CAPACITORS, FIXED, SURFACE MOUNT,

D.C. SELF-HEALING, NON-INDUCTIVE,

POLYTEREPHTALATE DIELECTRIC,

BASED ON TYPE PM94S

ESCC Detail Specification No. 3006/024

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ESA/SCC Detail Specification No. 3006/024

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1. GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Capacitors, Fixed, Surface Mount, D.C. Self-Healing, Non-inductive, Polyterephtalate Dielectric, based on Type PM94S. It shall be read in conjunction with ESA/SCC Generic Specification No. 3006, the requirements of which are supplemented herein.

1.2 RANGE OF COMPONENTS AND SIZE VARIANTS

The range of capacitors and size variants covered by this specification are scheduled in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the capacitors specified herein, are scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

The parameter derating information applicable to the capacitors specified herein, is shown in Figure 1.

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the capacitors specified herein are shown in Figure 2.

1.6 FUNCTIONAL DIAGRAM

The functional diagram for the capacitors specified herein is shown in Figure 3.

2. APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:-

(a) ESA/SCC Generic Specification No. 3006 for Capacitors, Fixed, Film Dielectric.

(b) IEC Publication No. 68-2-58, Environmental Testing.

3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESA/SCC Basic Specification No. 21300 shall apply.

TABLE 1(a) - RANGE OF COMPONENTS AND SIZE VARIANTS

(1) Item No.	(2) Capacitance Value (C) (µF) (Note 1)	(3) d.c. Rated Voltage (U_R) (V)	(4) a.c. Rated Current (I_{RA}) (A)	(5) Size Variant (Note 2)	(6) Weight (g)	(7) B (mm) Max.
01	2.2	50	1.3	01	1.0	6.0
02	2.7	50	1.6	01	1.0	6.0
03	3.3	50	1.9	01	1.0	6.0
04	3.9	50	2.3	01	1.3	8.0
05	4.7	50	2.8	01	1.3	8.0
06	4.7	50	1.4	02	1.6	6.0
07	5.6	50	3.3	01	1.7	10
08	5.6	50	1.7	02	1.6	6.0
09	6.8	50	4.1	01	1.7	10
10	6.8	50	2.1	02	1.6	6.0
11	6.8	50	1.9	03	2.2	6.0
12	8.2	50	4.9	01	1.9	12
13	8.2	50	2.5	02	2.1	8.0
14	8.2	50	2.3	03	2.2	6.0
15	10	50	6.0	01	2.0	12
16	10	50	3.1	02	2.1	8.0
17	10	50	2.9	03	2.2	6.0
18	10	50	2.6	04	2.7	6.0
19	12	50	3.7	02	2.1	8.0
20	12	50	3.4	03	2.2	6.0
21	12	50	3.1	04	2.7	6.0
22	15	50	4.6	02	2.6	10
23	15	50	4.3	03	3.0	8.0
24	15	50	3.9	04	2.7	6.0
25	18	50	5.2	03	3.0	8.0
26	18	50	4.6	04	3.6	8.0
27	22	50	6.3	03	3.7	10
28	22	50	5.7	04	3.6	8.0
29	27	50	7.8	03	4.7	12
30	27	50	7.0	04	4.6	10
31	33	50	9.5	03	5.2	14
32	33	50	8.5	04	5.5	12
33	39	50	10	04	6.8	15
34	47	50	12.2	04	6.8	15
35	1.5	63	1.7	01	1.0	6.0
36	1.8	63	2.1	01	1.0	6.0
37	2.2	63	2.3	01	1.3	8.0
38	2.7	63	3.1	01	1.7	10
39	3.3	63	3.8	01	1.7	10
40	3.3	63	1.9	02	1.6	6.0
41	3.9	63	4.9	01	1.9	12
42	3.9	63	2.3	02	1.6	6.0
43	4.7	63	6.0	01	2.0	12
44	4.7	63	2.8	02	2.1	8.0
45	4.7	63	2.6	03	2.2	6.0

NOTES: See Page 9.

