




Pages 1 to 21

**POWER INDUCTORS,  
MOULDED, SMD,  
BASED ON SERIES SESI  
ESCC Detail Specification No. 3201/009**

**ISSUE 6  
January 2011**



Document Custodian: European Space Agency - see <https://escies.org>

	ESCC Detail Specification No. 3201/009		PAGE i ISSUE 6
---	---	--	-------------------

### LEGAL DISCLAIMER AND COPYRIGHT

European Space Agency, Copyright © 2011. All rights reserved.

The European Space Agency disclaims any liability or responsibility, to any person or entity, with respect to any loss or damage caused, or alleged to be caused, directly or indirectly by the use and application of this ESCC publication.

This publication, without the prior permission of the European Space Agency and provided that it is not used for a commercial purpose, may be:

- copied in whole in any medium without alteration or modification.
- copied in part, in any medium, provided that the ESCC document identification, comprising the ESCC symbol, document number and document issue, is removed.



**DOCUMENTATION CHANGE NOTICE**

(Refer to <https://escies.org> for ESCC DCR content)


DCR No.	CHANGE DESCRIPTION
632	Specification upissued to incorporate technical and editorial changes per DCR.

**TABLE OF CONTENTS**

		<u>Page</u>
<b>1.</b>	<b><u>GENERAL</u></b>	<b>5</b>
1.1	Scope	5
1.2	Component Type Variants and Range of Components	5
1.3	Maximum Ratings	5
1.4	Parameter Derating Information	5
1.5	Physical Dimensions	5
1.6	Functional Diagram	5
<b>2.</b>	<b><u>APPLICABLE DOCUMENTS</u></b>	<b>5</b>
<b>3.</b>	<b><u>TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS</u></b>	<b>5</b>
<b>4.</b>	<b><u>REQUIREMENTS</u></b>	<b>12</b>
4.1	General	12
4.2	Deviations from Generic Specification	12
4.2.1	Deviations from Special In-process Controls	12
4.2.2	Deviations from Final Production Tests	12
4.2.3	Deviations from Burn-in and Electrical Measurements	12
4.2.4	Deviations from Qualification Tests	12
4.2.5	Deviations from Lot Acceptance Tests	12
4.3	Mechanical Requirements	12
4.3.1	Dimension Check	12
4.3.2	Weight	13
4.3.3	Terminal Strength	13
4.4	Materials and Finishes	13
4.4.1	Case	13
4.4.2	Terminal Material and Finish	13
4.5	Marking	13
4.5.1	General	13
4.5.2	The ESCC Component Number	13
4.5.3	Electrical Characteristics and Ratings	14
4.5.4	Traceability Information	14
4.6	Electrical Measurements	14
4.6.1	Electrical Measurements at Room Temperature	14
4.6.2	Electrical Measurements at High and Low Temperatures	14
4.6.3	Circuits for Electrical Measurements	14
4.7	Burn-in Tests	15
4.7.1	Parameter Drift Values	15
4.7.2	Conditions for Burn-in	15
4.7.3	Electrical Circuit for Burn-in	15
4.8	Environmental and Endurance Tests	18
4.8.1	Measurements and Inspections on Completion of Environmental Tests	18
4.8.2	Measurements and Inspections at Intermediate Points during Endurance Tests	18
4.8.3	Measurements and Inspections on Completion of Endurance Tests	18
4.8.4	Conditions for Operating Life Test	18
4.8.5	Electrical Circuit for Operating Life Test	18

	<p style="text-align: center;">ESCC Detail Specification No. 3201/009</p>		<p>PAGE 4 ISSUE 6</p>
--	---	--	---------------------------

<b><u>TABLES</u></b>		<u>Page</u>
1(a)	Type Variants and Range of Components	6
1(b)	Maximum Ratings	10
2	Electrical Measurements at Room Temperature	16
3	Electrical Measurements at High and Low Temperatures	16
4	Parameter Drift Values	17
5(a)	Conditions for Burn-in	17
5(b)	Conditions for Operating Life Tests	17
6	Measurements and Inspections on Completion of Environmental Tests and at Intermediate Points and on Completion of Endurance Testing	19
<b><u>FIGURES</u></b>		
1	Parameter Derating Information	N/A
2	Physical Dimensions	11
3	Functional Diagram	11A
4	Circuits for Electrical Measurements	N/A
5(a)	Electrical Circuit for Burn-in	N/A
5(b)	Electrical Circuit for Operating Life Tests	N/A
<b><u>APPENDICES (Applicable to specific Manufacturers only)</u></b>		
'A'	Agreed Deviations for Microspire (F)	21

