

BRITISH STANDARD INSTITUTION
2 PARK STREET, LONDON, W1A 2BS.

Specification available from:-
 AS SHOWN IN PD 9002, CECC 00 200 AND

Arcotronics

ARCOTRONICS LIMITED
Castanet Capacitor Division

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BS CECC 30 202 009
ISSUE 1. JULY 1987



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Electronic Components of Assessed Quality
 Detail Specification in Accordance with
 BS CECC 30 000 1984 Iss.3 and
 BS CECC 30 200 1986 Iss.2

MANUFACTURERS TYPE NUMBER

TM SERIES

See PD 9002 and CECC 00 200

For ordering information see Clause 1.6

Modular capacitor (comprising
 hermetically sealed, metal cased
 tantalum capacitors with non-solid
 electrolyte and porous anodes.)

Encapsulated in an insulated
 container.

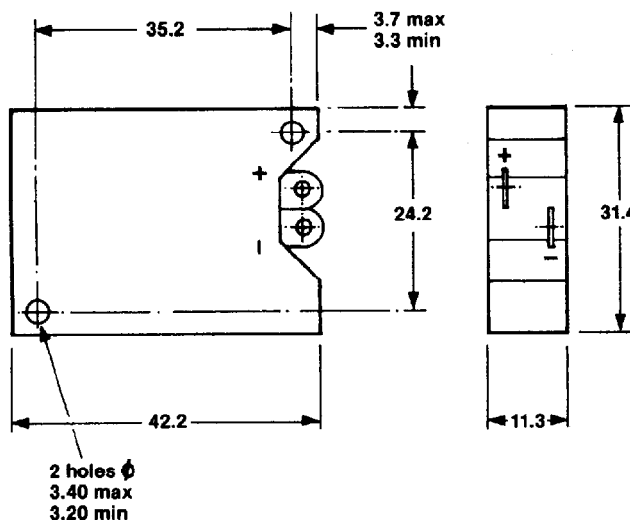
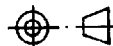
Tag terminations, with two mounting
 holes.

Assessment level E.

Long life grade.

Outline and Dimensions

3RD ANGLE
 PROJECTION



All dimensions are in millimetres and are maximum unless
 otherwise stated. Marking Information see Clause 1.5.

Rated Capacitance Range:	220 μ F to 6000 μ F
Capacitance Tolerance:	$\pm 20\%$, $\pm 10\%$, $\pm 5\%$
Rated Voltage:	6Vdc to 125Vdc
Climatic Category:	55/125/56

For full details see Clause 1.3 and Tables 2A & 2B.

Note 1. The module is not designed for printed circuit mounting.

Note 2. The module is an encapsulated package comprising capacitors to BS CECC 30 202 001
 Full Plus Additional Assessment level specifications.

Information about manufacturers who have components qualified to this detail
 specification is available. In the current PD 9002 and CECC 00 200 Qualified Products List.

1. GENERAL DATA

1.1 Mounting

The unit is fixed by the use of bolts of 3mm clearance through the two insulated holes. Connection is to the solder tags.

The units may be stacked.

1.2 Dimensions

As figure on Page 1.

1.3 Ratings & Characteristics

Capacitance Range	220 uf to 6000 uf
Tolerance on rated capacitance	-see Table 2A
Rated voltage	$\pm 20\%$ $\pm 10\%$ $\pm 5\%$
Category voltage	6 Vdc to 125 Vdc
Climatic category	-see Table 2A & Table 6
Rated temperature	4 Vdc to 83 Vdc
Capacitance change with temperature	-see Table 2A & Table 6
Tangent of loss angle	55/125/56
Leakage current	85°C
Impedance	see Table 2B
Permissible reverse voltage	see Table 2B
Upper category temperature	see Table 2B
Lower category temperature	see Table 2B
	3V
	125°C
	-55°C

Table 2A

Capacitance & Rated/Category Voltage

RATED & CATEGORY VOLTAGE VALUES																
Cap μF	U_R	6	<u>6.3</u>	8	<u>10</u>	15	<u>16</u>	20	<u>25</u>	30	<u>40</u>	50	<u>63</u>	75	<u>100</u>	<u>125</u>
	U_C	4	4	5	6.3	10	10	13	16	20	25	30	40	50	63	83
220																X
235																X
270															X	
280															X	
300															X	
330														X		
340														X		
390														X		
410														X		
470														X		
500														X		
560														X		
600														X		
680														X		
750													X	X		
820													X			
900												X				
1000													X			
1100												X				
1200											X					
1300											X					
1350										X						
1500									X							
1650										X						
1800									X							
1950									X							
2200									X							
2350								X								
2400									X							
2700								X								
2800								X								
3300							X									
3400						X										
3900					X											
4100					X											
4700					X											
5000				X												
5100					X											
5600			X													
6000	X															

- Note :
1. U_R = Rated voltage U_C = upper category voltage
 2. The capacitors may be used at voltages lower than their rated/category voltage.
 3. Preferred rated voltages are underlined.

