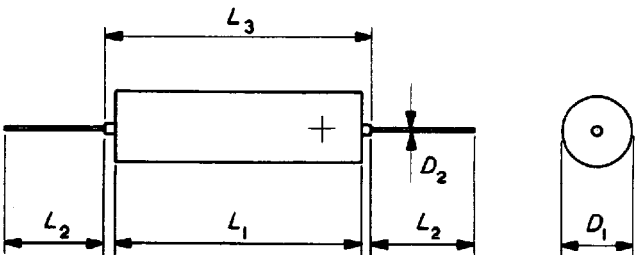
BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS	BS CECC 30201 001 ISSUE 1 AUGUST 1981
SPECIFICATION AVAILABLE FROM BRITISH STANDARDS INSTITUTION, 101 PENTONVILLE ROAD, LONDON N1 9ND	14 Pages
ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH: BS E9070 (CECC 30000) BS E9073 (CECC 30200)	MANUFACTURER'S TYPE NUMBER SEE PD 9002 For ordering information see clause 5
Outline and dimensions  (See table 1) Marking information see clause 4	TANTALUM CAPACITORS WITH SOLID ELECTROLYTE POROUS ANODE METAL CASE TYPICAL CONSTRUCTION: CYLINDRICAL POLAR/HERMETIC SEAL METALLIC CASE INSULATED/NON-INSULATED CASE AXIAL TERMINATIONS ASSESSMENT LEVEL: BASIC PLUS ADDITIONAL

TABLE 1. DIMENSIONS (see note 1)

All dimensions are in millimetres.

Case size reference	L ₁ max.	L ₂ min.	L ₃ max.	D ₁ max.	D ₂ (see note 2)	Typical mass
						g
A	7.14	30	10.71	3.58	0.5	0.7
B	11.91	30	15.49	4.85	0.5	1.3
C	17.30	30	20.87	7.49	0.6	4.7
D	19.84	30	23.41	9.07	0.6	7.4

NOTE 1. The dimensions in table 1 are for the uninsulated style. For the insulated style the insulation shall extend 0.4 mm minimum and 1.1 mm maximum beyond each end of the capacitor body. However, when a shrink fitted insulation is used it shall be over the ends of the body (L₁). The increase in diameter for insulated types shall not exceed 0.25 mm.

NOTE 2. Tolerances on the wire dimensions are given in IEC 301.

See the relevant Qualified Products List for availability of components made to this detail specification.

This standard is identical with BS E9073 N001 including amendments which is withdrawn on publication of this standard.

[Clause 1]

1. RATINGS (INCLUDING LIMITING CONDITIONS OF USE) AND CHARACTERISTICS

Table number

Capacitance range	Capacitance values are taken from the E12 series of BS 2488 (IEC 63)	2A
Capacitance tolerances	$\pm 5 \%$, $\pm 10 \%$, $\pm 20 \%$	
Rated voltage U_R		2A
Category voltage U_C		2A
Surge voltage	130 % of the rated or category voltage.	3A
Reverse voltage	≤ 1 V or 10 % of the category voltage, whichever is the less	
Rated temperature	85 °C	
Leakage current		2B
Tangent of loss angle		2B
Impedance		2C
Ripple ratings	See appendix A for graphs of r.m.s. ripple voltage over a range of frequencies. Derating factors are given in table 3B.	3B
Environmental classification	55/125/56	
Bump severity	390 m/s ²	
Shock severity	980 m/s ²	
Vibration severity	0.75 mm or 98 m/s ² whichever is the less	
Acceleration severity	980 m/s ²	
Low air pressure	10 mbar*	
Resistance to soldering heat	350 °C	

2. ADDITIONAL INFORMATION (NOT FOR INSPECTION PURPOSES)

The reliability of these capacitors depends on circuit impedance. In very low impedance (e.g. less than 3Ω V) circuits, such as power supplies, particular care is necessary to ensure that the surge voltage rating is not exceeded. This may necessitate voltage derating of up to 50 %.

The main mode of failure is high leakage current or short circuit.

These capacitors may not meet the above mechanical severities when mounted solely by their leads.

This type of capacitor is designed to operate over the temperature range -55 °C to +85 °C and with proper derating to +125 °C (see tables 3A and 3B).