TABLE 1(a) - RANGE OF COMPONENTS AND SIZE VARIANTS (CONTINUED)

(1) Item No.	(2) Capacitance Value (C) (µF) (Note 1)	(3) d.c. Rated Voltage (U_R) (V)	(4) a.c. Rated Current (I_{RA}) (A)	(5) Size Variant (Note 2)	(6) Weight (g)	(7) B (mm) Max.
46	5.6	63	3.3	02	2.6	10
47	5.6	63	3.1	03	2.2	6.0
48	6.8	63	3.7	03	3.0	8.0
49	6.8	63	3.4	04	2.7	6.0
50	8.2	63	4.5	03	3.0	8.0
51	8.2	63	4.0	04	3.6	8.0
52	10	63	5.5	03	3.7	10
53	10	63	4.9	04	4.6	8.0
54	12	63	6.6	03	4.7	12
55	12	63	5.9	04	4.6	10
56	15	63	8.3	03	5.2	14
57	15	63	7.4	04	5.5	12
58	18	63	8.9	04	6.8	15
59	22	63	10.9	04	6.8	15
60	0.56	100	0.8	01	1.0	6.0
61	0.68	100	1.0	01	1.0	6.0
62	0.82	100	1.1	01	1.0	6.0
63	1.0	100	1.8	01	1.0	6.0
64	1.2	100	1.8	01	1.3	8.0
65	1.5	100	2.2	01	1.3	8.0
66	1.5	100	1.1	02	1.6	6.0
67	1.8	100	2.7	01	1.7	10
68	1.8	100	1.4	02	1.6	6.0
69	2.2	100	3.5	01	1.9	12
70	2.2	100	1.7	02	1.6	6.0
71	2.2	100	1.6	03	2.2	6.0
72	2.7	100	2.1	02	2.1	8.0
73	2.7	100	1.9	03	2.2	6.0
74	3.3	100	2.5	02	2.6	10
75	3.3	100	2.4	03	2.2	6.0
76	3.3	100	2.1	04	2.7	6.0
77	3.9	100	2.8	03	3.0	8.0
78	3.9	100	2.5	04	2.7	6.0
79	4.7	100	3.4	03	3.0	8.0
80	4.7	100	3.0	04	3.6	8.0
81	5.6	100	4.0	03	3.7	10
82	5.6	100	3.6	04	3.6	8.0
83	6.8	100	4.9	03	4.7	12
84	6.8	100	4.3	04	4.6	10
85	8.2	100	5.9	03	5.2	14
86	8.2	100	5.2	04	4.6	10
87	10	100	6.4	04	5.5	12
88	12	100	7.7	04	6.8	15

NOTES: See Page 9.

TABLE 1(a) - RANGE OF COMPONENTS AND SIZE VARIANTS (CONTINUED)

(1) Item No.	(2) Capacitance Value (C) (µF) (Note 1)	(3) d.c. Rated Voltage (U_R) (V)	(4) a.c. Rated Current (I_{RA}) (A)	(5) Size Variant (Note 2)	(6) Weight (g)	(7) B (mm) Max.
89	0.33	200	0.6	01	1.0	6.0
90	0.39	200	0.8	01	1.0	6.0
91	0.47	200	1.0	01	1.0	6.0
92	0.56	200	1.1	01	1.3	8.0
93	0.68	200	1.4	01	1.3	8.0
94	0.82	200	1.7	01	1.7	10
95	0.82	200	0.8	02	1.6	6.0
96	1.0	200	2.1	01	1.9	12
97	1.0	200	1.0	02	1.6	6.0
98	1.2	200	1.2	02	2.1	8.0
99	1.2	200	1.1	03	2.2	6.0
100	1.5	200	1.5	02	2.1	8.0
101	1.5	200	1.4	03	2.2	6.0
102	1.8	200	1.8	02	2.6	10
103	1.8	200	1.7	03	3.0	8.0
104	1.8	200	1.6	04	2.7	6.0
105	2.2	200	2.1	03	3.0	8.0
106	2.2	200	2.0	04	2.7	6.0
107	2.7	200	2.6	03	3.7	10
108	2.7	200	2.4	04	3.6	8.0
109	3.3	200	3.2	03	3.7	10
110	3.3	200	3.0	04	4.6	10
111	3.9	200	3.8	03	4.7	12
112	3.9	200	3.5	04	4.6	10
113	4.7	200	4.6	03	5.2	14
114	4.7	200	4.3	04	5.5	12
115	5.6	200	5.1	04	6.8	15
116	0.22	250	0.8	01	1.0	6.0
117	0.27	250	1.0	01	1.0	6.0
118	0.33	250	1.2	01	1.0	6.0
119	0.39	250	1.4	01	1.3	8.0
120	0.47	250	1.7	01	1.3	8.0
121	0.47	250	0.8	02	1.6	6.0
122	0.56	250	2.0	01	1.7	10
123	0.56	250	0.9	02	1.6	6.0
124	0.68	250	2.4	01	1.9	12
125	0.68	250	1.1	02	1.6	6.0
126	0.82	250	1.3	02	2.1	8.0
127	1.0	250	1.6	02	2.1	8.0
128	1.0	250	1.5	03	2.2	6.0
129	1.0	250	1.3	04	2.7	6.0
130	1.2	250	2.0	02	2.6	10
131	1.2	250	1.8	03	3.0	8.0
132	1.2	250	1.6	04	2.7	6.0

