DOCUMENT CHANGE REQUEST

DCR number 104	Changes required for: Qualification	Originator: BUSSENOT Jean-Paul
Date: 2004/02/23	Date sent: 2004/02/23	Organisation: CNES
Status: IMPLEMENTED		

Title:	Capacitors Fixed Chips Ceramic Dielectric Type II, based on type 0805		
Number:	3009/008	Issue:	1

Other documents affected:

3009/009-1, 3009/010-1, 3009/011-1, 3009/023-1

Page:

Table 1(a), page 6 and Figure 2, page 7, and par.4.4.1 & 4.4.2, page 9, and par.4.5.3.1, page 10, and Table 3, page 12.

Paragraph:

Table 1(a), page 6 and Figure 2, page 7, and par.4.4.1 & 4.4.2, page 9, and par.4.5.3.1, page 10, and Table 3, page 12.

Original wording:

Proposed wording:

See attached file ref. AVX_TYPE II.pdf

Justification:

Extension of type II ranges and introduction of a new variant 07 (X7R electrical and mechanical variant) for AVX/TPC qualification exercise.

Attachments:

104AVX_TYPE_II.pdf, null

Modifications:

N/A

Approval signature:

Date signed:

2004-02-23

DOCUMENT CHANGE REQUEST

DCR Class

TO BE COMPLETED BY ORIGINATOR

Change request No.

Originator JP. BUSSENOT (1) | Originator signature (2)

Affiliation CNES | Date: 23/02/04 | Page 1 of [3] (3)

DOCUMENT AFFECTED

Doc. No. (4)	Status (5)	Title (6)
3009/008	Issue 1	Capacitors, Fixed, chips, Ceramic Dielectric, Type II, Based on Type 0805

Paragraph(s) and page(s) affected (7)

Table 1(a), page 6 & Figure 2, page 7 ... (See page 2/3)

Other documents affected (8)

3009/009
3009/010
3009/011
3009/023

PROPOSED WORDING OF CHANGE (9)

- Table 1(a), for rated voltage 100V, change 22000pF value for 47000 pF value.
- Table 1(a), for rated voltage 50V, change 47000 pF value for 68000 pF value.
- Note page 6 : change for "7 variants are specified in par. 4.4.1, Figure 2 and Table 3". ☒ Yes ☐ No

Continuation sheet(s) attached

JUSTIFICATION (10)

Extension of type II ranges and introduction of a new variant 07 (X7R electrical and mechanical variant) for AVX-TPC qualification exercise.

Continuation sheet(s) attached ☐ Yes ☒ No

Changes required for: Procurement (project) ☐ Qualification ☒ MRB decision ☐ (11)
General Improvement of Spec. ☐ Other ☐

RESERVED FOR USE BY THE ESCC EXECUTIVE SECRETARIAT

Date of registration:	Order of Priority for Appr. / Impl.: 1 (high) ☐ 2 (medium) ☐ 3 (low) ☐
Attachments: ☐	Qualification Status: Qualified ☐ In process of qualification ☐ N/A) ☐

RESERVED FOR USE BY APPROVING AUTHORITY

Approved ☐Yes ☐No	Signature	Reference to SCSB / PSWG decision
Priority ☐	Role Date	

Approved wording if different from box 9 or reason for rejection

Continuation sheet(s) attached ☐ Yes ☐ No

DOCUMENT CHANGE REQUEST

CONTINUATION SHEET FOR BOX [ ]

Change Request No.

Box 7

--- and par. 4.4.1 & 4.4.2, page 9, and par. 4.5.3.1, page 10 and Table 3, page 12.

Box 9

See appendix.

- Figure 2 : add variant 07 column.
- Par. 4.4.1 : change variant 06 for variants 06 and 07 and modify N.B
- Par. 4.5.2 : add "and Table 3" to Type Variant (See ---).
- Par. 4.5.3.1 : add "$\times\times10^4$" and "$\times\times4$" in Capacitance Value Table.
- Table 3, for items 5(i) & 5(ii), in ESA/SCC 3009 Test Conditions Column : change as follows :
  - $V_T = 0$ (for variants 01 to 07)
  - $V_T = V_R$ (for variants 01 to 06)

