

DATA SHEET

**Safety, Class Y1, 250 V (AC);
X1, 440 V (AC) series AY
Ceramic disc capacitors**

Product specification
Supersedes data of 10th August 1999
File under BCcomponents, BC06

2000 Sep 08

Ceramic disc capacitors

Safety, Class Y1, 250 V (AC); X1, 440 V (AC) series AY

FEATURES

- 4 kV (AC) test voltage
- High temperature operation, up to 125 °C
- Complying with "EN 132 400" and "IEC 60384-14, 2nd edition, including amendment 1.1995".

APPLICATIONS

- Across-the-line
- Line by-pass
- Antenna coupling
- Interference suppression.

DESCRIPTION

The capacitors consist of a ceramic disc both sides of which are silver-plated. Connection leads are made of tinned copper having a diameter of 0.6 mm.

The capacitors are supplied with straight leads. The standard tolerance on capacitance is $\pm 20\%$. Encapsulation is made of flammable resistant epoxy resin in accordance with "UL94V-0".

QUICK REFERENCE DATA

DESCRIPTION	VALUE
Capacitance range at 1 kHz; 1 V (RMS)	100 to 4700 pF
Rated AC voltage:	
Y1	250 V; 50/60 Hz
X1	440 V; 50/60 Hz
Dielectric strength (AC)	4000 V for 60 s
Test voltage of coating (AC)	4000 V for 60 s
Insulation resistance at 500 V (DC)	$\geq 10000 \text{ M}\Omega$
Tolerance on capacitance	$\pm 20\%$
Dissipation factor at 1 kHz; 1 V (RMS)	2.5% max.
Temperature coefficient	Y5U or better
Operating temperature range	-30 to +125 °C
Approvals	FIMKO, VDE, SEMKO UL 1414
Climatic category	25/125/21

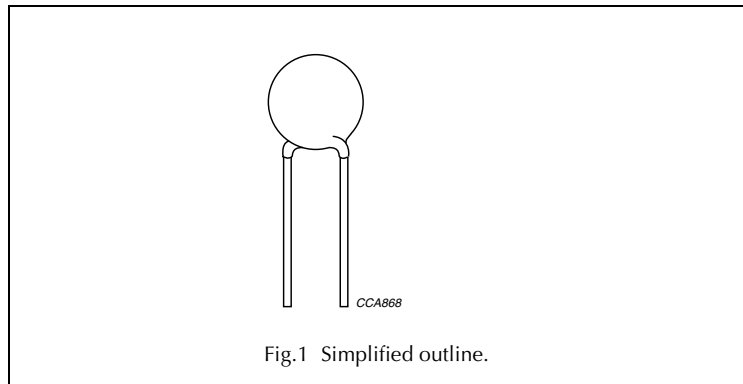
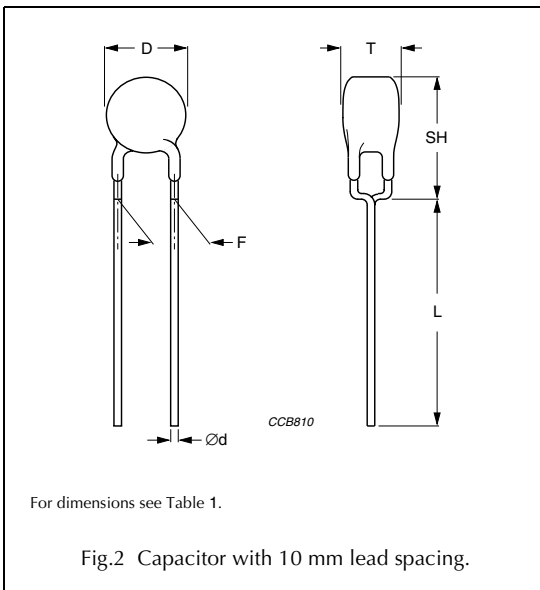


Fig.1 Simplified outline.

Ceramic disc capacitors

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MECHANICAL DATA



MARKING

Marking indicates the manufacturers logo (M), the capacitance value (i.e. 1n0), the series (AY), the rated voltage and subclass (250 ~ Y1, 440 ~ X1) and approval marks.

