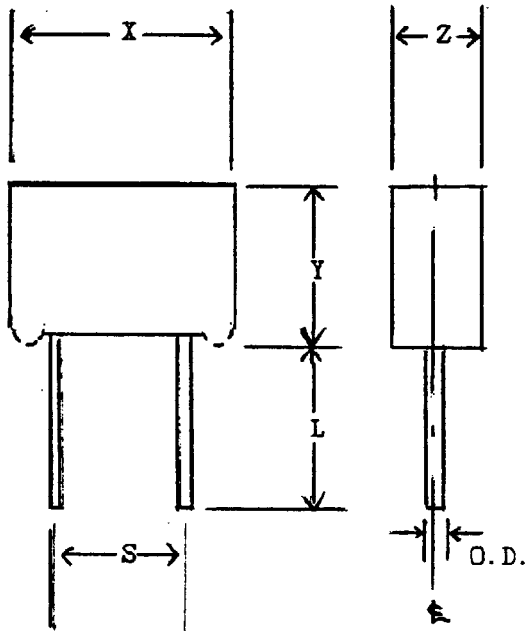


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS	CECC 31 301 007 ISSUE 1 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH CECC 30 000 1975 CECC 31 300 1982	BS CECC 31 301 007 ISSUE 1 OCTOBER, 1992 <i>1/18</i>
DETAIL SPECIFICATION FOR FIXED MICA DIELECTRIC D.C. CAPACITORS	
TYPICAL CONSTRUCTION:	Fixed metalised mica dielectric capacitors. Rectangular non-metallic case. Radial terminations. Intended for printed circuits.
OUTLINE DRAWING  First angle projection Symetrically placed to $\pm 0,5\text{mm}$ $\pm 0,5\text{mm}$ For pattern B see note # on page 2 (See Table 1 for dimensions)	CAPACITANCE RANGE From 1.5pF to 150nF CAPACITANCE TOLERANCE $C_R \leq 100\text{pF}$ From 2pF to $\pm 0.25\text{pF}$ $C_R > 100\text{pF}$ From 5% to $\pm 0.25\%$ RATED VOLTAGE From 63V to 500V CLIMATIC CATEGORY 55/100/04 55/100/21 55/100/56 TEMPERATURE COEFFICIENT ($10^{-6} / ^\circ\text{C}$) From (0 to +70) to (± 200) ASSESSMENT LEVEL E TYPE C2AED
See the relevant Qualified Products List for the availability of components qualified to this detail specification.	

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1.0 DIMENSIONSTABLE 1 DIMENSIONS

PATTERN REFERENCE	DIMENSIONS (mm)					
	X (max)	Y (max)	Z (max)	L (min)	S (± 0.4)	O.D. ($-0.05 +10\%$)
A*	7.6	7.6	2.54	15mm	5.0	0.5
B*#	7.6	7.6	3.8	"	5.0	0.5
C	9.5	8.9	2.5	"	5.0	0.6
D	10.0	10.8	2.5	"	5.0	0.6
E	10.0	10.8	3.5	"	5.0	0.6
F*	9.0	8.0	3.6	"	5.0	0.5
G*	9.0	8.0	5.2	"	5.0	0.5
H	12.0	9.1	3.6	"	7.5	0.6
J	12.0	9.1	5.2	"	7.5	0.6
K*	12.7	6.4	3.5	"	10.2	0.5
L*	12.7	6.4	5.2	"	10.2	0.5
M	12.7	12.6	3.4	"	10.2	0.6
N	12.7	12.6	5.3	"	10.2	0.6
P	12.7	12.6	7.8	"	10.2	0.6
Q	12.7	12.6	10.4	"	10.2	0.6
R	12.7	12.5	13.0	"	10.2	0.6
S	14.0	10.3	3.6	"	10.2	0.6
T	14.0	10.3	5.2	"	10.2	0.6
U	17.8	12.7	5.1	"	12.7	0.6
V	17.8	12.7	10.2	"	12.7	0.6
W	19.0	12.2	6.0	"	10.2	0.8
X	30.0	19.0	8.5	"	15.2	0.8
Y	32.8	26.5	8.8	"	20.3	0.8
Z	44.2	32.6	8.8	"	30.5	0.9

#Pattern reference B leads can be offset 2.54mm from one face.