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**Table 2B. Characteristics at high and low temperature
Maximum values**

Manufacturers Reference No ± 20% 402/11-	U_R VOLTS	C_R (μF)	Capacitance Change %			Tan δ 100 Hz			Impedance 100 Hz - 55°C ohms	Leakage Current		Max. RMS Ripple 85°C 40kHz (mA)
			-55°C	85°C	125°C	-55°C	20°C	125°C		20°C (μA)	85 & 125°C (μA)	
80115/011	125	220	-24	15	15	85	8	11	42	9	72	4500
80115/012	125	235	-24	18	18	85	10	12	39	9	72	4500
80114/013	100	270	-24	20	20	90	10	12	30	9	72	4500
80114/014	100	280	-35	20	20	100	11	13	36	9	72	4500
80114/015	100	300	-35	20	20	100	11	13	36	9	72	4500
80113/016	75	330	-35	20	20	120	11	13	29	9	72	4800
80113/017	75	340	-35	20	20	120	11	13	29	9	72	4800
80113/018	75	390	-36	20	20	120	12	13	28	9	72	4600
80113/019	75	410	-48	21	22	160	17	18	30	27	108	4600
80113/020	75	470	-48	21	22	160	17	18	30	27	108	4600
80113/021	75	500	-48	21	22	300	17	18	30	27	108	4600
80113/022	75	560	-60	22	22	300	37	37	32	30	120	4500
80113/023	75	600	-60	22	22	320	37	37	32	30	120	4500
80113/024	75	680	-60	22	22	320	37	37	32	30	120	4500
80113/025	75	750	-68	24	25	340	40	40	33	30	120	4500
80112/025	63	750	-70	24	25	200	40	40	33	27	108	4400
80112/026	63	820	-70	24	25	200	40	40	33	27	108	4400
80111/027	50	900	-70	25	25	280	40	40	33	27	108	4400
80112/028	63	1000	-72	25	25	300	32	32	31	30	120	4500
80111/029	50	1100	-70	25	25	360	40	40	30	27	108	4600
80110/030	40	1200	-75	25	25	400	43	43	30	24	96	4600
80110/031	40	1300	-80	25	25	400	45	45	30	27	108	4600
80109/032	30	1350	-80	25	25	400	45	45	30	27	108	4600
80108/033	25	1500	-80	25	25	450	60	60	24	24	96	4700
80109/034	30	1650	-80	25	25	450	40	40	30	27	108	4700
80108/035	25	1800	-80	25	25	500	60	60	24	24	96	4700
80108/036	25	1950	-80	25	25	550	60	60	24	24	96	4700
80108/037	25	2200	-80	25	25	650	60	60	24	24	96	4700
80107/038	20	2350	-80	25	25	700	60	60	24	24	96	4700
80108/039	25	2400	-80	25	25	700	95	95	26	24	96	4700
80107/040	20	2700	-80	25	25	800	95	95	26	24	96	4700
80107/041	20	2800	-80	25	25	800	95	95	26	24	96	4700
80106/042	16	3300	-84	25	25	850	103	103	25	24	96	5500
80105/043	15	3400	-84	25	25	900	103	103	25	24	96	5500
80104/044	10	3900	-88	25	25	920	114	114	23	21	75	5700
80104/045	10	4100	-88	25	25	950	114	114	23	21	75	5700
80104/046	10	4700	-88	25	25	1000	114	114	23	21	75	5700
80103/047	8	5000	-88	25	25	1000	138	138	24	21	75	5700
80104/048	10	5100	-88	25	25	1100	138	138	24	21	75	5700
80102/049	6.3	5600	-90	25	25	1240	170	170	22	18	54	5700
80101/050	6	6000	-90	25	25	1360	170	170	22	18	54	5700

Note 1. Manufacturers references for other tolerances are shown in clause 1.6

Note 2. Ripple Current Multipliers to be used in conjunction with those ripple currents are shown in clause 1.8. (This information is not for inspection purposes).

TABLE 3 : OTHER CHARACTERISTICS

None

1.4 RELATED DOCUMENTS

I.E.C. 68	Basic Enviromental Testing Procedures
BS CECC 30 000 iss 3	Generic Specification
BS CECC 30 200 iss 2	Sectional Specification
CECC 00107	General requirement for electronic components of assessed quality
CECC 00200	Qualified products list
I.E.C. 410	Sampling procedures and tables for inspection by attributes.

1.5 MARKING

The following details selected from those listed in 1.3.4 of CECC 30 200 shall be given on the capacitor.

Polarity - Marking as in figure on front page.
 Rated capacitance in microfarads
 Rated voltage
 Tolerance on rated capacitance; M = $\pm 20\%$; K = $\pm 10\%$; J = $\pm 5\%$
 Reference to grade LL(Long Life)
 Category voltage + category temperature
 Manufacturers type designation and trade mark.
 Date Code
 The date code will be a 6 character manufacturing date code.

Example : 6th batch of the 5th week of 1986 = 86 05 06

Where voltage ratings, which include a decimal point, are marked on the component, the decimal point will be replaced by a capital V, i.e. a component valued at 6.3 volts will be coded 6V3.

The package containing the capacitors shall be marked with the above items plus the following.

Manufactures name
 Climatic category
 Indication of the type within the manufactures designation
 CECC number of the detail specification.
 Sub-family marking. (2).

1.6. ORDERING INFORMATION

When ordering capacitors to this specification the following minimum information shall be given.

- a. Quantity
- b. Manufacturers type number
- c. BS CECC Specification Number, Issue Number and Date
- d. Capacitance value, and selection tolerance
- e. Rated Voltage

Example :

100 off
Type TM
300 μ F $\pm 20\%$ 100V
BS CECC 30202 009 Issue 1

If possible the manufacturers reference should also be given these are shown for $\pm 20\%$ capacitors in Table 2 B, and for the example given, at $\pm 20\%$, would be 402/1/80114/015.

For $\pm 10\%$ units the suffix changes to /1--, in this example 402/1/80114/115

For $\pm 5\%$ units the suffix changes to /5--, in this example 402/1/80114/515

1.7 Certified test records; not required.