	<p style="text-align: center;">ESCC Detail Specification No. 3201/009</p>		<p>PAGE 5 ISSUE 6</p>
---	---	--	---------------------------

**1. GENERAL**

**1.1 SCOPE**

This specification details the ratings, physical and electrical characteristics, test and inspection data for Surface Mounting Inductors based on Series SESI. It shall be read in conjunction with ESCC Generic Specification No. 3201, the requirements of which are supplemented herein.

**1.2 COMPONENT TYPE VARIANTS AND RANGE OF COMPONENTS**

Variants and range of components of the basic inductors specified herein, which are also covered by this specification, are given 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 inductors specified herein are scheduled in Table 1(b).

**1.4 PARAMETER DERATING INFORMATION (FIGURE 1)**

Not applicable.

**1.5 PHYSICAL DIMENSIONS**

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

**1.6 FUNCTIONAL DIAGRAM**

The functional diagram for the inductors 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) ESCC Generic Specification No. 3201 for R.F. Coils, Fixed.

**3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS**

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

**TABLE 1(a) - TYPE VARIANTS AND RANGE OF COMPONENTS**

TYPE VARIANTS

Variant	Type	Figure	Terminal Finish	Weight (g)
01	SESI 14	2(a)	SnPb	4
02	SESI 15	2(a)	SnPb	5
03	SESI 15W	2(b)	SnPb	6
04	SESI 18	2(b)	SnPb	11
05	SESI 9.1	2(c)	SnPb	2
06	SESI 22	2(b)	SnPb	26

RANGE OF COMPONENTS - SESI 14 SERIES (Variant 01)

(1) Inductance (Note 1) L (μH)	(2) Tolerance ± %	(3) Rated DC Current I <sub>R</sub> (A)	(4) Inductance at I <sub>R</sub> (Note 2) L <sub>R</sub> (μH)	(5) Peak Current (Note 3) I <sub>P</sub> (A)	(6) Max. DC Resistance R <sub>dc</sub> (mΩ)
3.3	20	5.8	2.3	8.0	15
4.7	20	5.4	3.3	6.9	17.5
6.0	20	4.3	4.2	5.7	26.5
8.2	20	3.7	5.7	5.2	42
10	20	3.3	7.0	4.6	47
15	20	2.7	10.5	3.8	90
22	20	2.2	15.4	3.0	110
33	20	1.8	23.1	2.5	170
47	10	1.6	32.9	2.1	200
56	10	1.5	39.2	1.9	240
68	10	1.3	47.6	1.7	290
82	10	1.2	57.4	1.5	315
100	10	1.1	70	1.4	440
120	10	1.0	84	1.3	500
150	10	0.9	105	1.1	645
180	10	0.83	126	1.0	740
220	10	0.72	154	1.0	980
330	10	0.57	231	0.8	1575

**NOTES:** See Page 10.

RANGE OF COMPONENTS - SESI 15 SERIES (Variants 02 and 03)

(1) Inductance (Note 1) L (μH)	(2) Tolerance ±%	(3) Rated DC Current I <sub>R</sub> (A)	(4) Inductance at I <sub>R</sub> (Note 2) L <sub>R</sub> (μH)	(5) Peak Current (Note 3) I <sub>P</sub> (A)	(6) Max. DC Resistance R <sub>dc</sub> (mΩ)
1.5	30	14	0.9	19	5.0
1.8	30	10	1.05	14	5.0
2.7	20	8.2	1.9	11.5	6.5
4.9	20	6.0	3.4	8.5	11
6.4	20	5.3	4.5	7.5	12
8.0	20	4.8	5.6	6.5	16
12	20	4.0	8.4	5.5	23
16	20	3.4	11.2	4.5	27
18	20	3.1	12.6	4.2	29
21	20	2.9	14.7	4.0	36
27	20	2.6	18.9	3.5	44
33	20	2.3	23	3.2	59
48	10	1.9	33	2.7	72
56	10	1.8	39	2.5	82
68	10	1.6	47	2.2	110
82	10	1.5	57	2.1	120
100	10	1.35	70	1.9	155
120	10	1.2	84	1.7	180
150	10	1.1	105	1.5	230
220	10	0.9	154	1.3	355
330	10	0.74	231	1.0	630