*Pattern references A,B,F,G,K,L, lead diameter tolerance -0.05mm
 $+0.15\text{mm}$

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TABLE 2 CAPACITANCE RELATED TO PATTERN REFERENCE AND VOLTAGE

PATTERN REF.	MAXIMUM AND MINIMUM CAPACITANCE (pF) PER VOLTAGE (U_R, V_{dc})											
	63		100		125/160		250/300		400		500	
	min	max	min	max	min	max	min	max	min	max	min	max
A	1,5	680	1,5	680	1,5	680	1,5	680	1,5	350	1,5	300
B	1,5	1500	1,5	1000	1,5	850	1,5	750	1,5	600	1,5	500
C	1,5	1000	1,5	1000	1,5	820	1,5	750	1,5	600	1,5	500
D	1,5	1000	1,5	1000	1,5	900	1,5	820	1,5	720	1,5	680
E	500	2500	400	2300	400	2000	300	1750	200	1500	100	1250
F	1,5	350	1,5	300	1,5	250	1,5	200	1,5	150	1,5	100
G	250	1000	200	800	100	700	50	650	50	600	50	500
H	1,5	1500	1,5	1000	1,5	850	1,5	750	1,5	600	1,5	500
J	250	3000	200	2500	200	2200	150	2000	100	1500	50	1000
K	1,5	1500	1,5	1000	1,5	850	1,5	750	1,5	600	1,5	500
L	250	3000	250	2000	250	1750	200	1500	200	1250	100	1000
M	1,5	3000	1,5	3000	1,5	2600	1,5	2400	1,5	2200	1,5	2000
N	2000	14000	1500	12000	1500	11000	1000	10000	750	7500	500	5000
P	10000	22000	7500	15500	7500	14000	5000	12500	2500	10000	1000	8500
Q	10000	33000	10000	22500	10000	21500	7500	20000	5000	15500	2500	13000
R	20000	40000	20000	30000	20000	27500	10000	22500	7500	20000	5000	17500
S	1,5	2500	1,5	2000	1,5	1750	1,5	1500	1,5	1250	1,5	1000
T	1000	7500	1000	5000	1000	4500	750	4000	500	3500	250	3000
U	1000	30000	1000	17500	1000	15000	1000	12500	1000	10000	1000	7500
V	7500	50000	7500	40000	7500	35000	5000	30000	5000	25000	5000	20000
W	1,5	14000	1,5	11000	1,5	10000	1,5	10000	1,5	5000	1,5	5000
X	20000	60000	20000	45000	20000	35000	10000	25000	7500	22500	5000	20000
Y	20000	100000	20000	80000	20000	75000	10000	70000	7500	65000	5000	60000
Z	50000	150000	30000	140000	30000	130000	20000	120000	20000	110000	10000	90000

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2.0 SPECIFIED METHOD OF MOUNTING FOR VIBRATION AND BUMP TESTING

Capacitors of weight ≥ 3 gms. shall be mounted by clamping the body and the terminations (terminations shall be clamped at 6 ± 1 mm from the body).

Capacitors of weight < 3 gms. shall be mounted by their leads on a rigid surface plate to simulate a printed circuit board, with the body of the capacitor pressed firmly against the mounting surface.

Mounting fixtures shall enable the specimens to be subjected to bumps along the three mutually perpendicular axes.

