CAPACITORS, FIXED, RECONSTITUTED MICA, HIGH VOLTAGE

BASED ON TYPE HT86PS

ESCC Detail Specification No. 3006/022

Issue 5	January 2021

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

DCR No.	CHANGE DESCRIPTION
1393	Specification updated to incorporate changes per DCR.

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1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, and test and inspection data for the component type variants and/or the range of components specified below. It supplements the requirements of, and shall be read in conjunction with, the ESCC Generic Specification listed under Applicable Documents.

1.2 APPLICABLE DOCUMENTS

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

(a) ESCC Generic Specification No. 3006.
(b) IEC Publication No. 60270, High-voltage test techniques – Partial discharge measurements

1.3 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.

1.4 THE ESCC COMPONENT NUMBER AND RANGE OF COMPONENTS

1.4.1 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 300602201222MH

- Detail Specification Reference: 3006022
- Component Type Variant Number: 01 (See Note 1)
- Characteristic code: Capacitance Value (2200pF): 222 (as required)
- Characteristic code: Capacitance Tolerance (±20%): M (as required)
- Rating code: Rated Voltage (10000V): H (as required)

NOTES:

1. Marking of the Component Type Variant Number is mandatory. No further reference to type variant number is made in this specification.

1.4.1.2 Characteristics and Ratings Codes

Characteristics and ratings to be codified as part of the ESCC Component Number shall be as follows:

(a) Capacitance Value, C, expressed by means of the following codes in accordance with ESCC Basic Specification No. 21700. The unit quantity shall be picofarads (pF).

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

(b) Capacitance Tolerance expressed by the following codes in accordance with ESCC Basic Specification No. 21700:

Tolerance (± %)	Code Letter
10	K
20	M

(c) Rated Voltage, U_R, expressed by the following codes:

Rated Voltage U_R (V)	Code Letter
1500	C
2500	D
3500	E
5000	F
7500	G
10000	H
12500	J
15000	K
20000	L

1.4.2 Range of Components

The range of components applicable to this specification are as follows:

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
33000	10, 20	1500	35	10	4	1	A3 or A4	4
39000	10	1500	35	12	6	1	A3 or A4	6.5
47000	10, 20	1500	35	12	6	1	A3 or A4	6.5
56000	10	1500	35	16	6	1	A3 or A4	8.5
68000	10, 20	1500	35	16	6	1	A3 or A4	8.5
82000	10	1500	35	24	6	1	A3 or A4	12.5
100000	10, 20	1500	35	24	6	1	A3 or A4	12.5
120000	10	1500	35	30	8	1	A3 or A4	20
150000	10, 20	1500	35	30	8	1	A3 or A4	20
180000	10	1500	35	40	8	1	A3 or A4	26.5
220000	10, 20	1500	35	40	8	1	A3 or A4	26.5
270000	10	1500	61	24	8	1	A3 or A4	28
330000	10, 20	1500	61	24	8	1	A3 or A4	28
390000	10	1500	61	38	8	1	A3 or A4	44
470000	10, 20	1500	61	38	8	1	A3 or A4	44

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
560000	10	1500	79	45	8	1.2	A3 or A4	67
820000	10, 20	1500	79	45	8	1.2	A3 or A4	67
1000000	10	1500	79	47	10	1.2	A3 or A4	85
1200000	10, 20	1500	79	47	10	1.2	A3 or A4	85
1500000	10	1500	105	47	10	1.2	A3 or A4	115
1800000	10, 20	1500	105	47	10	1.2	A3 or A4	115
2200000	10	1500	105	50	14	1.2	A3 or A4	175
15000	10, 20	2500	25	12	4	1	A3 or A4	4
22000	10, 20	2500	35	10	4	1	A3 or A4	4
27000	10	2500	35	12	6	1	A3 or A4	6.5
33000	10, 20	2500	35	12	6	1	A3 or A4	6.5
39000	10	2500	35	16	6	1	A3 or A4	8.5
47000	10, 20	2500	35	16	6	1	A3 or A4	8.5
56000	10	2500	35	24	6	1	A3 or A4	12.5
68000	10, 20	2500	35	24	6	1	A3 or A4	12.5
82000	10	2500	35	30	8	1	A3 or A4	20
100000	10, 20	2500	35	30	8	1	A3 or A4	20
120000	10	2500	35	40	8	1	A3 or A4	26.5
150000	10, 20	2500	35	40	8	1	A3 or A4	26.5
180000	10	2500	61	38	8	1	A3 or A4	28
220000	10, 20	2500	61	38	8	1	A3 or A4	28
270000	10	2500	61	45	8	1	A3 or A4	44
330000	10, 20	2500	61	45	8	1	A3 or A4	44
390000	10	2500	79	45	8	1.2	A3 or A4	67
470000	10, 20	2500	79	45	8	1.2	A3 or A4	67
560000	10	2500	79	47	10	1.2	A3 or A4	85
680000	10, 20	2500	79	47	10	1.2	A3 or A4	85
820000	10	2500	105	47	10	1.2	A3 or A4	115
1000000	10, 20	2500	105	47	10	1.2	A3 or A4	115
1200000	10	2500	105	50	14	1.2	A3 or A4	175
1500000	10, 20	2500	105	50	14	1.2	A3 or A4	175
15000	10, 20	3500	35	10	4	1	A3 or A4	4
18000	10	3500	35	12	6	1	A3 or A4	6.5
22000	10, 20	3500	35	12	6	1	A3 or A4	6.5