**NOTES:** See Page 10.





RANGE OF COMPONENTS - SESI 18 SERIES (Variant 04)

(1) Inductance (Note 1) L ( $\mu$ H)	(2) Tolerance $\pm$ %	(3) Rated DC Current $I_R$ (A)	(4) Inductance at $I_R$ (Note 2) $L_R$ ( $\mu$ H)	(5) Peak Current (Note 3) $I_P$ (A)	(6) Max. DC Resistance $R_{dc}$ (m $\Omega$ )
6.8	20	9.8	4.2	13.6	7.5
8.2	20	8.3	5.7	11.5	9.0
11	20	7.2	7.7	10	12
15	20	6.35	10.5	8.9	15
18	20	5.7	12.6	7.9	17
22	20	5.1	15.4	7.2	20
27	20	4.7	18.9	6.5	25
37	10	4.0	25.9	5.6	29
49	10	3.5	34.3	4.8	45
56	10	3.3	39	4.6	48
70	10	2.9	49	4.1	65
86	10	2.6	60	3.7	72
100	10	2.4	70	3.3	75
120	10	2.2	84	3.1	115
150	10	1.95	105	2.7	125
180	10	1.8	126	2.6	175
220	10	1.6	154	2.3	210
330	10	1.34	231	1.9	250

**NOTES:** See Page 10.



RANGE OF COMPONENTS - SESI 9.1 SERIES (Variant 05)

(1) Inductance (Note 1) L (μH)	(2) Tolerance ± %	(3) Rated DC Current I <sub>R</sub> (A)	(4) Inductance at I <sub>R</sub> (Note 2) L <sub>R</sub> (μH)	(5) Peak Current (Note 3) I <sub>P</sub> (A)	(6) Max. DC Resistance R <sub>dc</sub> (mΩ)
1.0	30	6.0	0.6	11.0	8.5
1.5	30	5.4	0.9	9.5	11.5
2.0	30	4.3	1.4	8.2	17
2.6	20	3.6	1.8	7.0	23
3.4	20	3.0	2.4	6.2	35
4.3	20	2.8	3.0	5.5	40
6.2	20	2.3	4.3	4.3	59
8.5	20	1.9	6.0	3.7	87
10	20	1.85	7.0	3.4	93
15	20	1.5	10.5	2.8	140
18	20	1.27	12.6	2.5	192
22	20	1.21	15.4	2.3	215
26	20	1.03	18.2	2.14	290
33	10	0.92	23.1	1.9	350
47	10	0.8	32.9	1.6	470
66	10	0.73	46.2	1.3	565
81	10	0.63	56.7	1.21	745
100	10	0.6	70	1.1	795
150	10	0.53	105	0.8	750
220	10	0.43	154	0.7	1165
330	10	0.36	231	0.6	1475
470	10	0.3	329	0.5	2220
680	10	0.25	477	0.4	3255
1000	10	0.2	700	0.34	5865

**NOTES:** See Page 10.



RANGE OF COMPONENTS - SESI 22 SERIES (Variant 06)

(1) Inductance (Note 1) L ( $\mu$ H)	(2) Tolerance $\pm$ %	(3) Rated DC Current $I_R$ (A)	(4) Inductance at $I_R$ (Note 2) $L_R$ ( $\mu$ H)	(5) Peak Current (Note 3) $I_P$ (A)	(6) Max. DC Resistance $R_{dc}$ (m $\Omega$ )
7	20	18.9	3.8	24	5
7.7	20	16	5.4	20	4.5
10	20	13.8	7	17.7	5.5
13	20	12	9.1	15.6	7
19.2	20	10.9	11.5	14	11
24	20	8.4	16.8	11.5	13
33	20	7.7	23	9.8	20
47	10	5.7	37.6	8	16
64	10	5	51.2	7	21
82	10	4.3	65.6	6.1	24
100	10	3.9	80	5.5	30
150	10	3.2	120	4.7	44
210	10	2.7	168	3.8	70
340	10	2.1	272	3	120
470	10	1.8	376	2.5	180
680	10	1.5	544	2.1	220
820	10	1.4	656	2	300
1000	10	1.2	800	1.8	330
1500	10	1.1	1200	1.4	500
2200	10	0.8	1760	1.2	760

