CAPACITOR FILTERS, C-TYPE, FEEDTHROUGH, ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY SEALED

BASED ON TYPE SFC100

ESCC Detail Specification No. 3008/027

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DOCUMENTATION CHANGE NOTICE

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

DCR No.	CHANGE DESCRIPTION
1140	Specification upissued to incorporate changes per DCR.

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1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for a Capacitor Filter, C-Type, Feedthrough, Electromagnetic Interference Suppression, Hermetically Sealed, based on Type SFC100. It shall be read in conjunction with ESCC Generic Specification No. 3008, the requirements of which are supplemented herein.

1.2 COMPONENT TYPE VARIANTS AND RANGE OF COMPONENTS

Variants of the basic type capacitor filters and the range of components 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 capacitor filters specified herein, are scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

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

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the capacitor filters specified herein, are shown in Figure 2.

1.6 FUNCTIONAL DIAGRAM

The functional diagram, showing lead identification, of the capacitor filters 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. 3008 for Capacitors, and Capacitor Filters, Feedthrough.
(b) MIL-STD-202, Test Methods for Electronic and Electrical Component Parts.

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. In addition, the following abbreviations are used:

- V_T = Test Voltage

TABLE 1(a) – TYPE VARIANTS AND RANGE OF COMPONENTS

(1) Variant (Notes 1 and 2)	(2) Rated Voltage U_R (V)		(3) Capacitance Range C (pF) (±20%) (E6 Series)	(4) Voltage Proof VP (V)	(5) Voltage Drop V_{dr} (V)	(6) DC Resistance Rs (mΩ)	(7) Rated Current I_R (A)
	(a) -55°C/+85°C	(b) +125°C					
01, 04	50	25	1000 to 1000000	125	0.1	10	10
02, 05	100	75	1000 to 330000	250	0.1	10	10
03, 06	200	150	1000 to 150000	500	0.1	10	10

NOTES:

1. See the table below for Insertion Loss requirements according to Capacitance value:

(8) Capacitance (pF) (E6 Series)	(9) Insertion Loss (I_L) (dB)					
	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
1000	-	-	-	21	41	61
1500	-	-	-	24	44	64
2200	-	-	-	27	48	68
3300	-	-	11	31	52	70
4700	-	-	14	34	54	70
6800	-	-	17	37	57	70
10000	-	-	21	41	61	70
15000	-	-	25	45	65	70
22000	-	8	28	48	68	70
33000	-	11	31	51	70	-
47000	-	14	34	48	70	-
68000	-	17	33	45	70	-
100000	-	21	41	50	70	-
150000	-	25	45	52	70	-
220000	8	28	48	65	70	-
330000	11	31	51	70	70	-
470000	15	35	53	70	-	-
680000	18	38	55	70	-	-
1000000	21	41	55	70	-	-

2. See the table below and Figure 2 for physical characteristics:

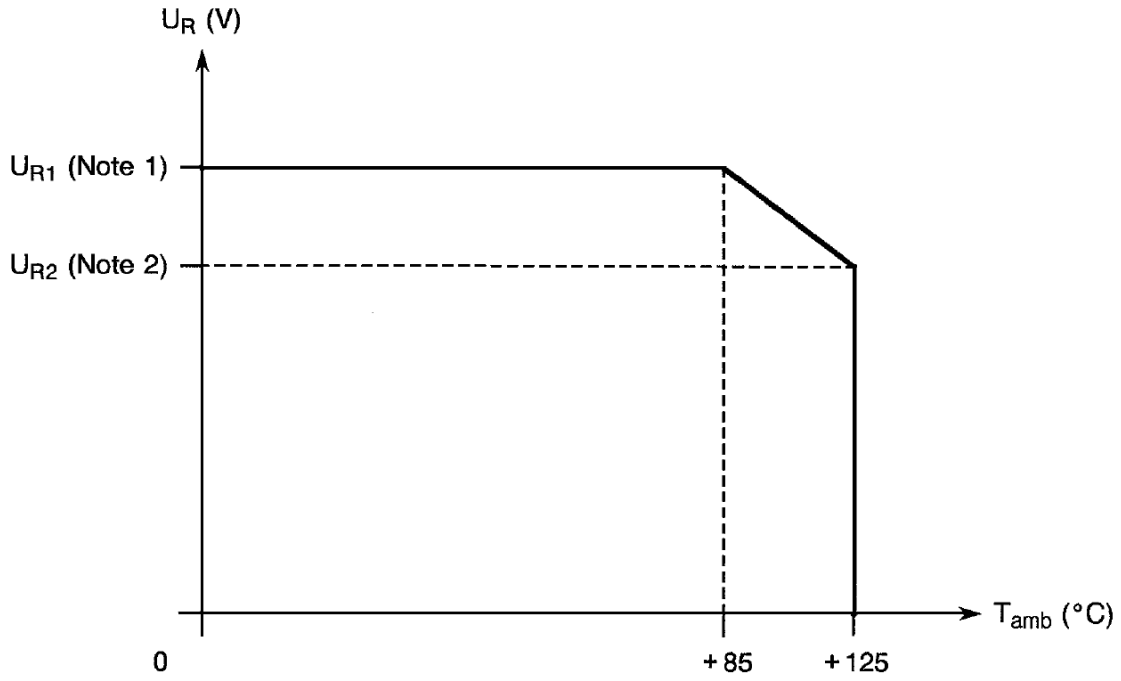
Variants	Case Thread E
01 to 03	U: 1/4-28 UNF
04 to 06	I: M6 x 0.75