NOTES: See Page 9.

TABLE 1(a) - RANGE OF COMPONENTS AND SIZE VARIANTS (CONTINUED)

(1) Item No.	(2) Capacitance Value (C) (µF) (Note 1)	(3) d.c. Rated Voltage (U_R) (V)	(4) a.c. Rated Current (I_{RA}) (A)	(5) Size Variant (Note 2)	(6) Weight (g)	(7) B (mm) Max.
133	1.5	250	2.5	02	2.6	10
134	1.5	250	2.3	03	3.0	8.0
135	1.5	250	2.0	04	2.7	6.0
136	1.8	250	2.7	03	3.7	10
137	1.8	250	2.4	04	3.6	8.0
138	2.2	250	3.4	03	3.7	10
139	2.2	250	3.0	04	3.6	8.0
140	2.7	250	4.1	03	4.7	12
141	2.7	250	3.6	04	4.6	10
142	3.3	250	5.0	03	5.2	14
143	3.3	250	4.4	04	4.6	10
144	3.9	250	5.3	04	5.5	12
145	4.7	250	6.3	04	6.8	15
146	0.1	400	0.8	01	1.0	6.0
147	0.12	400	1.0	01	1.3	8.0
148	0.15	400	1.2	01	1.3	8.0
149	0.18	400	1.4	01	1.7	8.0
150	0.22	400	1.7	01	1.7	10
151	0.22	400	0.8	02	1.6	6.0
152	0.27	400	1.0	02	1.6	6.0
153	0.33	400	1.2	02	2.1	8.0
154	0.39	400	1.4	02	2.1	8.0
155	0.47	400	1.7	02	2.6	10
156	0.47	400	1.6	03	2.2	6.0
157	0.56	400	1.9	03	3.0	8.0
158	0.68	400	2.3	03	3.0	8.0
159	0.68	400	2.0	04	2.7	6.0
160	0.82	400	2.8	03	3.7	10
161	0.82	400	2.5	04	3.6	8.0
162	1.0	400	3.4	03	4.7	12
163	1.0	400	3.0	04	4.6	10
164	1.2	400	4.0	03	5.2	14
165	1.2	400	3.6	04	4.6	10
166	1.5	400	4.5	04	5.5	12
167	1.8	400	5.4	04	6.8	15