**NOTES**

1. Inductance measured at 0.25V, 100KHz.
2. Minimum value when the inductance is measured under Rated Current at 110°C.
3. Peak current is the maximum current for a square pulse of duration < 10s.

**TABLE 1(b) - MAXIMUM RATINGS**

No.	Characteristics	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Current	$I_R$	See Table 1(a)	A	
2	Dielectric Withstanding Voltage	DWV	500	Vrms	
3	Operating Temperature Range	$T_{op}$	- 55 to + 125	°C	
4	Storage Temperature Range	$T_{stg}$	- 55 to + 140	°C	$T_{amb}$
5	Soldering Temperature	$T_{sol}$	+ 260	°C	Note 1

**NOTES**

1. Duration 5 seconds maximum and the same termination shall not be resoldered until 3 minutes have elapsed.

**FIGURE 1 - PARAMETER DERATING INFORMATION**

Not applicable.

**FIGURE 2 - PHYSICAL DIMENSIONS**

Figure 2a - Variants 01 and 02

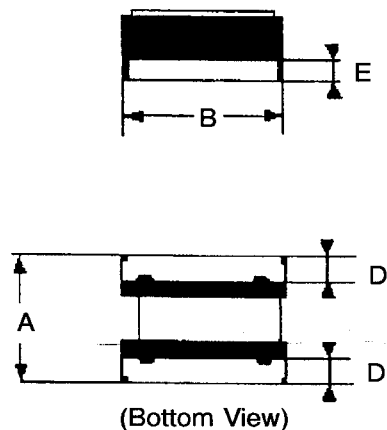


Figure 2b - Variants 03, 04 and 06

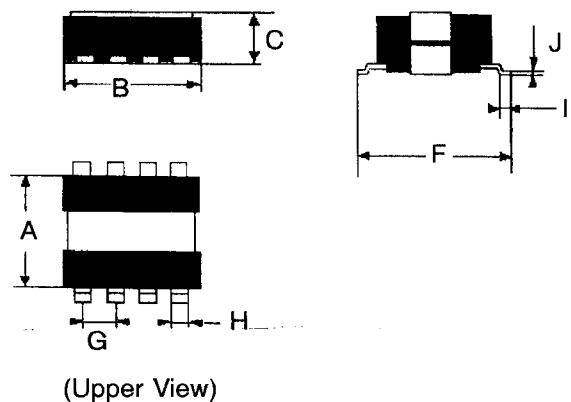
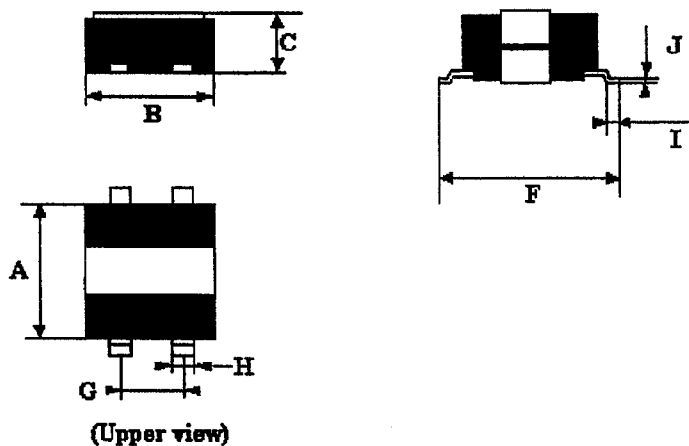