TABLE 1(b) MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Voltage	U_R	See Table 1(a) Column 2	V	Notes 1 and 2
2	Voltage Drop	V_{dr}	100	mV	
3	DC Resistance	Rs	10	mΩ	
4	Rated Current	I_R	10	A	Note 3
5	Torque	T_{qe}	0.8	Nm	
6	Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
7	Storage Temperature Range	T_{stg}	-55 to +125	°C	
8	Soldering Temperature	T_{sol}	+260	°C	Note 4

NOTES:
1. For derating at T_{amb} > 85°C, see Figure 1.
2. The addition of DC applied voltage and ripple voltage shall never exceed the rated DC voltage.
3. DC and low frequency.
4. Duration 10 seconds maximum at a distance of not less than 2mm from the body and the same lead shall not be resoldered until 3 minutes have elapsed.

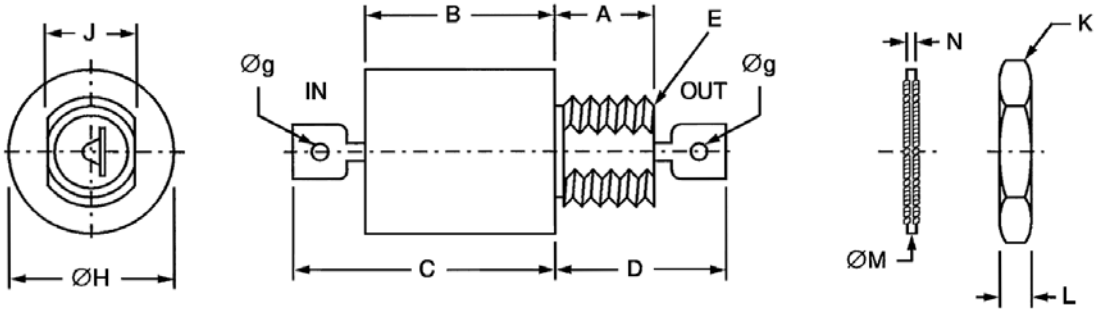
FIGURE 1 - PARAMETER DERATING INFORMATION



Rated Voltage versus Temperature

NOTES:
1. See U_{R1} Voltage value for each variant on Table 1(a), Column 2(a).
2. See U_{R2} Voltage value for each variant on Table 1(a), Column 2(b).

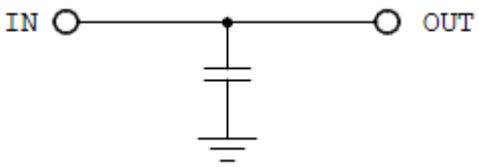
FIGURE 2 – PHYSICAL DIMENSIONS



Symbol	Variants 01 to 03		Variants 04 to 06		Notes
	Millimetres		Millimetres		
	Min	Max	Min	Max	
A	5.1	5.2	5.1	5.2	
B	4.5	5.3	4.5	5.3	1
C	7	9.3	7	9.3	1, 2
D	7	9	7	9	1, 2
E	See Table 1(a)		See Table 1(a)		Thread
Øg	1.50		1.50		
ØH	9.7	9.9	9.7	9.9	
J	4.9	5.1	4.9	5.1	
K	-	8	-	8	Across flats
L	-	2.5	-	2.5	
ØM	-	10.2	-	9.4	3
N	-	0.6	-	0.4	3

NOTES:
1. Lead finish shall commence not more than 1.5mm from encapsulant.
2. The terminals are defined as rigid.
3. Internal fan lock-washer.