NOTES

1. Available in E6 Series (Tolerance ±20%) and E12 Series (Tolerance ±10%).
2. For Size Variants, see Figure 2.

TABLE 1(b) - MAXIMUM RATINGS

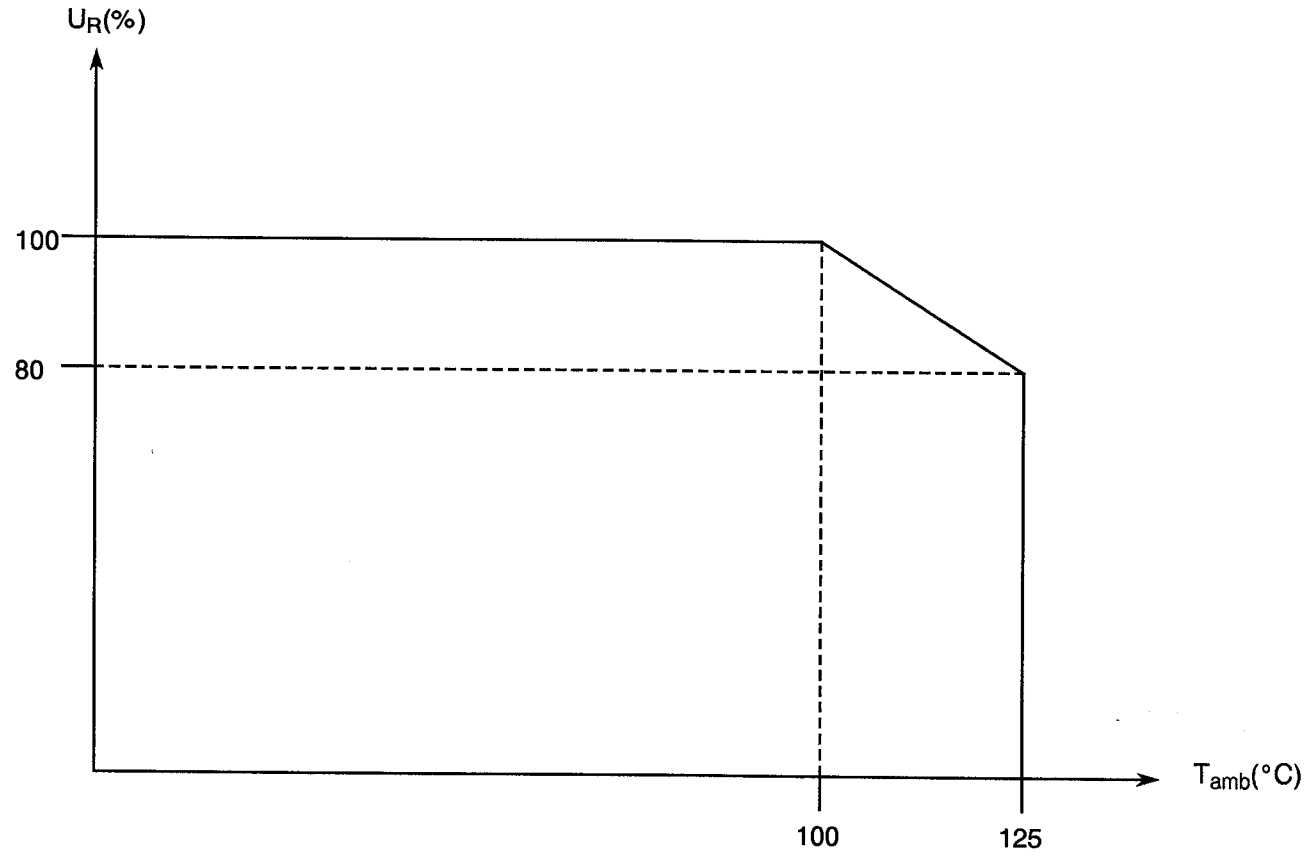
No.	Characteristics	Symbol	Maximum Ratings	Unit	Remarks
1	Rated Voltage d.c.	U_R	See Table 1(a)	V	
2	Rated Voltage a.c. (50/60Hz)	U_A	35% of U_R	Vrms	
3	Rated Current a.c. (100kHz)	I_{RA}	See Table 1(a)	Arms	
4	Operating Temperature Range	T_{op}	−55 to +125	°C	T_{amb}
5	Storage Temperature Range	T_{stg}	−55 to +125	°C	
6	Soldering Temperature	T_{sol}	+215	°C	Notes 1 and 2