Figure 2c - Variant 05



SYMBOL	Variant 01		Variant 02		Variant 03		Variant 04		Variant 05		Variant 06	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	15.7	16.3	15.7	16.3	16	16.5	21.7	22.3	10	10.6	30.4	31.2
B		16		16		16		19.8		10.7		23.5
C		5.4		7.4		7.9		8.9		5.8		12.2
D	2.3		2.3									
E	1.0	1.5	1.0	1.5								
F					21.1	22	25.1	26	12.8	13.4	34.4	35.3
G					3.7	3.9	3.7	3.9	5.6	5.8	3.7	3.9
H					1.0	1.2	1.9	2.1	1.3	1.5	1.9	2.1
I					1.3	1.6	1.3	1.6	0.9	1.3	1.3	1.6
J					0.2		0.2		0.2		0.2	

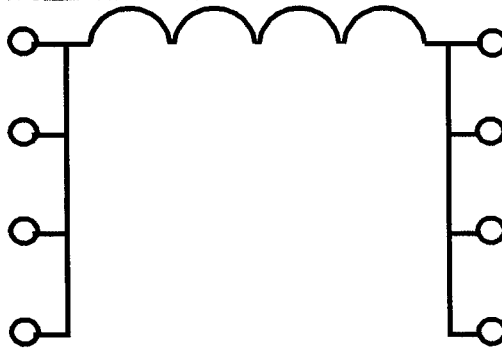
**NOTE:** All dimensions are in millimetres.

**FIGURE 3 - FUNCTIONAL DIAGRAM**

Variants 01 and 02



Variants 03, 04 and 06



Variant 05



#### 4. REQUIREMENTS

##### 4.1 GENERAL

The complete requirements for procurement of the inductors specified herein are stated in this specification and ESCC Generic Specification No. 3201 for R.F. Coils, Fixed. 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 ESCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

##### 4.2 DEVIATIONS FROM GENERIC SPECIFICATION

###### 4.2.1 Deviations from Special In-process Controls

None.

###### 4.2.2 Deviations from Final Production Tests (Chart II)

None.

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

(a) Para. 9.4, Radiographic Inspection: Shall not be performed.

###### 4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.17, Immersion: Shall not be performed.

(b) Para. 9.18, Moisture Resistance: There shall be no polarisation voltage during test.

###### 4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.18, Moisture Resistance: Shall not be performed.

##### 4.3 MECHANICAL REQUIREMENTS

###### 4.3.1 Dimension Check

The dimensions of the inductors specified herein shall be verified in accordance with the requirements set out in Para. 9.6 of ESCC Generic Specification No. 3201 and they shall conform to those shown in Figure 2 of this specification.



4.3.2 Weight

The maximum weight of the inductors specified herein shall be as given in Table 1(a) - Component Type Variants

4.3.3 Terminal Strength

The requirements for terminal strength testing are specified in Para. 9.12 of ESCC Generic Specification No. 3201.

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 inductors 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

As a minimum, a resin moulding shall ensure the inductor's protection.

4.4.2 Terminal Material and Finish

The terminal material shall be brass, plated with 2 to 4  $\mu\text{m}$  of nickel. The final finish shall be Sn60Pb40.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESCC 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) The ESCC Component Number.
- (b) Electrical Characteristics and Ratings.
- (c) Traceability Information.

4.5.2 The ESCC Component Number

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

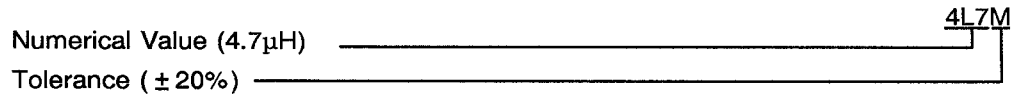
Detail Specification Number \_\_\_\_\_ 320100901B  
Type Variant (See Table 1(a)) \_\_\_\_\_  
Testing Level (B or C, as applicable) \_\_\_\_\_

4.5.3 Electrical Characteristics and Ratings

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

- (a) Numerical Value.
- (b) Tolerance.

The information shall be constituted and marked as follows:-



4.5.3.1 Numerical Values

The numerical values shall be expressed by means of the following codes. The unit quantity for marking shall be in microhenries.

Numerical Value	Code
X.X	XLX
XX	XX0
XX10 <sup>1</sup>	XX1
XX10 <sup>2</sup>	XX2

4.5.3.2 Tolerances

The tolerances on numerical values shall be indicated by the code letters specified hereafter.