FIGURE 3 - FUNCTIONAL DIAGRAM



4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the components specified herein are stated in this specification and ESCC Generic Specification No. 3008 for Capacitors and Capacitor Filters, Feedthrough. Deviations from the Generic Specification, applicable to this specification only, are detailed 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

(a) Para. 9.7, External Visual Inspection: For variants with a silver plated case, a change of shade is acceptable.

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

(a) Para. 9.7, External Visual Inspection: For variants with a silver plated case, a change of shade is acceptable.

4.2.4 Deviations from Qualification Tests - Chart IV

(a) Para. 9.7, External Visual Inspection: For variants with a silver plated case, a change of shade is acceptable.

(b) Para. 9.19, Operating Life: At intermediate and final measurements, Insertion Loss shall not be performed.

4.2.5 Deviations from Lot Acceptance Tests - Chart V

(a) Para. 9.7, External Visual Inspection: For variants with a silver plated case, a change of shade is acceptable.

(b) Para. 9.19, Operating Life: At intermediate and final measurements, Insertion Loss shall not be performed.

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the components specified herein shall be verified in accordance with the requirements set out in Para. 9.5 of ESCC Generic Specification No. 3008 and they shall conform to those shown in Figure 2 of this specification.

4.3.2 Weight

The maximum weight of the components specified herein shall be 7 grammes.

4.3.3 Robustness of Terminations

The requirements for the robustness of terminations tests are specified in Section 9 of ESCC Generic Specification No. 3008. The leads are defined as “Rigid“.

- Test Ua1, Tensile: The load shall be 20N.

4.3.4 Solderability

The requirements for solderability testing are specified in Section 9 of ESCC Generic Specification No. 3008.

Test Method 1 shall apply and a thermal screen of 1.6mm may be used. The terminal shall be immersed up to the terminal slot which shall be fully filled.

4.3.5 Seal Test

The requirements for seal testing are specified in Section 9 of ESCC Generic Specification No. 3008.

The limit for fine leak shall be 5.10^{-3} Pa.cm^3/s [5.10^{-8} bar.cm^3/s].

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 components 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

The case shall be silver plated brass and hermetically sealed with hard glass seals.

4.4.2 Lead Material and Finish

The lead material shall be Type 'G' with Type '3 or 4' finish in accordance with the requirements of ESCC Basic Specification No. 23500.

4.4.3 Accessories

- Nut: As per Figure 2, brass, silver-plated.
- Lock-Washer: As per Figure 2, bronze, silver-plated.

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) Lead Identification
(b) The ESCC Component Number.
(c) Electrical Characteristics and Ratings.
(d) Traceability Information.

4.5.2 Lead Identification

Not applicable.

4.5.3 The ESCC Component Number

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

Example: 300802701B

- Detail Specification Number: 3008027
- Type Variant (see Table 1(a)): 01
- Testing level (B or C, as applicable): B

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:

Example: 682ME

- Capacitance Value (68nF): 683
- Tolerance (±20%): M
- Rated Voltage (100V): E

4.5.4.1 Capacitance Values

The capacitance values shall be expressed by means of the following codes. The unit quantity for marking shall be picofarads (pF).

Capacitance Value (pF)	Code
$XX10^1$	XX1
$XX10^2$	XX2
$XX10^3$	XX3
$XX10^4$	XX4
$XX10^5$	XX5

4.5.4.2 Tolerance

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

Tolerance (± %)	Code Letter
20	M

4.5.4.3 Rated Voltage

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

Rated Voltage (U_R) (V)	Code Letter
50	C
100	E
200	G

4.5.5 Traceability Information

Each component shall be marked in respect of traceability information 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 ±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} = +125 (+0 -5)°C 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 ±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 ESCC Generic Specification No. 3008. The conditions for burn-in shall be as specified in Table 5(a) of this specification.

4.7.3 Electrical Circuits for Burn-in (Figure 5)
Not applicable.

TABLE 2 – ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE – DC PARAMETERS

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions	Limits		Unit
					Min	Max	
1	Voltage Drop	V_{dr}	Para. 9.4.1.5	I_R = 10A	-	0.1	V
2	Voltage Proof	VP	Para. 9.4.1.2	V = 2.5U_R	Note 1	-	V
3	Insulation Resistance	Ri Ri x C	Para. 9.4.1.3	C < 25nF C > 25nF	10^4 250	- -	MΩ sec

NOTES:
1. See Column 4 of Table 1(a).