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
27000	10	3500	35	16	6	1	A3 or A4	8.5
33000	10, 20	3500	35	16	6	1	A3 or A4	8.5
39000	10	3500	35	24	6	1	A3 or A4	12.5
47000	10, 20	3500	35	24	6	1	A3 or A4	12.5
56000	10	3500	35	30	8	1	A3 or A4	20
68000	10, 20	3500	35	30	8	1	A3 or A4	20
82000	10	3500	35	40	8	1	A3 or A4	26.5
100000	10, 20	3500	35	40	8	1	A3 or A4	26.5
120000	10	3500	61	24	8	1	A3 or A4	28
150000	10, 20	3500	61	24	8	1	A3 or A4	28
180000	10	3500	61	38	8	1	A3 or A4	44
220000	10, 20	3500	61	38	8	1	A3 or A4	44
270000	10	3500	79	45	8	1.2	A3 or A4	67
330000	10, 20	3500	79	45	8	1.2	A3 or A4	67
390000	10	3500	79	47	10	1.2	A3 or A4	85
470000	10, 20	3500	79	47	10	1.2	A3 or A4	85
560000	10	3500	105	47	10	1.2	A3 or A4	115
680000	10, 20	3500	105	47	10	1.2	A3 or A4	115
820000	10	3500	105	50	14	1.2	A3 or A4	175
1000000	10, 20	3500	105	50	14	1.2	A3 or A4	175
6800	10, 20	5000	35	10	4	1	A3 or A4	4
8200	10	5000	35	12	6	1	A3 or A4	6.5
10000	10, 20	5000	35	12	6	1	A3 or A4	6.5
12000	10	5000	35	16	6	1	A3 or A4	8.5
15000	10, 20	5000	35	16	6	1	A3 or A4	8.5
18000	10	5000	35	24	6	1	A3 or A4	12.5
22000	10, 20	5000	35	24	6	1	A3 or A4	12.5
27000	10	5000	35	30	8	1	A3 or A4	20
33000	10, 20	5000	35	30	8	1	A3 or A4	20
39000	10	5000	35	40	8	1	A3 or A4	26.5
47000	10, 20	5000	35	40	8	1	A3 or A4	26.5
56000	10	5000	61	24	8	1	A3 or A4	28
68000	10, 20	5000	61	24	8	1	A3 or A4	28
82000	10	5000	61	38	8	1	A3 or A4	44