Marking example

M 1n0 AY

250 ~ Y1

440 ~ X1

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ORDERING INFORMATION

Table 1 Y1, 250 V; X1, 440 V, (AC); capacitance, mechanical dimensions and ordering information; note 1

C (pF)	TOL. (%)	D _{max} (mm)	LEAD ⁽²⁾ SPACING F (mm)	SH ⁽³⁾ (mm)	CLEAR TEXT CODE	PACKAGING CODE 8 th AND 9 th DIGIT			CATALOGUE NUMBER ⁽⁴⁾
					12 th AND 13 th DIGIT: YG = REEL; YJ = AMMO; YF = BULK	REEL	AMMO	BULK	
100	±20	9	10 ±1	13	C101M35Y5UQ..SP	53	54	51	2251 837 ..017
150	±20	9	10 ±1	13	C151M35Y5UQ..SP	53	54	51	2251 837 ..117
220	±20	9	10 ±1	13	C221M35Y5UQ..SP	53	54	51	2251 837 ..217
330	±20	9	10 ±1	13	C331M35Y5UQ..SP	53	54	51	2251 837 ..317
470	±20	9	10 ±1	13	C471M35Y5UQ..SP	53	54	51	2251 837 ..417
560	±20	10	10 ±1	14	C561M39Y5UQ..SP	53	54	51	2251 837 ..517
680	±20	10	10 ±1	14	C681M39Y5UQ..SP	53	54	51	2251 837 ..617
1000	±20	10	10 ±1	14	C102M39Y5UQ..SP	53	54	51	2251 837 ..027
1500	±20	11	10 ±1	15	C152M43Y5UQ..SP	53	54	51	2251 837 ..127
1800	±20	12	10 ±1	16	C182M47Y5UQ..SP	53	54	51	2251 837 ..177
2200	±20	12	10 ±1	16	C222M47Y5UQ..SP	53	54	51	2251 837 ..227
2700	±20	14	10 ±1	18	C272M55Y5UQ..SP	53	54	51	2251 837 ..277
3300	±20	14	10 ±1	18	C332M55Y5UQ..SP	53	54	51	2251 837 ..327
3900	±20	15	10 ±1	20	C392M55Y5UQ..SP	53	54	51	2251 837 ..377
4700	±20	16	10 ±1	20	C472M63Y5UQ..SP	53	54	51	2251 837 ..427

Notes

1. Maximum thickness 6 mm.
2. Lead spacing of 12.5 mm is available on request.
3. SH = seated height.
4. 8th and 9th digit of the catalogue number to be completed with the packaging code.

Ceramic disc capacitors**Safety, Class Y1, 250 V (AC);
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The capacitors meet the essential requirements of "IEC 60384-14, 2nd edition". Unless stated otherwise all electrical values apply at an ambient temperature of 20 ± 3 °C, at normal atmospheric conditions.

DESCRIPTION	VALUE
Capacitance range at 1 kHz, 1 V (RMS)	100 to 4700 pF
Tolerance on capacitance	$\pm 20\%$
Rated AC voltage:	
Y1	250 V; 50/60 Hz
X1	440 V; 50/60 Hz
AC test voltage	4000 V
Insulation resistance at 500 V (DC)	$\geq 10000 \text{ M}\Omega$
Temperature coefficients on capacitance	Y5U or better
Dissipation factor at 1 kHz, 1 V (RMS)	2.5% max.
Operating temperature range	-25 to +125 °C
Climatic category	25/125/21

Ceramic disc capacitors

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PACKAGING

The capacitors are supplied in bulk packaging, in tape on reel or in ammpack; see Table 2.