Tolerance ( $\pm \%$ )	Code Letter
10	K
20	M
30	N

4.5.4 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESCC 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, 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. Measurements shall be performed at  $T_{amb} = +110(+0-5)$  and  $-55(+5-0)$  °C respectively.

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 ( $\Delta$ ) 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 ESCC Generic Specification No. 3201. The conditions for burn-in shall be as specified in Table 5(a) of this specification.

On completion of burn-in, a recovery period of  $24 \pm 2$  hours is necessary before the end measurements.

##### 4.7.3 Electrical Circuit for Burn-in (Figure 5(a))

Not applicable.

**TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE**

No.	Characteristics	Symbol	ESCC 3201 Test Method	Test Condition	Limits		Unit
					Min	Max	
1	Inductance (Note 2)	L	Para. 9.3.1.1c	Para. 9.3.1.1	(1)	(1)	$\mu\text{H}$
2	Load Inductance (Note 3)	$L_R$	Para. 9.3.1.1c	Para. 9.3.1.1	(3)	-	$\mu\text{H}$
3	DC Resistance	$R_{dc}$	Para. 9.3.1.4	Para. 9.3.1.4	-	(4)	$\Omega$
4	Insulation Resistance	$R_i$	Para. 9.3.1.6	Para. 9.3.1.6	1.0	-	$\text{G}\Omega$

**NOTES**

1. For actual values see Column 1 of Table 1(a).
2. To be measured at 0.25V 100kHz.
3. To be measured at 0.25V 100kHz with Rated Current as defined in Column 4 of Table 1(a).
4. For actual values see Column 6 of Table 1(a).

**TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES**

No.	Characteristics	Symbol	ESCC 3201 Test Method	Test Condition (Note 1)	Limits		Unit
					Min	Max	
1	Load Inductance (Note 2)	$L_R$	Para. 9.3.1.1c	Para. 9.3.1.1	(2)	-	$\mu\text{H}$

**NOTES**

1. To be performed on 5 components.
2. To be measured at 0.25V 100kHz with Rated Current as defined in Column 4 of Table 1(a).

**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 ( $\Delta$ )	Unit
1	Inductance	L	As per Table 2	As per Table 2	$\pm 10$	%

**TABLE 5(a) - CONDITIONS FOR BURN-IN**

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	$T_{amb}$	+ 125( + 0 - 3)	$^{\circ}\text{C}$

**TABLE 5(b) - CONDITIONS FOR OPERATING LIFE TESTS**

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	$T_{amb}$	+ 125( + 0 - 3)	$^{\circ}\text{C}$
2	Loading and Cycling	-	Para. 9.19 of ESCC 3201	-

**FIGURE 5(a) - ELECTRICAL CIRCUIT FOR BURN-IN**

Not applicable.

**FIGURE 5(b) - ELECTRICAL CIRCUIT FOR OPERATING LIFE TESTS**

Not applicable.

- 4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION NO. 3201)
- 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  $T_{amb} = +22 \pm 3$  °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  $T_{amb} = +22 \pm 3$  °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  $T_{amb} = +22 \pm 3$  °C.
- 4.8.4 Conditions for Operating Life Test (Part of Endurance Testing)  
The requirements for operating life testing are specified in Section 9 of ESCC Generic Specification No. 3201. The conditions for operating life testing shall be as specified in Table 5(b) of this specification.
- 4.8.5 Electrical Circuit for Operating Life Test (Figure 5(b))  
Not applicable.