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
100000	10, 20	5000	61	38	8	1	A3 or A4	44
120000	10	5000	79	45	8	1.2	A3 or A4	67
150000	10, 20	5000	79	45	8	1.2	A3 or A4	67
180000	10	5000	79	47	10	1.2	A3 or A4	85
220000	10, 20	5000	79	47	10	1.2	A3 or A4	85
270000	10	5000	105	47	10	1.2	A3 or A4	115
330000	10, 20	5000	105	47	10	1.2	A3 or A4	115
390000	10	5000	105	50	14	1.2	A3 or A4	175
470000	10, 20	5000	105	50	14	1.2	A3 or A4	175
2200	10, 20	7500	35	10	4	1	A3 or A4	4
2700	10	7500	35	12	6	1	A3 or A4	6.5
3300	10, 20	7500	35	12	6	1	A3 or A4	6.5
3900	10	7500	35	16	6	1	A3 or A4	8.5
4700	10, 20	7500	35	16	6	1	A3 or A4	8.5
5600	10	7500	35	24	6	1	A3 or A4	12.5
6800	10, 20	7500	35	24	6	1	A3 or A4	12.5
8200	10	7500	35	30	8	1	A3 or A4	20
10000	10, 20	7500	35	30	8	1	A3 or A4	20
12000	10	7500	35	40	8	1	A3 or A4	26.5
15000	10, 20	7500	35	40	8	1	A3 or A4	26.5
18000	10	7500	61	24	8	1	A3 or A4	28
22000	10, 20	7500	61	24	8	1	A3 or A4	28
27000	10	7500	61	38	8	1	A3 or A4	44
33000	10, 20	7500	61	38	8	1	A3 or A4	44
39000	10	7500	61	45	8	1	A3 or A4	52
47000	10, 20	7500	61	45	8	1	A3 or A4	52
56000	10	7500	79	47	8	1.2	A3 or A4	67
68000	10, 20	7500	79	47	8	1.2	A3 or A4	67
82000	10	7500	79	47	10	1.2	A3 or A4	85
100000	10, 20	7500	79	47	10	1.2	A3 or A4	85
120000	10	7500	105	47	10	1.2	A3 or A4	115
150000	10, 20	7500	105	47	10	1.2	A3 or A4	115
180000	10	7500	105	50	14	1.2	A3 or A4	175
220000	10, 20	7500	105	50	14	1.2	A3 or A4	175

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
1000	10, 20	10000	35	10	4	1	A3 or A4	4
1200	10	10000	35	12	6	1	A3 or A4	6.5
1500	10, 20	10000	35	12	6	1	A3 or A4	6.5
1800	10	10000	35	16	6	1	A3 or A4	8.5
2200	10, 20	10000	35	16	6	1	A3 or A4	8.5
2700	10	10000	35	24	6	1	A3 or A4	12.5
3300	10, 20	10000	35	24	6	1	A3 or A4	12.5
3900	10	10000	35	30	8	1	A3 or A4	20
4700	10, 20	10000	35	30	8	1	A3 or A4	20
5600	10	10000	35	40	8	1	A3 or A4	26.5
6800	10, 20	10000	35	40	8	1	A3 or A4	26.5
8200	10	10000	61	24	8	1	A3 or A4	28
10000	10, 20	10000	61	24	8	1	A3 or A4	28
12000	10	10000	61	38	8	1	A3 or A4	44
15000	10, 20	10000	61	38	8	1	A3 or A4	44
18000	10	10000	61	45	8	1	A3 or A4	52
22000	10, 20	10000	61	45	8	1	A3 or A4	52
27000	10	10000	79	45	8	1.2	A3 or A4	67
33000	10, 20	10000	79	45	8	1.2	A3 or A4	67
39000	10	10000	79	47	10	1.2	A3 or A4	85
47000	10, 20	10000	79	47	10	1.2	A3 or A4	85
56000	10	10000	105	47	10	1.2	A3 or A4	115
68000	10, 20	10000	105	47	10	1.2	A3 or A4	115
82000	10	10000	105	50	14	1.2	A3 or A4	175
100000	10, 20	10000	105	50	14	1.2	A3 or A4	175
3300	10, 20	12500	61	20	4	1	A3 or A4	14
3900	10	12500	61	22	6	1	A3 or A4	21
4700	10, 20	12500	61	22	6	1	A3 or A4	21
5600	10	12500	61	24	8	1	A3 or A4	28
6800	10, 20	12500	61	24	8	1	A3 or A4	28
8200	10	12500	61	38	8	1	A3 or A4	44
10000	10, 20	12500	61	38	8	1	A3 or A4	44
12000	10	12500	61	45	8	1	A3 or A4	52
15000	10, 20	12500	61	45	8	1	A3 or A4	52