NOTES

1. For reflow soldering:
   - Temperature : +215°C.
   - Duration : 20 to 40 seconds maximum.

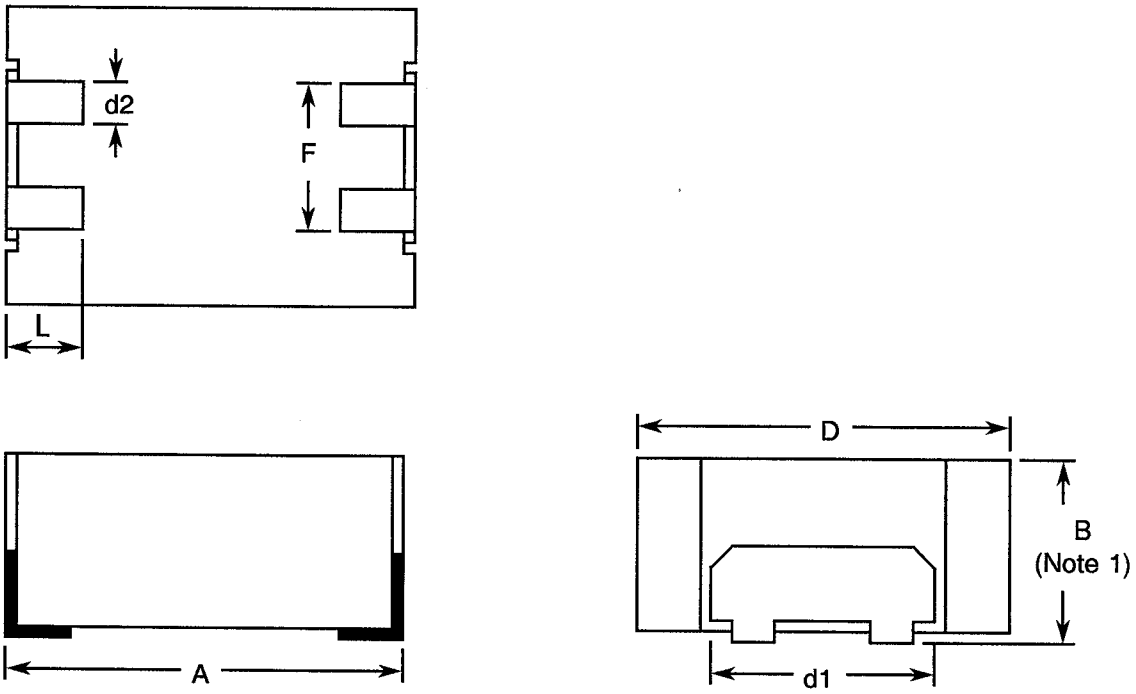
2. For the purposes of Paras. 9.10 and 9.11 of ESA/SCC Generic Specification No. 3006, the minimum and maximum immersion distances shall be 1.0mm and 2.0mm respectively, with a duration of 20 to 40 seconds.

FIGURE 1 - PARAMETER DERATING INFORMATION



Rated Voltage versus Temperature

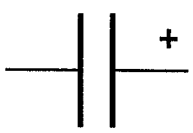
FIGURE 2 - PHYSICAL DIMENSIONS



Size Variant	A		D		d1		d2		F		L	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
01	-	10.7	-	10.7	5.5	6.5	1.3	1.7	4.8	5.2	1.5	2.5
02	-	15.5	-	11.5	5.5	6.5	1.3	1.7	4.8	5.2	1.5	2.5
03	-	16.5	-	15.5	7.5	8.5	1.8	2.2	6.8	7.2	1.5	2.5
04	-	18.5	-	17	7.5	8.5	1.8	2.2	6.8	7.2	1.5	2.5

NOTES
1. For Dimension B, see Table 1(a).

FIGURE 3 - FUNCTIONAL DIAGRAM



NOTES
1. These capacitors are not polarised, however, marking includes the voltage polarity symbol indicated above, which should be respected in use.

4. REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the capacitors specified herein are stated in this specification and ESA/SCC Generic Specification No. 3006 for Capacitors, Fixed, Film Dielectric. Deviations from the Generic Specification, applicable to this specification only, are listed in Para. 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESA/SCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

For testing in Charts IV and V, the components may be mounted on a suitable substrate in accordance with IEC Publication No. 384-1, Clause 4.33. After mounting, a force as specified in Para. 4.3.3 of this specification shall be applied normal to a line joining the terminals and in a plane parallel to the substrate for a duration of 10 seconds. There shall be no evidence of damage or loosening of the components from the substrate.

4.2.1 Deviations from Special In-process Controls

None.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para. 9.2, Seal Test: Not applicable.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

(a) Para. 9.2, Seal Test: Not applicable.

(b) Para. 9.6.3, Electrical Measurement at High and Low Temperature: This test may be performed at the end of Chart III and parts rejected during external visual inspection or radiographic inspection, but electrically acceptable after burn-in, may be used.

(c) Para. 9.19, Sleeving: Not applicable.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.2, Seal Test: Not applicable.