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

NO.	ESCC GENERIC SPEC. NO. 3201		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
01	Thermal Shock	Para. 9.2	Visual Examination	Evidence of damage or loosening of terminals	-	-	-	-
02	Solderability	Para. 9.7	Visual Examination	MIL-STD-202 Method 208 Solid Wire Termination Criteria	-	-	-	-
03	Barometric Pressure	Para. 9.8	<b>During Test</b> Dielectric Withstanding Voltage DWV Leakage Current	While still at low pressure Para. 9.3.1.5 of ESCC 3201 500Vrms	$I_L$	-	0.1	mA
04	Temperature Rise	Para. 9.9 and Table 1(a) of this Spec. at +90°C	Temperature Rise	Within 30 seconds of removal of power Temperature Change	$\Delta T$	-	25	°C
05	Overload	Para. 9.10 and Table 1(a) of this spec.	<b>After Test</b> Visual Examination  <b>Final Measurements</b> DC Resistance Insulation Resistance Dielectric Withstanding Voltage DWV Leakage Current	Evidence of cracked cases, charred windings, distorted or softened insulation or loosening of terminals  <b>After 24 hours</b> Table 2 Item 3 Table 2 Item 4 Gen. 3201 Para. 9.3.1.5 500Vrms	$R_{dc}$ Ri  $I_L$	Table 2 1.0	Table 2 -	$\Omega$ G $\Omega$  mA
06	Resistance to Soldering Heat	Para. 9.11	<b>Final Measurements</b> Inductance DC Resistance Dielectric Withstanding Voltage DWV Leakage Current  <b>After Test</b> Visual Examination	Table 2 Item 1 Table 2 Item 3 Gen. 3201 Para. 9.3.1.5 500Vrms  Evidence of damage or loosening of terminals	L $R_{dc}$  $I_L$	Table 2 Table 2	Table 2 Table 2	$\mu H$ $\Omega$  $\Omega$ mA
07	Terminal Strength	Para. 9.12	Visual Examination	Gen. 3201 Para. 9.12.2  Evidence of damage	-	-	-	-
08	Low Temperature Storage	Para. 9.14 and Table 1(b) of this Spec.	Visual Examination	Evidence of damage or loosening of terminals	-	-	-	-
09	Vibration	Para. 9.15	Visual Examination	-	-	-	-	-
10	Shock (Specified Pulse)	Para. 9.16	Visual Examination	-	-	-	-	-

**NOTES**

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.



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

NO.	ESCC GENERIC SPEC. NO. 3201		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
11	Immersion	Para. 9.17	Not applicable	-	-	-	-	-
12	Moisture Resistance	Para. 9.18 and Paras. 4.2.4 and 4.2.5 of this Spec. Before Tests, Thermal Shock, MIL-STD-202, Method 107, Cond 'A'	<b>Final Measurements</b> Dielectric Withstanding Voltage DWV Leakage Current Insulation Resistance Inductance DC Resistance  <b>After Test</b> Visual Examination	Within 30 mins of removal from 1.5 to 3.5 hr Conditioning Gen. 3201 Para. 9.3.1.5 500Vrms Table 2 Item 4 Table 2 Item 1 Table 2 Item 3  No evidence of corrosion	$I_L$ $R_i$ $L$ $R_{dc}$	-	0.1	mA $M\Omega$ $\mu H$ $\Omega$
13	Operating Life	Para. 9.19	<b>Initial Measurements</b> Inductance  <b>Intermediate Measurements</b> Dielectric Withstanding Voltage DWV Leakage Current Inductance Change  <b>Final Measurements</b>  Dielectric Withstanding Voltage DWV Leakage Current Inductance Change DC Resistance Insulation Resistance	Table 2 Item 1  <b>At 1000 hours</b> After a recovery period of 30 mins 500Vrms Table 2 Item 1  <b>At 1000 and 2000 hours</b> After a recovery period of 30 mins Gen. 3201 Para 9.3.1.5 500Vrms Table 2 Item 1 Table 2 Item 3 Table 2 Item 4	$L$  $I_L$ $\Delta L/L$  $I_L$ $\Delta L/L$ $R_{dc}$ $R_i$	Table 2	Table 2	$\mu H$  mA %  mA % $\Omega$ $M\Omega$

**NOTES**

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.

**APPENDIX 'A'**

AGREED DEVIATIONS FOR MICROSPIRE (F)

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS
Para. 4.2.2, Deviations from Final Production Tests (Chart II)	Para. 9.2 Thermal Shock: Shall not be performed.
Para. 4.2.3, Deviations from Burn-in and Electrical Measurements (Chart III)	Thermal Shock, in accordance with Para. 9.2 of the Generic Specification for Chart II testing, shall be performed, for testing levels 'B' and 'C', immediately prior to Burn-in after the Initial Parameter Drift Value Measurements.