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
18000	10	12500	79	45	8	1.2	A3 or A4	67
22000	10, 20	12500	79	45	8	1.2	A3 or A4	67
27000	10	12500	79	47	10	1.2	A3 or A4	85
33000	10, 20	12500	79	47	10	1.2	A3 or A4	85
39000	10	12500	105	47	10	1.2	A3 or A4	115
47000	10, 20	12500	105	47	10	1.2	A3 or A4	115
56000	10	12500	105	50	14	1.2	A3 or A4	175
68000	10, 20	12500	105	50	14	1.2	A3 or A4	175
1500	10, 20	15000	61	20	4	1	A3 or A4	14
1800	10	15000	61	22	6	1	A3 or A4	21
2200	10, 20	15000	61	22	6	1	A3 or A4	21
2700	10	15000	61	24	8	1	A3 or A4	28
3300	10, 20	15000	61	24	8	1	A3 or A4	28
3900	10	15000	61	38	8	1	A3 or A4	44
4700	10, 20	15000	61	38	8	1	A3 or A4	44
5600	10	15000	61	45	8	1	A3 or A4	52
6800	10, 20	15000	61	45	8	1	A3 or A4	52
8200	10	15000	79	45	8	1.2	A3 or A4	67
10000	10, 20	15000	79	45	8	1.2	A3 or A4	67
12000	10	15000	79	47	10	1.2	A3 or A4	85
15000	10, 20	15000	79	47	10	1.2	A3 or A4	85
18000	10	15000	105	47	10	1.2	A3 or A4	115
22000	10, 20	15000	105	47	10	1.2	A3 or A4	115
27000	10	15000	105	50	14	1.2	A3 or A4	175
33000	10, 20	15000	105	50	14	1.2	A3 or A4	175
680	10, 20	20000	61	20	4	1	A3 or A4	14
820	10	20000	61	22	6	1	A3 or A4	21
1000	10, 20	20000	61	22	6	1	A3 or A4	21
1200	10	20000	61	24	8	1	A3 or A4	28
1500	10, 20	20000	61	24	8	1	A3 or A4	28
1800	10	20000	61	38	8	1	A3 or A4	44
2200	10, 20	20000	61	38	8	1	A3 or A4	44
2700	10	20000	61	45	8	1	A3 or A4	52
3300	10, 20	20000	61	45	8	1	A3 or A4	52

Capacitance Value (C) (pF)	Capacitance Tolerance (± %)	Rated Voltage (U_R) Max (V)	Dimensions (mm) (See Para. 1.6)				Lead Material & Finish (Note 1)	Weight Max (g)
			L (±1)	h (±1)	e (±1)	ØW (+10%, -0.05)		
3900	10	20000	79	45	8	1.2	A3 or A4	67
4700	10, 20	20000	79	45	8	1.2	A3 or A4	67
5600	10	20000	79	47	10	1.2	A3 or A4	85
6800	10, 20	20000	79	47	10	1.2	A3 or A4	85
8200	10	20000	105	47	10	1.2	A3 or A4	115
10000	10, 20	20000	105	47	10	1.2	A3 or A4	115
12000	10	20000	105	50	14	1.2	A3 or A4	175
15000	10, 20	20000	105	50	14	1.2	A3 or A4	175

NOTES:
1. Lead material and finishes shall be in accordance with the requirements of ESCC Basic Specification No. 23500.

1.5 MAXIMUM RATINGS

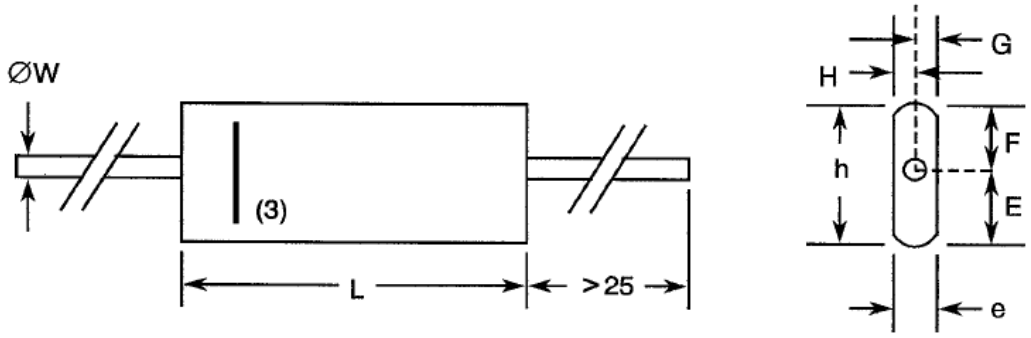
The maximum ratings shall not be exceeded at any time during use or storage.

Maximum ratings shall only be exceeded during testing to the extent specified in this specification and when stipulated in Test Methods and Procedures of the ESCC Generic Specification.