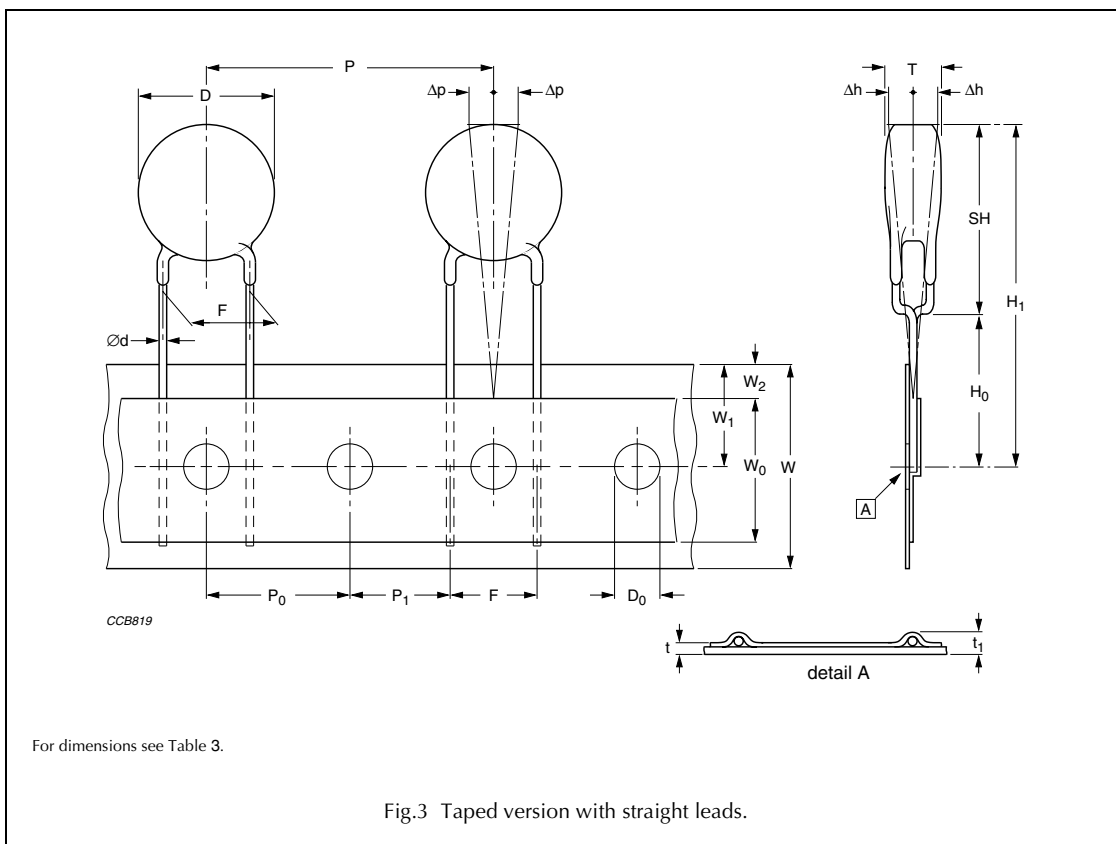
Table 2 Packaging quantities

BULK ⁽¹⁾	REEL	AMMOPACK
500	750	750

Note

- 200 units for products with disc diameter ≥ 13 mm

Capacitors on tape, lead pitch 10 mm



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SYMBOL	PARAMETER	DIMENSIONS (mm)	
		NOMINAL	TOLERANCE
d	lead diameter	0.6	±0.05
P	pitch between capacitors	25.4	±1.0
P ₀	feed-hole pitch	12.7	±0.3; note 1
P ₁	feed-hole centre to lead centre	7.62	±0.7; note 2
F	lead spacing	10.0	±0.8
Δh	component alignment	0	±3
Δp	deviation along tape, left or right	0	±1.3
W	tape width	18.0	±0.5
W ₀	hold-down tape width	12	–
W ₁	hole position	9.0	±0.5
W ₂	maximum hold-down tape position	3	–
H ₀	seated height to tape centre	16.0	±0.5
H ₁	maximum component height	37	–
D ₀	feed-hole diameter	4.0	±0.2
t	total tape thickness	0.65	±0.2
t ₁	maximum thickness of tape and wires	1.5	–

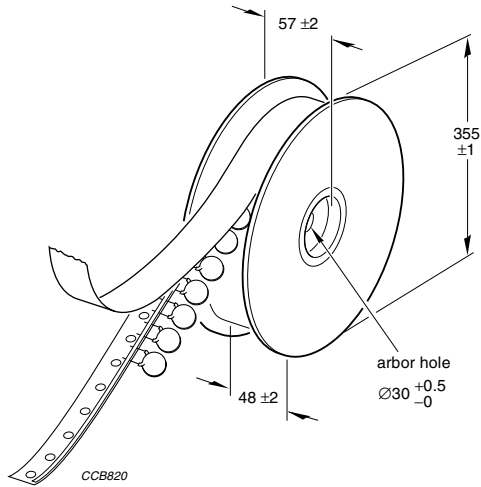
Notes

1. Cumulative pitch error: $\pm \leq 1$ mm/20 pitches.
2. Obliquity maximum 3°.

Ceramic disc capacitors

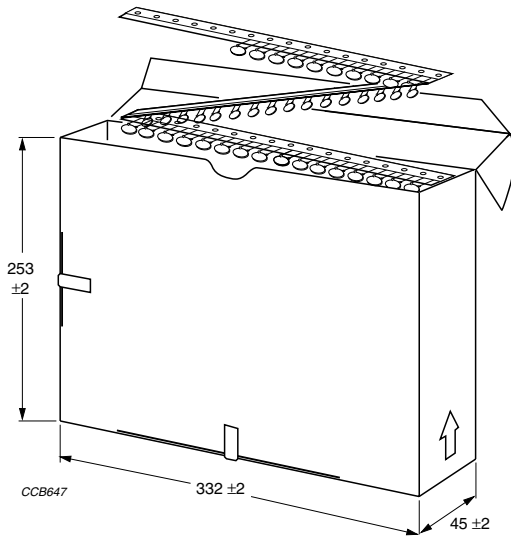
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REEL AND TAPE DATA



Dimensions in mm.

Fig.4 Reel with capacitors on tape.



Dimensions in mm.

Fig.5 Ammpack with capacitors on tape.