TABLE 2 – ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE – AC PARAMETERS

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions	Limits		Unit
					Min	Max	
4	Insertion Loss	I_{L1}	Para. 9.4.1.4	f = 100kHz Note 1	Note 2	-	dB
5	Insertion Loss	I_{L2}	Para. 9.4.1.4	f = 1MHz Note 3	Note 2	-	dB
6	Insertion Loss	I_{L3}	Para. 9.4.1.4	f = 10MHz Note 3	Note 2	-	dB
7	Insertion Loss	I_{L4}	Para. 9.4.1.4	f = 100MHz Note 3	Note 2	-	dB
8	Insertion Loss	I_{L5}	Para. 9.4.1.4	f = 1GHz Note 3	Note 2	-	dB
9	Insertion Loss	I_{L6}	Para. 9.4.1.4	f = 10GHz Note 1	Note 2	-	dB
10	Capacitance	C	Para. 9.4.1.1	Para. 9.4.1.1	Note 4	-	pF

NOTES:
1. Measurements at this frequency to be made only during Chart IV testing.
2. See Column 9 of Table 1(a).
3. Measurements at rated current to be made only during Chart IV testing in Subgroups II or III. Measurements without load current to be made during Charts II, III and V.
4. See Column 3 of Table 1(a).

TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions (Note 1)	Limits		Unit
					Min	Max	
3	Insulation Resistance	Ri Ri x C	Para. 9.4.1.3	Note 2 C < 25nF C > 25nF	 10^3 25	 - -	 MΩ sec
10	Capacitance Change	ΔC/C	Para. 9.4.1.1	Para. 9.4.1.1	-20	+20	% (3)

NOTES:
1. If more than 20 units have to be measured, the measurement shall be performed on a sample basis in accordance with Inspection Level I, Table IIA, AQL = 1% of IEC Publication No. 410.
2. Insulation resistance is to be performed only at high temperature.
3. Relative to the value measured in Table 2.

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
10	Capacitance Change	ΔC/C	As per Table 2	As per Table 2	±10	%

TABLE 5(a) – CONDITIONS FOR BURN-IN TESTS

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	T_{amb}	+125 (+0 -3)	°C
2	Test Voltage	V_T	2 x U_R at +125°C Note 1	V

NOTES:
1. Applied between one terminal and the case. See Column 2(b) of Table 1(a) for value of U_R.

TABLE 5(b) – CONDITIONS FOR OPERATING LIFE TESTS

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	T_{amb}	+125 (+0 -3)	°C
2	Test Voltage	V_T	2 x U_R at +125°C Note 1	V
3	Rated Current	I_R	10 Note 2	A

NOTES:
1. Applied between one terminal and the case. See Column 2(b) of Table 1(a) for value of U_R.
2. To flow between the terminals.

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

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHART IV AND V OF ESCC GENERIC SPECIFICATION No. 3008)

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 testing 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 test are specified in Section 9 of ESCC Generic Specification No. 3008. 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 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.	ESCC Generic Spec. No. 3008		Measurements and Inspections		Symbols	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
01	Seal Test (Hermetically Sealed)	Para. 9.6 and Para 4.3.5 of this spec.	Gross Leak	ESCC No. 3008 Para. 9.6.1	-	-	-	
			Fine Leak	ESCC No. 3008 Para. 9.6.2	-	-	-	
02	External Visual Inspection	Para. 9.7 and Paras 4.2.4 and 4.2.5 of this spec	**Final Measurements**					
			Visual Inspection	ESCC No. 20500	-	-	-	
03	Temperature Rise	Para. 9.9	Temperature Rise	Rated Current (3)	-	-	25	°C
04	Shock	Para. 9.10	**Measurements during Tests**	100% U_R (2) applied No Open or Short Circuits > 0.1ms	-	-	-	
			Final Measurements					
			Visual Examination	No Mechanical Damage	-	-	-	
			Insertion Loss	Table 2 Item 4 to 9	I_L	Table 2	-	