Characteristics	Symbols	Maximum Ratings	Units	Remarks
Rated Voltage	U_R	1500, 2500, 3500, 5000, 7500, 10000, 12500, 15000, 20000	V	Note 1
Ripple Voltage, peak-to-peak (Note 2)	U_{Rip}	$0.2\times U_R$ $0.15\times U_R$ $0.04\times U_R$ $0.01\times U_R$	Vpp	At 50Hz At 100Hz At 1000Hz At 10000Hz
Operating Air Pressure Range	P_{op}	Less than 0.1 or greater than 75000	Pa	Note 3
Operating Temperature Range	T_{op}	-55 to +125	°C	Without derating. T_{amb}
Storage Temperature Range	T_{stg}	-55 to +125	°C	
Soldering Temperature	T_{sol}	+260	°C	Note 4

NOTES:
1. As required; See Para. 1.4.2.
2. Ripple voltage plus applied DC voltage shall never exceed U_R.
3. Components are designed for dielectric fluid use or encapsulation.
4. Duration 5 seconds maximum at 4mm from the device body and the same terminal shall not be resoldered until 3 minutes have elapsed.

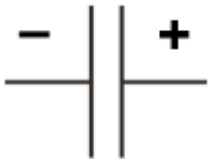
1.6 PHYSICAL DIMENSIONS AND TERMINAL IDENTIFICATION



NOTES:

1. The limits of Dimensions L, h, e and ØW are defined in Para. 1.4.2.
2. The difference between dimensions E and F shall be < 2mm. The difference between dimensions G and H shall be < 1mm.
3. Terminal identification: A voltage polarity "–" symbol shall be marked on the body to indicate the lead which should be connected to the lowest potential.

1.7 FUNCTIONAL DIAGRAM



2 REQUIREMENTS

2.1 GENERAL

The complete requirements for procurement of the components specified herein are as stated in this specification and the ESCC Generic Specification. Permitted deviations from the Generic Specification, applicable to this specification only, are listed below.

Permitted deviations from the Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirement and do not affect the component's reliability, are listed in the appendices attached to this specification.

2.1.1 Deviations from the Generic Specification

2.1.1.1 Deviations from Screening Tests – Chart F3

(a) Rapid Change of Temperature:

- Test Condition (d), Exposure time (each cycle, each temperature): 3 hours minimum.
- Test Condition (e), Transition time: 1 hour ±5 minutes.

2.1.1.2 Deviations from Qualification and Periodic Tests – Chart F4

(a) Rapid Change of Temperature:
- Test Condition (d), Exposure time (each cycle, each temperature): 3 hours minimum.
- Test Condition (e), Transition time: 1 hour ±5 minutes.

(b) Vibration:
- Test Condition (c), Applied voltage: no voltage shall be applied.
- Data Points: no monitoring during the last cycle.

(c) Shock:
- Test Condition (d), Applied voltage: no voltage shall be applied.
- Data Points: no monitoring during the last cycle.

(d) Climatic Sequence (Damp Heat, Accelerated, First Cycle and Damp Heat, Accelerated, Remaining Cycles): the applied voltage shall be 100V.

(e) Climatic Sequence (Low Air Pressure): For Qualification Testing only, Low Air Pressure shall be performed under the following conditions:
- 1 hour minimum at 1×10^{-5} mbar maximum.
- Temperature: +50 (+5 -0)°C
- Applied voltage: $1.25\times U_R$ applied for the last 5 minutes of the period of low pressure.

(f) Operating Life:
- Test Condition (c), Applied voltage: $1.15\times U_R$.

2.2 MARKING

The marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.

The information to be marked on the component shall be:

(a) Terminal Identification (see Para. 1.6).
(b) The ESCC qualified components symbol (for ESCC qualified components only).
(c) The ESCC Component Number (see Para. 1.4.1).
(d) Traceability information.

2.3 ROBUSTNESS OF TERMINATIONS

The test conditions for Robustness of Terminations shall be as specified in the ESCC Generic Specification and as follows:

- Test Ua1 (tensile):
  - Applied force: 20N
  - Duration: 10 ±1s
- Test Uc Method 1, Severity 2 (torsion, 2 successive rotations of 180°)
- Test Ub Method 1 (bending, 2 consecutive bends):
  - Applied force: 10N

The number of terminals to be tested is as follows: All terminals for test Ua1; one-half of the terminals for test Uc Method 1, Severity 2; the remaining terminals for test Ub Method 1.

2.4 ELECTRICAL MEASUREMENTS AT ROOM, HIGH AND LOW TEMPERATURES

Electrical measurements shall be performed at room, high and low temperatures.