- For ESCC 3009/009 specification
  - Table 1(a), for rated voltage 100V, change 120000 pF and 150000 pF values for 220000 pF value.
  - Par. 4.5.3.1 : add "$\times\times10^1$" and "$\times\times1$".
  - And as per 3009/008 for note page 6, Figure 2, par. 4.4.1, par. 4.5.2, and Table 3.
- For ESCC 3009/010 specification
  - Table 1(a), for rated voltage 100V, change 270000 pF and 330000 pF values for 470000 pF value.
  - Table 1(a), for rated voltage 50V, change 470000 pF value for 680000 pF value.
  - Par. 4.5.3.1 : add "$\times\times10^5$" and "$\times\times5$".
  - And as per 3009/008 for note page 6, Figure 2, par. 4.4.1, par. 4.5.2 and Table 3.
- For ESCC 3009/011 specification
  - Table 1(a), for rated voltage 100V, change 560000 pF and 680000 pF values for 1000000 pF value.
  - Table 1(a), for rated voltages 50V and 25V, change 1000000 pF value for 1500000 pF value.
  - And as per 3009/008 for note page 6, Figure 2, par. 4.4.1, par. 4.5.2 and Table 3.

DOCUMENT CHANGE REQUEST

CONTINUATION SHEET FOR BOX [ ]

Change Request No.

Box 9

- For Escc 3009/023 specification

  - Table 1 (a), for rated voltage 100V, change 22000 pF value for 100000 pF value -
  - Table 1 (a), for rated voltage 50V, change 56000 pF and 68000 pF values for 150000 pF value -
  - Par. 4.5.3.1 : add "XX10¹" and "XX1" -
  - And as per 3009/008 for note page 6, Figure 2, par. 4.4.1, par. 4.5.2 and Table 3 -

OTHER ITEM

- For Escc 3009/010 specification

  - Figure 2, for all variants, M symbol, minimum value, change 0.1 mm for 0.2 mm

    (Editorial error)

TABLE 1(a) - RANGE OF COMPONENTS

CAPACITANCE RANGE (pF)	TOLERANCE (±) (%)	VALUES SERIES	RATED VOLTAGE (U_R) (V)
68 to ~~22000~~ 47000	5.0	E 24	100
68 to ~~22000~~ 47000	10	E 12	100
68 to ~~22000~~ 47000	20	E 6	100
100 to ~~47000~~ 68000	5.0	E 24	50
100 to ~~47000~~ 68000	10	E 12	50
100 to ~~47000~~ 68000	20	E 6	50
100 to 100000	5.0	E 24	25
100 to 100000	10	E 12	25
100 to 100000	20	E 6	25

NOTES

~~1. As specified in Para. 4.4.1 and Figure 2, these ranges are available in 6 variants.~~

7 variants are specified in par. 4.4.1, Figure 2 and Table 3.

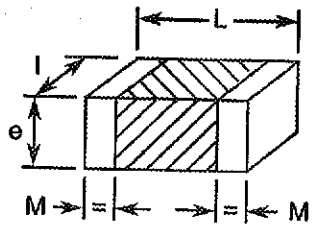
TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	LIMITS		UNIT	REMARKS
			MIN.	MAX.		
1	Rated Voltage	U_R	See Table 1(a)		V	-
2	Operating Temperature Range	T_{amb}	−55	+125	°C	Without derating
3	Storage Temperature Range	T_{stg}	−55	+125	°C	-
4	Maximum Soldering Temperature	T_{sol}	-	+260	°C	Soldering time: t: <10 sec.

FIGURE 1 - PARAMETER DERATING INFORMATION

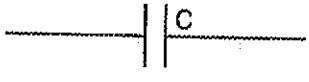
Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS



SYMBOL	DIMENSIONS (mm)				
	VARIANTS 01, 03, 06		VARIANTS 02, 04, 05		VARIANT 07
	MIN.	MAX.	MIN.	MAX.	MIN. MAX.
L	1.7	2.3	1.7	2.8	1.7 2.3
l	1.05	1.45	1.05	1.95	1.05 1.45
e	-	1.8	-	1.8	- 1.3
M	0.1	0.75	0.1	0.75	0.1 0.75

FIGURE 3 - FUNCTIONAL DIAGRAM



4.3.2 Weight

The maximum weight of the capacitors specified herein shall be 0.1 grammes.

4.3.3 Adhesion

The requirements for adhesion are specified in Para. 9.5 of ESA/SCC Generic Specification No. 3009.