3. RELATED DOCUMENTS

- BS 2011 (IEC 68) Methods for the environmental testing of electronic components and electronic equipment
- BS 2488 (IEC 63) Schedule of preferred numbers for the resistance of resistors and the capacitance of capacitors for telecommunication equipment

* 1 mbar = 10^2 N/m² = 100 Pa.

[Clause 4]

BS 6001	Sampling procedures and tables for inspection by attributes
BS E9000	General requirements for electronic components of assessed quality
BS E9070	Harmonized system of quality assessment for electronic components: Generic specification for fixed capacitors
BS E9073	Sectional specification for tantalum capacitors
PD 9002	BS 9000 component selection guide
IEC 301	Preferred diameters of wire terminations of capacitors and resistors

4. MARKING

The marking of the component and package shall be in accordance with 1.4 of BS E9073.

(a) Polarity marking shall be as shown in the figure on the front page.

(b) The symbol for tolerances shall be one of the following.

$\pm 5\%$ J

$\pm 10\%$ K

$\pm 20\%$ M

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TABLE 2A. VALUES OF CAPACITANCE AND VOLTAGE RELATED TO CASE SIZE

Capacitance μF	U_R	<u>6.3</u>	<u>10</u>	<u>16</u>	20	<u>25</u>	35	<u>40</u>	50	<u>63</u>	75	80	<u>100</u>
	U_C	4	6.3	10	13	16	23	25	33	40	50	50	63
0.068												A	A
0.082												A	A
0.10							A	A		A		A	A
0.12							A	A		A		A	A
0.15							A	A		A		A	A
0.18							A	A		A		A	A
0.22							A	A		A		A	A
0.27							A	A		A		A	A
0.33							A	A		A		A	A
0.39							A	A		A		A	A
0.47							A	A		A		A	A
0.56							A	A		A		A	A
0.68							A	A		A		A	A
0.82							A	A	A	B		B	B
1.0							A	A	A	B		B	B
1.2						A	B	B	B	B		B	B
1.5						A	B	B	B	B		B	B
1.8					A		B	B	B	B		B	B
2.2					A		B	B	B	B		B	B
2.7				A			B	B	B	B		B	B
3.3				A			B	B	B	B	B	B	B
3.9			A				B	B	B	B	B	C	
4.7			A				B	B	B	C	C	C	
5.6		A					B	B	C	C	C	C	
6.8		A					B	B	C	C	C	C	
8.2						B	C	C	C	C	C	C	
10						B	C	C	C	C	C	D	
12					B		C	C	C	C	D	D	
15					B		C	C	C	C	D	D	
18				B			C	C	C	D			
22				B			C	C	C	D			
27			B			C	D	D	D				
33			B			C	D	D	D				
39			B		C		D	D	D				
47		B			C		D						
56		B		C		D	D						
68				C		D							
82			C		D								
100			C		D								
120			C		D								
150		C		D									
180		C		D									
220			D										
270		D											
330		D											

NOTE 1. Letters indicate case size (see table 1).

NOTE 2. Preferred rated voltages are underlined.

NOTE 3. The capacitors may be used for any lower voltage rating. This is indicated by arrows.

TABLE 2B. CAPACITANCE CHANGE, TAN DELTA AND LEAKAGE CURRENT

Test temperature	Capacitance change	Tan delta (max.)		Leakage* current (max.)
		C ≤ 100 μF	C > 100 μF	
Room temperature	-	0.06	0.08	0.02 μA per μF V or 1 μA whichever is the greater
-55 ± 2	≤ 12 %	0.08	0.10	-
+125 ± 2	≤ 15 %	0.10	0.11	12.5 × room requirement

*Measured at rated voltage at room temperature and lower category temperature and at category voltage at upper category temperature.

TABLE 2C. IMPEDANCE AT 100 kHz (C ≥ 0.68 μF only)

Case size	Impedance (max.)
	Ω
A	10
B	5
C	2
D	1

TABLE 3A. SURGE VOLTAGE

Rated voltage 85 °C	Category voltage 125 °C	Surge voltage	
		85 °C	125 °C
V	V	V	V
6.3	4	8	5
10	6.3	13	9
16	10	20	12
20	13	26	16
25	16	33	21
35	23	46	28
40	25	53	33
50	33	65	40
63	40	84	53
75	50	97	64
80	50	104	64
100	63	130	86