2.4.1 Room Temperature Electrical Measurements

The measurements shall be performed at T_{amb} = +22 ±3°C.

Characteristics	Symbols	Test Method and Conditions	Limits		Units
			Min	Max	
Capacitance	C	ESCC No. 3006	Note 1	Note 2	pF
Tangent of Loss Angle	tgδ	ESCC No. 3006 V_T = 1V Test Frequency = 1kHz	-	50×10^{-4}	-
Insulation Resistance, Dielectric	R_I	ESCC No. 3006 For C ≤ 220000pF For C > 220000pF	 25 5000	 - -	 GΩ GΩ.nF
Insulation Resistance, Body Insulation	R_{IB}	ESCC No. 3006	25	-	GΩ
Voltage Proof, Terminal-to-Terminal	VP	ESCC No. 3006 (Note 3)	$1.6\times U_R$ (Note 4)	-	V
Voltage Proof, Terminal-to-Case	VP_B	ESCC No. 3006 (Note 3)	$1.6\times U_R$ (Note 4)	-	V
Partial Discharge (AC)	QAC	IEC 60270 Vrms = $5\%U_R$ Vrms = $10\%U_R$ (Note 5)	 - -	 0 1000	 pC pC

NOTES:

1. Capacitance Value of the component minus the applicable Tolerance (see Para. 1.4.2).
2. Capacitance Value of the component plus the applicable Tolerance (see Para. 1.4.2).
3. Voltage application time: 5s.
4. For the applicable Rated Voltage (U_R) see Para. 1.4.2.
5. Partial Discharge shall be measured at two different levels of voltage. For the applicable Rated Voltage (U_R) see Para. 1.4.2.

2.4.2 High and Low Temperatures Electrical Measurements

Characteristics	Symbols	Test Method and Conditions (Note 1)	Limits		Units
			Min	Max	
Temperature Coefficient	ΔC/C	ESCC No. 3006			
		T_{amb} = -55 (+3 -0)°C	-3 (Note 2)	-	%
		T_{amb} = +125 (+0 -5)°C	-	+10 (Note 2)	%
Insulation Resistance, Dielectric	R_I	ESCC No. 3006 T_{amb} = +125 (+0 -5)°C			
		For C ≤ 220000pF	250	-	MΩ
		For C > 220000pF	50	-	GΩ.nF
Leakage Current	I_L	T_{amb} = +125 (+0 -5)°C $V_T = 1 \times U_R$ (Note 3)	-	Note 4	nA

NOTES:

1. The measurements shall be performed on a sample of 6 components from each manufacturing lot with 0 failures allowed. In the event of any failure a 100% inspection may be performed.
2. The Temperature Coefficient limits are with respect to the capacitance at +22 ±2°C (reference point temperature).
3. For the applicable Rated Voltage (U_R) see Para. 1.4.2.
4. The maximum Leakage Current limit, in nA, is: U_R (in V) × C (in pF) / 100000.

2.5 INTERMEDIATE AND END-POINT ELECTRICAL MEASUREMENTS

Unless otherwise specified, the measurements shall be performed at T_{amb} = +22 ±3°C.

Unless otherwise specified the test methods and test conditions shall be as per the corresponding test defined in Para. 2.4.1, Room Temperature Electrical Measurements.

Test Reference per ESCC No. 3006	Characteristics	Symbols	Limits		Units
			Min	Max	
Resistance to Soldering Heat					
Initial Measurements	Capacitance	C	Note 1		pF
Final Measurements	Capacitance	C	Note 1		pF
	Change in Capacitance	ΔC/C	-1	+1	%
	Insulation Resistance (Terminal-to-Terminal)	R_I			
	For C ≤ 220000pF		Note 1	-	GΩ
	For C > 220000pF		Note 1	-	GΩ.nF
	Tangent of Loss Angle	tgδ	-	Note 1	-
Temperature Coefficient	Temperature Coefficient (Note 2)	ΔC/C	Note 3		%