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 Terminations

- Variant 01: The capacitors shall be terminated with AgPd pads.
- Variant 02: The capacitors shall be terminated with AgPd with solder coating, 62 Sn, 36 Pb, 2.0 Ag %, +188°C.
- Variant 03: The capacitors shall be terminated with AgPdPt pads.
- Variant 04: The capacitors shall be terminated with AgPdPt with solder coating, 62 Sn, 36 Pb, 2.0 Ag %, +188°C.
- Variant 05: The capacitors shall be terminated with Ag, Ni barrier with solder coating, 62 Sn, 36Pb, 2.0 Ag %, +188°C.
- Variant 06: The capacitors shall be terminated with Ag, Ni barrier with coating tin-lead, near eutectic, minimum 10% lead.

Variants 06 and 07

All the above Variants are suitable for reflow soldering.

N.B. Variant 06 ~~is~~ have the preferred termination ~~finish~~ finish for the specified chip size (see Figure 2).

and 07

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.

These components being too small to accommodate the marking as specified hereafter, the marking information in full shall accompany each component in its primary package. Such marking shall comprise:-

(a) The SCC Component Number.

(b) Characteristics and Ratings.

(c) Traceability Information.

4.5.2 The SCC Component Number

Each component shall bear the SCC Component Number which shall be constituted and marked as follows:

3009008 01 B

Detail Specification Number

Type Variant (see Para. 4.4.1 and Figure 2)

Testing Level (B or C, as applicable)

and Table 3

4.5.3 Electrical Characteristics and Ratings

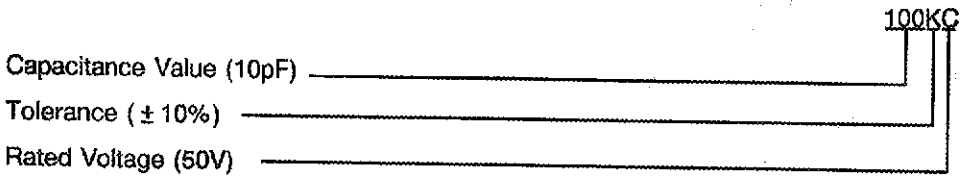
The electrical characteristics and ratings to be marked in the following order of precedence are:-

(a) Capacitance Value.

(b) Tolerance.

(c) Rated Voltage.

The information shall be constituted and marked as follows:-



4.5.3.1 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	CODE
XX	XX0
$XX10^1$	XX1
$XX10^2$	XX2
$XX10^3$	XX3
~~XX10~~ 4	~~XX4~~

4.5.3.2 Tolerances

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

TOLERANCE (%)	CODE LETTER
±5.0	J
±10	K
±20	M

4.5.3.3 Rated Voltage

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

RATED VOLTAGE (U_R) (V)	CODE LETTER
25	A
50	C
100	E

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	CHARACTERISTICS	SYMBOL	ESA/SCC 3009 TEST CONDITIONS	LIMITS		UNIT
				MIN.	MAX.	
1	Capacitance	C	Para. 9.4.1.1	−5.0 −10 −20	+5.0 +10 +20	% (1)
2	Tangent of Loss Angle	$T_{g\delta}$	Para. 9.4.1.2	-	250	10^{-4}
3	Insulation Resistance	R_i	Para. 9.4.1.3	100 (2)	-	GΩ
4	Voltage Proof	VP	Para. 9.4.1.4	$2.5U_R$	-	V

NOTES

1. The capacitance limits before burn-in are −5.0 and +20%.
2. For C equal to, or less than, 10 000pF.
   For C greater than 10 000pF, $R_i \times C = 1\,000$ seconds minimum.

TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	CHARACTERISTICS	SYMBOL	ESA/SCC 3009 TEST CONDITIONS	LIMITS		UNIT	REMARKS
				MIN.	MAX.		
3	Insulation Resistance at +125 ± 3°C	R_i	Para. 9.4.1.3	10 000	-	MΩ	Notes 1, 2 and 4
5(i)	Temperature Characteristic $\frac{\Delta C}{C} = f(T)$	TCC	Para. 9.12 $V_T = 0$ $V_T = U_R$	−20 −30	+20 +20	%	5 parts for each capacitance value. Notes 2 and 5
5(ii)	Temperature Characteristic $\frac{\Delta C}{C} = f(T)$	TCC	Para. 9.12 $V_T = 0$ $V_T = U_R$	−20 −30	+20 +20	%	5 parts for each dielectric lot. Notes 3 and 5

NOTES

1. Single sample; Inspection Level S3; AQL = 2.5%.
2. Applicable to Level 'B' only.
3. Applicable to Level 'C' only.
4. For C equal to, or less than 10 000pF.
   for C greater than 10 000pF, $R_i \times C = 100$ seconds minimum.
5. If 1 failure out of 5 parts, then test 100%.
   1.0% rejects maximum allowed in case of 100% testing.