(b) Para. 9.9, Robustness of Terminations: Only test U_a is applicable.

(c) Para. 9.10.2, Resistance to Soldering Heat: This test shall be carried out in accordance with IEC Publication No. 68.2.58, with the following conditions:-

Temperature: $+215 \pm 3.0$ °C.

Immersion Time: 40 seconds.

The terminations shall be immersed to the minimum soldering distance defined in Table 1(b).

(d) Para. 9.11, Solderability: Shall be carried out in accordance with IEC Publication No. 68.2.58, with the following conditions:-

Temperature: $+215 \pm 3.0$ °C.

Immersion Time: 3.0 ± 0.3 seconds.

The terminations shall be immersed to the minimum soldering distance defined in Table 1(b).

(e) Para. 9.16, Operating Life: For Para. 9.16(c), the applied voltage shall be $1.25U_R$.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.2, Seal Test : As per Para. 4.2.4(a)

(b) Para. 9.9, Robustness of Terminations : As per Para. 4.2.4(b)

(c) Para. 9.10.2, Resistance to Soldering Time: As per Para. 4.2.4(c)

(d) Para. 9.11, Solderability: As per Para. 4.2.4(d)

(e) Para. 9.15, High and Low Temperature Stability: The parts to be measured shall be selected from the sample tested during Chart III, see Para. 4.2.3(b).

(f) Para. 9.16, Operating Life : As per Para. 4.2.4(e)

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the capacitors specified herein shall be checked. They shall conform to those shown in Figure 2 and Table 1(a).

4.3.2 Weight

The maximum weight of the capacitors specified herein shall be as specified in Table 1(a).

4.3.3 Robustness of Terminations

Test Condition: 10 Newtons.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the capacitors specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Case

Thermo-plastic with epoxy resin filler.

4.4.2 Lead Material and Finish

The terminal material shall be brass, with a barrier layer of 2.0µm minimum of copper and Type '3 or 4' finish in accordance with the requirements of ESA/SCC Basic Specification No. 23500.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESA/SCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked and the order of precedence, shall be as follows:-

(a) Polarity.

(b) The SCC Component Number.

(c) Electrical Characteristics and Ratings.

(d) Traceability Information.

4.5.2 Polarity

Polarity shall be marked in accordance with Figure 3 of this specification.

4.5.3 The SCC Component Number

The SCC Component Number shall be constituted and marked as follows:-

300602401B

Detail Specification Number

Type Variant (see Table 1(a) and Figure 2)

Testing Level (B or C, as applicable)

4.5.4 Electrical Characteristics and Ratings

The electrical characteristics and ratings to be marked in the following order of precedence are:-

(a) Capacitance Value.

(b) Tolerance.

(c) Rated Voltage.

The information shall be constituted and marked as follows:-

155KH

Capacitance Value (1.5µF)

Tolerance (±10%)

Rated Voltage (250V)

4.5.4.1 Capacitance Values

Capacitance values shall be coded as follows. The unit quantity for marking shall be picofarads.

Capacitance Value	Code
XX10^4	XX4
XX10^5	XX5
XX10^6	XX6

4.5.4.2 Tolerances

The tolerances on capacitance values shall be indicated by the letter code specified hereafter.

Tolerance (±%)	Code Letter
10	K
20	M

4.5.4.3 Rated Voltage

The rated voltage shall be indicated by the code letters specified hereafter.

Rated Voltage (V)	Code Letter
50	C
63	D
100	E
200	G
250	H
400	K

4.5.5 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESA/SCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured at room temperature are scheduled in Table 2. Unless otherwise specified, the measurements shall be performed at $T_{amb} = +22 \pm 3$ °C.

4.6.2 Electrical Measurements at High and Low Temperatures

The parameters to be measured at high and low temperatures are scheduled in Table 3.

4.6.3 Circuits for Electrical Measurements (Figure 4)

Not applicable.

4.7 BURN-IN TESTS

4.7.1 Parameter Drift Values

The parameter drift values applicable to burn-in are specified in Table 4 of this specification. Unless otherwise stated, measurements shall be performed at $T_{amb} = +22 \pm 3$ °C. The parameter drift values (Δ) applicable to the parameters scheduled shall not be exceeded. In addition to these drift value requirements for a given parameter, the appropriate limit value specified in Table 2 shall not be exceeded.