No.	ESCC Generic Spec. No. 3008		Measurements and Inspections		Symbols	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
05	Vibration	Para. 9.11	**Measurements during Tests**	Rated Current (3) and 100% U_R (2) applied	-	-	-	
			During Last Cycle	No Open or Short Circuits > 0.1ms	-	-	-	
			Final Measurements					
			Visual Examination	No Mechanical Damage	-	-	-	
			Insertion Loss	Table 2 Item 4 to 9	I_L	Table 2	-	
06	Accelerated Damp Heat	Before tests 10 cycles of Para. 9.2. Para. 9.12	**Final Measurements**	After recovery of 4 to 24 hrs				
			Visual Examination	No corrosion, damage or obliteration of marking	-	-	-	
			Voltage Proof	Table 2 Item 2	VP	90% U_R (2)	-	
			Insulation Resistance	Table 2 Item 3	Ri	(4)	-	
			Insertion Loss	Table 2 Item 4 to 9	I_L	Table 2	-	
07	Low Air Pressure	Para. 9.13	**Measurements during Tests**	During last 5 minutes				
			Voltage Proof	Table 2 Item 2	VP	125% U_R (2)	-	
			Visual Examination	No breakdown, flashover, deformation or seepage	-	-	-	
			Final Measurements					
			Visual Examination	No breakdown, flashover, deformation or seepage	-	-	-	
08	Robustness of Terminations	Para. 9.14 and Para. 4.3.3 of this spec	**Final Measurements**					
			Visual Examination	No damage	-	-	-	
			Voltage Drop	Table 2 Item 1	V_{dr}	-	Table 2	
09	Immersion	Before tests 10 cycles of Para. 9.2. Para. 9.15	**Final Measurements**	After recovery of 4 to 24 hrs				
			Visual Examination	No obliteration of marking and harmful corrosion	-	-	-	
			Voltage Proof	Table 2 Item 2	VP	90% U_R (2)	-	
			Insulation Resistance	Table 2 Item 3	Ri	(4)	-	
			Insertion Loss	Table 2 Item 4 to 9	I_L	Table 2	-	
10	Overload	Para. 9.16		140% of Rated Current (3) for 15 mins min.	-	-	-	
			Final Measurements					
			Insulation Resistance	Table 2 Item 3	Ri	Table 2	-	
			Voltage Drop	Table 2 Item 1	V_{dr}	-	Table 2	
			Visual Examination	No damage	-	-	-	
11	Resistance to Soldering Heat	Para. 9.17	**Final Measurements**	After recovery of 1 to 2 hrs				
			Visual Examination	No damage	-	-	-	
			Insulation Resistance	Table 2 Item 3	Ri	Table 2	-	
			Insertion Loss	Table 2 Item 4 to 9	I_L	Table 2	-	
12	Solderability	Para. 9.18 and Para 4.3.4 of this spec.	**Final Measurements**					
			Visual Examination	IEC No. 68-2-20 Para. 4.6.4, 4.7.4 or 4.9.3	-	-	-	

No.	ESCC Generic Spec. No. 3008		Measurements and Inspections		Symbols	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
13	Operating Life	Para. 9.19	**Initial Measurements**					
			Capacitance	Table 2 Item 10	C	Record Values		
			During Tests	No Open or Short Circuit	-	-	-	
			Intermediate Measurements					
			Insulation Resistance	Table 3 Item 3	Ri	Table 3	-	
				After 24 hrs recovery				
			Voltage Proof	Table 2 Item 2	VP	90% U_R (2)	-	
			Insulation Resistance	Table 2 Item 3	Ri	(5)	-	
			Capacitance Change	Table 2 Item 10	$\Delta C/C$	-	Table 4	
			Final Measurements					
			Insulation Resistance	Table 3 Item 3	Ri	Table 3	-	
				After 24 hrs recovery				
			Voltage Proof	Table 2 Item 2	VP	90% U_R (2)	-	
			Insulation Resistance	Table 2 Item 3	Ri	(5)		
			Capacitance Change	Table 2 Item 10	$\Delta C/C$	-	Table 4	
14	Corrosion	Para. 9.20	**Final Measurements**					
			Visual Examination	No corrosion, damage or obliteration of marking	-	-	-	
15	Permanence of Marking	Para. 9.21	**Final Measurements**					
			Visual Examination	No corrosion or obliteration of marking	-	-	-	
16	Damp Heat (Non-hermetically Sealed)	Para. 9.24	Not applicable					

NOTES:

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.
2. For U_R, see Column 2(a) of Table 1(a).
3. For I_R, see Column 7 of Table 1(a).
4. Greater than 10% of the value given in Table 2.
5. Greater than 50% of the value given in Table 2.

APPENDIX A

AGREED DEVIATIONS FOR EXXELIA TECHNOLOGIES (F)

ITEMS AFFFECTED	DESCRIPTION OF DEVIATIONS
Paras. 4.2.2, 4.2.3 and Table 2	Para. 9.4.1.5, Voltage Drop: Voltage Drop may be performed as a DC Resistance measurement in accordance with MIL-STD-202, Method 303. In this case, the maximum value of DC Resistance (Rs) shall be as specified in Column 6 of Table 1(a).
Para. 4.4.1 Case	Note: The glass seal at the threaded OUT end of the case is soldered in place using fused pure tin. Accordingly, localised spots of fused pure tin may be present in the annular metal seal around this glass seal. This is acceptable as fused pure tin is not prone to whiskering.