Para 9.12
$V_T = 0$ (for variants 01 to 07)
$V_T = U_R$ (for variants 01 to 06)

TABLE 1(a) - RANGE OF COMPONENTS

CAPACITANCE RANGE (pF)	TOLERANCE (±) (%)	VALUES SERIES	RATED VOLTAGE (U_R) (V)
680 to 3900	5.0	E 24	400
680 to 3900	10	E 12	400
680 to 4700	20	E 6	400
680 to 18000	5.0	E 24	200
680 to 18000	10	E12	200
680 to 22000	20	E 6	200
1000 to 120000	5.0	E 24	100
1000 to 120000	10	E 12	100
1000 to 150000	20	E 6	100
15000 to 330000	5.0	E 24	50
15000 to 330000	10	E 12	50
15000 to 330000	20	E 6	50
15000 to 470000	5.0	E 24	25
15000 to 470000	10	E 12	25
15000 to 470000	20	E 6	25

220000

NOTES

~~1. As specified in Para. 4.4.1 and Figure 2, these ranges are available in 6 variants.~~

7 variants are specified in par. 4.4.1, Figure 2 and Table 3

4.5.3 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:-

4.5.3.1 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	CODE
XX10¹	XX1
XX10²	XX2
XX10³	XX3
XX10⁴	XX4

4.5.3.2 Tolerances

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

TOLERANCE (%)	CODE LETTER
±5.0	J
±10	K
±20	M

4.5.3.3 Rated Voltage

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

RATED VOLTAGE (U_R) (V)	CODE LETTER
25	A
50	C
100	E
200	G
400	K

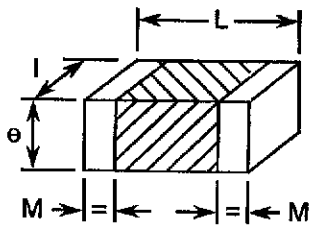
TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	LIMITS		UNIT	REMARKS
			MIN.	MAX.		
1	Rated Voltage	U_R	See Table 1(a)		V	-
2	Operating Temperature Range	T_{amb}	−55	+125	°C	Without derating
3	Storage Temperature Range	T_{stg}	−55	+125	°C	-
4	Maximum Soldering Temperature	T_{sol}	-	+260	°C	Soldering time: t: <10 sec.

FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS



SYMBOL	DIMENSIONS (mm)				
	VARIANTS 01, 03, 06		VARIANTS 02, 04, 05		VARIANT 07
	MIN.	MAX.	MIN.	MAX.	MIN. / MAX.
L	2.8	3.6	2.8	4.1	2.8 / 3.6
l	2.2	2.8	2.2	3.3	2.2 / 2.8
e	-	2.3	-	2.3	— / 1.8
M	0.2	0.75	0.2	0.75	0.2 / 0.75

FIGURE 3 - FUNCTIONAL DIAGRAM

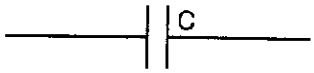


TABLE 1(a) - RANGE OF COMPONENTS

CAPACITANCE RANGE (pF)	TOLERANCE (±) (%)	VALUES SERIES	RATED VOLTAGE (U_R) (V)
3300 to 10000	5.0	E 24	400
3300 to 10000	10	E 12	400
3300 to 10000	20	E 6	400
3300 to 39000	5.0	E 24	200
3300 to 39000	10	E 12	200
3300 to 47000	20	E 6	200
2700 to ~~270000~~ → 470000	5.0	E 24	100
2700 to ~~270000~~ → 470000	10	E 12	100
3300 to ~~330000~~ → 470000	20	E 6	100
47000 to ~~470000~~ → 680000	5.0	E 24	50
47000 to ~~470000~~ → 680000	10	E 12	50
47000 to ~~470000~~ → 680000	20	E 6	50
47000 to 1000000	5.0	E 24	25
47000 to 1000000	10	E 12	25
47000 to 1000000	20	E 6	25

NOTES

→ ~~1. As specified in Para. 4.4.1 and Figure 2, these ranges are available in 6 variants.~~

7 variants are specified in par. 4.4.1, Figure 2 and Table 3

4.5.3 Electrical Characteristics and Ratings

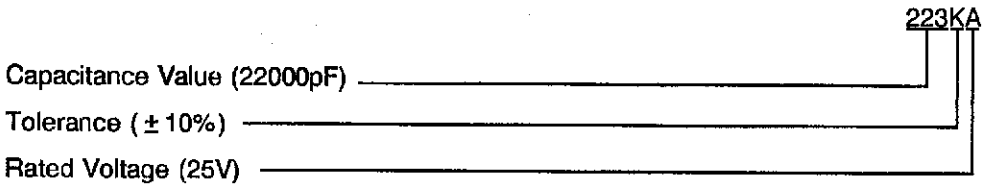
The electrical characteristics and ratings to be marked in the following order of precedence are:-

(a) Capacitance Value.