3.0 RATINGS AND CHARACTERISTICS

CAPACITANCE RANGE	From 1.5pF to 150000pF (See table 2)
PREFERRED CAPACITANCE TOLERANCE	$C_R < 100\text{pF}$ $\pm 2\text{pF}$, $\pm 1\text{pF}$, $\pm 0.5\text{pF}$, $\pm 0.25\text{pF}$ $C_R > 100\text{pF}$ $\pm 5\%$, $\pm 2\%$, $\pm 1\%$, $\pm 0.5\%$, $\pm 0.25\%$
TANGENT OF LOSS ANGLE	See table 2A
INSULATION RESISTANCE	$C_R < 10000\text{pF}$ $R_i > 100 \text{ G}\Omega$ $C_R > 10000\text{pF}$ $R_i \times C_R > 1000\text{s}$
RATED VOLTAGE	See table 2
RATED TEMPERATURE	100 °C
CLIMATIC CATEGORY	See table 2C
TEMPERATURE COEFFICIENT OF CAPACITANCE	See table 2B

TABLE 2A TANGENT OF LOSS ANGLE

CAPACITANCE (pF)	MAXIMUM TANGENT OF LOSS ANGLE	MEASUREMENT FREQUENCY
$C_R < 10$	$1/17 \times C$ (C in pF)	1MHz or 100KHz
$10 < C_R < 25$	0.0030	1MHz or 100KHz
$25 < C_R < 100$	0.0020	1MHz or 100KHz
$100 < C_R < 1000$	0.0010	1MHz or 100KHz
$1000 < C_R$	0.0010	1KHz

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TABLE 2B TEMPERATURE COEFFICIENT AND CAPACITANCE DRIFT

CAPACITANCE (pF)	TEMPERATURE COEFFICIENT (10^{-6} /°C)	CAPACITANCE DRIFT
$C_R < 50$	-200 to +200	$\pm (0.5\% + 0.1\text{pF})$
$50 \leq C_R < 100$	-100 to +100	$\pm (0.3\% + 0.1\text{pF})$
$100 \leq C_R < 500$	-20 to +100	$\pm (0.1\% + 0.1\text{pF})$
$500 \leq C_R$	0 to +70	$\pm (0.05\% + 0.1\text{pF})$
For values of $C_R < 20$ pF, the T.C. limit must be multiplied by $(1 + 1/2C)$ where C is in pF to allow for uncertainties of measurement.		

TABLE 2C CLIMATIC CATEGORY

PATTERN REFERENCE	CLIMATIC CATEGORY
A	-55/100/04
B	-55/100/04
C	-55/100/04
D	-55/100/04
E	-55/100/04
F	-55/100/21
G	-55/100/21
H	-55/100/21
J	-55/100/21
K	-55/100/21
L	-55/100/21
M	-55/100/21
N	-55/100/21
P	-55/100/21
Q	-55/100/21
R	-55/100/21
S	-55/100/21
T	-55/100/21
U	-55/100/21
V	-55/100/21
W	-55/100/21
X	-55/100/21
Y	-55/100/56
Z	-55/100/56

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4.0 RELATED DOCUMENTS

- IEC 410 Sampling procedures and tables for inspection by attributes.
- CECC 30000 Harmonised system of quality assessment for electronic components: Generic Specification: Fixed capacitors.
- CECC 31300 Harmonised system of quality assessment for electronic components: Sectional specification : Fixed mica dielectric dc capacitors.
- PD9002 BS 9000 component selection guide.
- CECC 00200 Qualified products list.

5.0 MARKING

The following information shall be marked clearly on the capacitor:

- 1) Rated capacitance
- 2) Tolerance on rated capacitance
- 3) Rated voltage (dc voltage may be indicated by the symbol or ____)
- 4) Temperature coefficient
- 5) Manufacturer's name or trade mark
- 6) Climatic category
- 7) Year and month or week of manufacture
- 8) Manufacturer's type designation
- 9) Reference to detail specification

Note: Items 4,5,6,7,8, and 9 may be omitted if space does not permit.
All the items shall be clearly marked on the package containing the capacitors.