4.7.2 Conditions for Burn-in

The requirements for burn-in are specified in Section 7 of ESA/SCC Generic Specification No. 3006. The conditions for burn-in shall be as specified in Table 5 of this specification. On completion of burn-in, a recovery period of 24 ± 2 hours is necessary before the end-measurements.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	Characteristics	Symbol	ESA/SCC 3006 Test Method	Test Condition	Limits		Unit
					Min.	Max.	
1	Capacitance	C	Para. 9.6.1.2	Test frequency: 1.0kHz	See Table 1(a)		µF
2	Tangent of Loss Angle	Tgd	Para. 9.6.1.3	Test frequency: 1.0kHz	-	100	10^{-4}
3	Insulation Resistance Terminal to Terminal	Ri	Para. 9.6.1.4	$C \leq 0.33\mu F$: $U_R \leq 100V$ $C > 0.33\mu F$: $U_R \leq 100V$ $U_R > 100V$ (Note 1)	7 500 1 250 2 500	- - -	MΩ sec sec
4	Insulation Resistance Terminal to Case	Ri_B	Para. 9.6.1.4	-	50	-	GΩ
5	Voltage Proof Terminal to Terminal	VP	Para. 9.6.1.1	Para. 9.6.1.1	1.6 U_R	-	V
6	Voltage Proof Terminal to Case	VP_B	Para. 9.6.1.1	-	1.6 U_R	-	V

NOTES

1. Insulation resistance measurement shall be performed as follows:-
   For $U_R \leq 100V$: I_R measurement under U_R.
   For $100V < U_R < 500V$: I_R measurement under 100V.

TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	Characteristics	Symbol	ESA/SCC 3006 Test Method	Test Condition (Note 1)	Limits		Unit
					Min.	Max.	
1(a)	Capacitance Change	$\frac{\Delta C}{C}$	Para. 9.6.1.2	$T_{amb} = -55°C$ Test frequency: 1.0kHz	-	-10 (2)	%
1(b)	Capacitance Change	$\frac{\Delta C}{C}$	Para. 9.6.1.2	$T_{amb} = +125°C$ Test frequency: 1.0kHz	-	+18 (2)	%

NOTES

1. These measurements shall be performed on 6 samples. If 1 failure occurs out of 6 parts, then test 100%. 1% reject maximum allowed in the case of 100% testing.
2. Related to value recorded at $T_{amb} = +22°C$.

FIGURE 4 - CIRCUITS FOR ELECTRICAL MEASUREMENTS

Not applicable.

TABLE 4 - PARAMETER DRIFT VALUES

No.	Characteristics	Symbol	Spec. and/or Test Method	Test Conditions	Change Limits (Δ)	Unit
1	Capacitance Change	$\frac{\Delta C}{C}$	As per Table 2	As per Table 2	±3.0	%

TABLE 5 - CONDITIONS FOR BURN-IN AND OPERATING LIFE TESTS

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	T_{amb}	+100(+0−5)	°C
2	Test Voltage	V_T	1.25 U_R	V

FIGURE 5 - ELECTRICAL CIRCUIT FOR BURN-IN AND OPERATING LIFE TESTS

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESA/SCC BASIC SPECIFICATION No. 3006)

4.8.1 Measurements and Inspections on Completion of Environmental Tests

The parameters to be measured and inspections to be performed on completion of environmental tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3 °C.

4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests

The parameters to be measured and inspections to be performed at intermediate points during endurance tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3 °C.

4.8.3 Measurements and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3 °C.

4.8.4 Conditions for Operating Life Tests (Part of Endurance Testing)

The requirements for operating life testing are specified in Section 9 of ESA/SCC Generic Specification No. 3006. The conditions for operating life testing shall be as specified in Table 5 for the burn-in test.

4.8.5 Electrical Circuits for Operating Life Tests (Figure 5)

Not applicable.