Test Reference per ESCC No. 3006	Characteristics	Symbols	Limits		Units
			Min	Max	
Rapid Change of Temperature					
Initial Measurements	Capacitance	C	Note 1		pF
Final Measurements	Capacitance	C	Note 1		pF
	Change in Capacitance	ΔC/C	-1	+1	%
	Tangent of Loss Angle	tgδ	-	60×10^{-4}	-
Climatic Sequence					
Initial Measurements	Capacitance	C	Note 1		pF
Final Measurements	Capacitance	C	Note 1		pF
	Change in Capacitance	ΔC/C	-3	+3	%
	Tangent of Loss Angle	tgδ	-	60×10^{-4}	-
	Voltage Proof, Terminal-to-Terminal	VP	$1\times U_R$ (Note 4)	-	V
	Voltage Proof, Terminal-to-Case	VP_B	$1\times U_R$ (Note 4)	-	V
	Insulation Resistance, Dielectric	R_I			
	For C ≤ 220000pF		Note 5	-	GΩ
	For C > 220000pF		Note 5	-	GΩ.nF
	Insulation Resistance, Body Insulation	R_{IB}	5	-	GΩ
	Partial Discharge (AC)	QAC			
	Vrms = $10\%U_R$		-	2000	pC
Operating Life					
Initial Measurements	Capacitance	C	Note 1		pF
Intermediate Measurements (1000 hours)	Capacitance	C	Note 1		pF
	Change in Capacitance	ΔC/C	-5	+5	%
Final Measurements (1000 or 2000 hours) (Note 6)	Capacitance	C	Note 1		pF
	Change in Capacitance	ΔC/C	-5	+5	%
	Tangent of Loss Angle	tgδ	-	60×10^{-4}	-
	Insulation Resistance, Dielectric	R_I			
	For C ≤ 220000pF		Note 5	-	GΩ
	For C > 220000pF		Note 5	-	GΩ.nF
	Insulation Resistance, Body Insulation	R_{IB}	5	-	GΩ
	Partial Discharge (AC)	QAC			pC
	Vrms = $5\%U_R$		-	0	
	Vrms = $10\%U_R$		-	2000	

NOTES:

1. As specified in Para. 2.4.1.
2. The test method and test conditions shall be as specified in Para. 2.4.2.
3. As specified in Para. 2.4.2.
4. For the applicable Rated Voltage (U_R) see Para. 1.4.2.
5. 50% of the limit specified in Para. 2.4.1.
6. 1000 hours is applicable to Periodic Testing for extension of qualification. 2000 hours is applicable to Qualification Testing, and to Periodic Testing for renewal of qualification after lapse.

2.6 BURN-IN CONDITIONS

Characteristics	Symbols	Conditions (Note 1)	Units
Ambient Temperature	T_{amb}	+125 (+0 -5)	°C
Test Voltage	V_T	1.15×U_R (Note 2)	V

NOTES:

1. 1MΩ resistors shall be connected in series with the components subjected to Burn-in. On completion of Burn-in the components shall be removed from the burn-in chamber and allowed to cool, under normal atmospheric conditions, for recovery for 24 ±2 hours.
2. For the applicable Rated Voltage (U_R) see Para. 1.4.2.

APPENDIX 'A'

AGREED DEVIATIONS FOR EXXELIA TECHNOLOGIES (F)

Items Affected	Description of Deviations
Para. 2.1.1.1, Deviations from Screening Tests – Chart F3	All procurement lots shall have 100% Serialisation carried out at any point during Chart F3 testing prior to the performance of High and Low Temperatures Electrical Measurements.
	The optional Room Temperature Electrical Measurements prior to Burn-in shall be performed as specified in Para. 2.4.1 except that, for the Voltage Proof tests (VP, VP_B), the voltage application time shall be 60 (+0 -1)s.
	If a particular lot is required to undergo testing in accordance with Chart F4, then the Temperature Coefficient measurements, made during High and Low Temperatures Electrical Measurements on a sample of 6 randomly-selected serialised capacitors, shall be Read-and-Record measurements. See "Deviations from Qualification and Periodic Tests – Chart F4" below.
	The following additional testing shall be carried out on each procurement lot: After Check for Lot Failure and prior to External Visual Inspection, all components shall be subjected to Radiographic Inspection in accordance with ESCC Basic Specification No. 20900. Any failures shall be identified as such and removed from the lot.
Para. 2.1.1.2, Deviations from Qualification and Periodic Tests – Chart F4	The Temperature Coefficient testing specified in Subgroup 2B of Chart F4 may not be performed. In instances when Temperature Coefficient testing per Subgroup 2B of Chart F4 is not performed, the Read-and-Record measurements data obtained during High and Low Temperature Electrical Measurements (part of Chart F3, Screening Tests) shall be submitted instead.