(b) Tolerance.

(c) Rated Voltage.

The information shall be constituted and marked as follows:-



4.5.3.1 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	CODE
$XX10^2$	XX2
$XX10^3$	XX3
$XX10^4$	XX4
$XX10^5$	XX5

4.5.3.2 Tolerances

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

TOLERANCE (%)	CODE LETTER
±5.0	J
±10	K
±20	M

4.5.3.3 Rated Voltage

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

RATED VOLTAGE (U_R) (V)	CODE LETTER
25	A
50	C
100	E
200	G
400	K

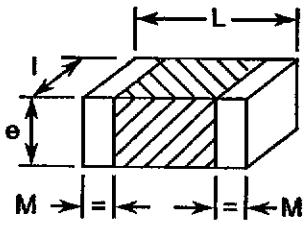
TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	LIMITS		UNIT	REMARKS
			MIN.	MAX.		
1	Rated Voltage	U_R	See Table 1(a)		V	-
2	Operating Temperature Range	T_{amb}	−55	+125	°C	Without derating
3	Storage Temperature Range	T_{stg}	−55	+125	°C	-
4	Maximum Soldering Temperature	T_{sol}	-	+260	°C	Soldering time: t: <10 sec.

FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS



SYMBOL	DIMENSIONS (mm)				
	VARIANTS 01, 03, 06		VARIANTS 02, 04, 05		VARIANT 07
	MIN.	MAX.	MIN.	MAX.	MIN. MAX.
L	4.0	5.0	4.0	5.5	4.0 5.0
l	2.8	3.6	2.8	4.1	2.8 3.6
e	-	2.3	-	2.3	– 1.8
M	~~0.1~~ 0.2	0.75	~~0.1~~ 0.2	0.75	0.2 0.75

FIGURE 3 - FUNCTIONAL DIAGRAM

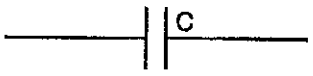


TABLE 1(a) - RANGE OF COMPONENTS

CAPACITANCE RANGE (pF)	TOLERANCE (±) (%)	VALUES SERIES	RATED VOLTAGE (U_R) (V)
6800 to 22000	5.0	E 24	400
6800 to 22000	10	E 12	400
6800 to 22000	20	E 6	400
6800 to 100000	5.0	E 24	200
6800 to 100000	10	E 12	200
6800 to 100000	20	E 6	200
4700 to ~~560000~~ → 1000000	5.0	E 24	100
4700 to ~~560000~~ → 1000000	10	E 12	100
4700 to ~~680000~~ → 1000000	20	E 6	100
100000 to ~~1000000~~ → 1500000	5.0	E 24	50
100000 to ~~1000000~~ → 1500000	10	E 12	50
100000 to ~~1000000~~ → 1500000	20	E 6	50
100000 to ~~1000000~~ → 1500000	5.0	E 24	25
100000 to ~~1000000~~ → 1500000	10	E 12	25
100000 to ~~1000000~~ → 1500000	20	E 6	25

NOTES

~~1. As specified in Para. 4.4.1 and Figure 2, these ranges are available in 6 variants.~~ →

7 variants are specified in par. 4.4.1, Figure 2 and Table 3

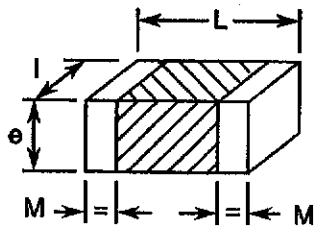
TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	LIMITS		UNIT	REMARKS
			MIN.	MAX.		
1	Rated Voltage	U_R	See Table 1(a)		V	-
2	Operating Temperature Range	T_{amb}	−55	+125	°C	Without derating
3	Storage Temperature Range	T_{stg}	−55	+125	°C	-
4	Maximum Soldering Temperature	T_{sol}	-	+260	°C	Soldering time: t: <10 sec.

FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS



SYMBOL	DIMENSIONS (mm)				
	VARIANTS 01, 03, 06		VARIANTS 02, 04, 05		VARIANT 07
	MIN.	MAX.	MIN.	MAX.	MIN. MAX.
L	5.2	6.2	5.2	6.7	5.2 6.2
l	4.5	5.5	4.05	6.0	4.5 5.5
e	-	2.3	-	2.3	- 1.8
M	0.2	0.75	0.2	0.75	0.2 0.75

FIGURE 3 - FUNCTIONAL DIAGRAM

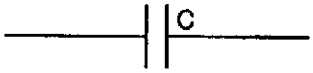


TABLE 1(a) - RANGE OF COMPONENTS

CAPACITANCE RANGE (pF)	TOLERANCE (±) (%)	VALUES SERIES	RATED VOLTAGE (U_R) (V)
100 to 2700	5.0	E 24	400
100 to 2700	10	E 12	400
100 to 3300	20	E 6	400
470 to 10000	5.0	E 24	200
470 to 10000	10	E 12	200
470 to 10000	20	E 6	200
1000 to ~~22000~~ → 100000	5.0	E 24	100
1000 to ~~22000~~ → 100000	10	E 12	100
1000 to ~~22000~~ → 100000	20	E 6	100
1000 to ~~56000~~ → 150000	5.0	E 24	50
1000 to ~~56000~~ → 150000	10	E 12	50
1000 to ~~68000~~ → 150000	20	E 6	50
1000 to 220000	5.0	E 24	25
1000 to 220000	10	E 12	25
1000 to 220000	20	E 6	25

NOTES

~~1. As specified in Para. 4.4.1 and Figure 2, these ranges are available in 6 variants.~~

7 variants are specified in par. 4.4.1, Figure 2 and Table 3

4.5.3 Electrical Characteristics and Ratings

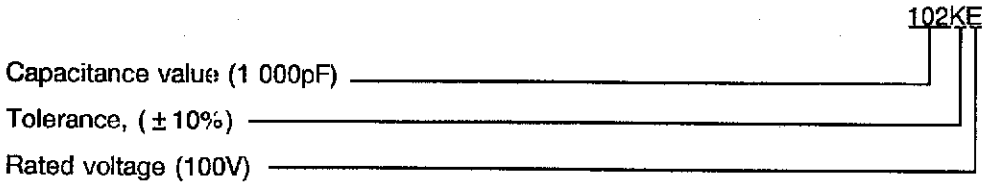
The electrical characteristics and ratings to be marked in the following order of precedence are:-

(a) Capacitance Value.

(b) Tolerance.

(c) Rated Voltage.

The information shall be constituted and marked as follows:-



4.5.3.1 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	CODE
~~XX10¹~~	~~XX1~~
XX10²	XX2
XX10³	XX3
XX10⁴	XX4

4.5.3.2 Tolerances

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

TOLERANCE (%)	CODE LETTER
±5.0	J
±10	K
±20	M

4.5.3.3 Rated Voltage

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

RATED VOLTAGE (U_R) (V)	CODE LETTER
25	A
50	C
100	E
200	G
400	K

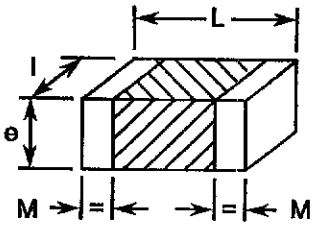
TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	LIMITS		UNIT	REMARKS
			MIN.	MAX.		
1	Rated Voltage	U_R	See Table 1(a)		V	-
2	Operating Temperature Range	T_{amb}	−55	+125	°C	Without derating
3	Storage Temperature Range	T_{stg}	−55	+125	°C	-
4	Maximum Soldering Temperature	T_{sol}	-	+260	°C	Soldering time: t: <10 sec.

FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS



SYMBOL	DIMENSIONS (mm)				
	VARIANTS 01, 03, 06		VARIANTS 02, 04, 05		VARIANT 07
	MIN.	MAX.	MIN.	MAX.	MIN. MAX.
L	2.8	3.6	2.8	4.1	2.8 3.6
l	1.3	1.9	1.3	2.4	1.3 1.9
e	-	2.3	-	2.3	- 1.6
M	0.2	0.75	0.2	0.75	0.2 0.75

FIGURE 3 - FUNCTIONAL DIAGRAM