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING

NO.	ESA/SCC GENERIC SPEC. NO. 3006		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
01	Seal Test (Hermetically Sealed)	Para. 9.2	Not applicable					
02	Rapid Change of Temperature	Para. 9.3	**Initial Measurements** Capacitance **Final Measurements** Visual Examination Capacitance Change Tangent of Loss Angle	 Table 2 Item 1 After recovery of 24 ± 2 hours No damage Table 2 Item 1 Table 2 Item 2	 C ΔC/C Tgδ	 Record values −3.0 -	 +3.0 Table 2	 %
03	Corrosion (Hermetically Sealed)	Para. 9.8, Half without sleeving (2)	Not applicable					
04	Robustness of Terminations	Para. 9.9 and Paras. 4.2.4, 4.2.5 and 4.3.3 of this spec.	**Final Measurements** Visual Examination	 No damage	 -	 -	 -	
05	Resistance to Soldering Heat	Para. 9.10	**Initial Measurements** Capacitance **Final Measurements** Insulation Resistance Capacitance Change Tangent of Loss Angle	 Table 2 Item 1 After recovery of 1 to 2 hrs Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	 C Ri ΔC/C Tgδ	 Record values Table 2 −3.0 -	 - +3.0 Table 2	 %
06	Solderability	Para. 9.11 Method 1	**Final Measurements** Visual Examination	 Solder Bath Method IEC No. 68-2-20 Para. 4.6.4, 4.7.4 or 4.9.3	 -	 -	 -	
07	Vibration	Para. 9.12	**Final Measurements** Visual Examination	 No evidence of damage	 -	 -	 -	
08	Shock or Bump	Para. 9.13	**Final Measurements** Capacitance Change Visual Examination	 Para. 9.6.1.2 No evidence of damage, breakdown, arcing or fractures	 ΔC/C -	 −5.0 -	 +5.0 -	 %
09	Climatic Sequence	Para. 9.14	**Initial Measurements** Capacitance **Final Measurements** Visual Examination Voltage Proof (2) Insulation Resistance (2) Voltage Proof Voltage Proof Insulation Resistance Insulation Resistance Capacitance Change Tangent of Loss Angle	 Table 2 Item 1 After recovery of 24 hrs max. No evidence of corrosion or unwrapping or mechanical damage to the sleeve (2) ESA/SCC No. 3006 Para. 9.6.1.1 ESA/SCC No. 3006 Para. 9.6.1.4 After removal of sleeve (2) Table 2 Item 5 Table 2 Item 6 Table 2 Item 3 Table 2 Item 4 Table 2 Item 1 Table 2 Item 2	 C - VP_S Ri_S VP VP_B Ri Ri_B ΔC/C Tgδ	 Record values - Not applicable Not applicable Table 2 (3) Table 2 (3) (4) (4) −3.0 -	 - - - - - +3.0 (5)	 % 10^{-4}

NOTES: See Page 19.

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING (CONT'D)

NO.	ESA/SCC GENERIC SPEC. NO. 3006		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
10	Temperature Coefficient	Para. 9.15		ESA/SCC No. 3006 Para. 9.15				
			Final Measurements					
			Capacitance Change	Table 3 Item 1(a)	ΔC/C	-	−10	%
				Table 3 Item 1(b)	ΔC/C	-	+18	%
11	Operating Life	Para. 9.16 and Paras. 4.2.4 and 4.2.5 of this spec.	**Initial Measurements**					
			Capacitance	Table 2 Item 1	C	Record values		
			During Tests	125% U_R (3)				
			Intermediate Measurements	After recovery of 24 ± 2 hours				
			Capacitance Change	Table 2 Item 1	ΔC/C	−5.0	+5.0	%
			Final Measurements	After removal of sleeves (2) and after 24 hrs recovery				
			Capacitance Change	Table 2 Item 1	ΔC/C	−5.0	+5.0	%
			Tangent of Loss Angle	Table 2 Item 2	Tgδ	-	(5)	10^{-4}
			Insulation Resistance	Table 2 Item 3	Ri	(4)	-	MΩ or sec
			Insulation Resistance	Table 2 Item 4	Ri_B	25	-	GΩ
			Visual Examination	No evidence of damage or corrosion	-	-	-	
12	Permanence of Marking	Para. 9.17	Not applicable					

NOTES

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.
2. If applicable.
3. For U_R, see Column 3 of Table 1(a). For VP_B, minimum 200V.
4. Greater than 50% of the value given in Table 2.
5. Less than 2x the value given in Table 2.