

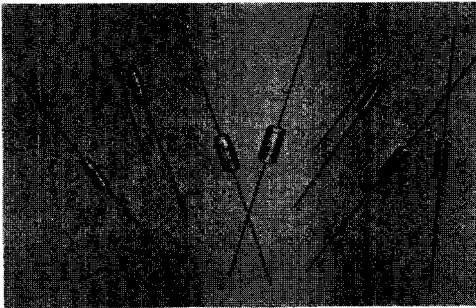
**POLYSTYRENE FILM/FOIL
CAPACITORS**
Miniature, axial leads-insulated

**424 425
426 427
SERIES**

For use in circuits where precision, reliability, stability and low losses are of prime importance, e.g., in tuned circuits, filter networks, discriminators, etc.

QUICK REFERENCE DATA

Capacitance range (E24 series)	100 to 39 000	pF
Capacitance tolerance (425, 426 and 427 series)	± 1 or ± 5	%
(424 series)	± 1	%
Rated voltage range (d.c.)	63, 160, 250 and 630	V
Climatic category (IEC 68)		
424	40/070/21	
425, 426 and 427	40/085/21	



DIELECTRIC

Polystyrene film.

CASING

Polycarbonate sleeving.

TERMINATIONS

Welded axial leads, 0.6 mm diameter

TYPE NUMBER DESIGNATION

63 V	424.
160 V	425.
250 V	426.
630 V	427.

SPECIAL FEATURES

The capacitance cell is wound with polystyrene film and tin/lead foil using 'extended foil' technique, resulting in low inherent inductance and low series resistance. This, combined with a low temperature coefficient of capacitance, makes these capacitors suitable for use in professional and general purpose applications.



Mullard

November 1980

DIMENSIONS (millimetres) AND TYPE NUMBERS

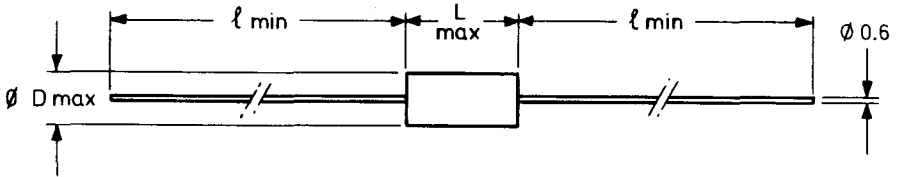


Table 1 630 V version [427 4. . . ($\pm 1\%$ tolerance 'F') or 427 2. . . ($\pm 5\%$ tolerance 'J')]*

Capacitance (pF)	L	D	ℓ	Capacitance code	Type number suffix
100	10.9	3.8	30	100p	1001
110	10.9	3.8	30	110p	1101
120	10.9	3.8	30	120p	1201
130	10.9	3.8	30	130p	1301
150	10.9	3.8	30	150p	1501
160	10.9	3.8	30	160p	1601
180	10.9	3.8	30	180p	1801
200	10.9	3.8	30	200p	2001
220	10.9	3.8	30	220p	2201
240	10.9	3.8	30	240p	2401
270	10.9	3.8	30	270p	2701
300	10.9	3.8	30	300p	3001
330	10.9	4.0	30	330p	3301
360	10.9	4.0	30	360p	3601
390	10.9	4.0	30	390p	3901
430	10.9	4.0	30	430p	4301
470	10.9	4.5	30	470p	4701
510	10.9	4.5	30	510p	5101
560	10.9	4.0	30	560p	5601
620	10.9	4.5	30	620p	6201
680	10.9	4.5	30	680p	6801
750	10.9	5.0	30	750p	7501

*See MARKING



Table 2 250 V version [426 4. . . (± 1% tolerance 'F') or 426 2. . . (± 5% tolerance 'J')]

Capacitance (pF)	L	D	ℓ	Capacitance code	Type number suffix
820	10.9	4.0	30	820p	8201
910	10.9	4.0	30	910p	9101
1000	10.9	4.0	30	1n0	1002

Table 3 160 V version [425 4. . . (± 1% tolerance 'F') or 425 2. . . (± 5% tolerance 'J')]*

Capacitance (pF)	L	D	ℓ	Capacitance code	Type number suffix
1100	10.9	3.8	30	1n1	1102
1200	10.9	4.0	30	1n2	1202
1300	10.9	4.0	30	1n3	1302
1500	10.9	4.0	30	1n5	1502
1600	10.9	4.0	30	1n6	1602
1800	10.9	4.5	30	1n8	1802
2000	10.9	4.5	30	2n0	2002
2200	10.9	4.5	30	2n2	2202
2400	10.9	4.5	30	2n4	2402
2700	10.9	4.5	30	2n7	2702
3000	10.9	5.0	30	3n0	3002
3300	10.9	5.0	30	3n3	3302
3600	10.9	5.0	30	3n6	3602
3900	10.9	5.0	30	3n9	3902
4300	15	5.0	28	4n3	4302
4700	15	5.0	28	4n7	4702
5100	15	5.0	28	5n1	5102
5600	15	5.0	28	5n6	5602
6200	15	5.0	28	6n2	6202
6800	15	5.5	28	6n8	6802
7500	15	5.5	28	7n5	7502
8200	15	6.0	28	8n2	8202

*See MARKING



Table 4 63 V version [424 4. . . . (± 1% tolerance 'F')]

Capacitance (pF)	L	D	ℓ	Capacitance code	Type number suffix
9100	15	5.0	28	9n1	9102
10 000	15	5.0	28	10n	1003
11 000	15	5.5	28	11n	1103
12 000	15	5.5	28	12n	1203
13 000	15	5.5	28	13n	1303
15 000	15	5.5	28	15n	1503
16 000	15	6.0	28	16n	1603
18 000	15	6.0	28	18n	1803
20 000	15	6.0	28	20n	2003
22 000	15	6.5	28	22n	2203
24 000	15	6.5	28	24n	2403
27 000	15	7.0	28	27n	2703
30 000	15	7.0	28	30n	3003
33 000	15	7.5	28	33n	3303
36 000	15	7.5	28	36n	3603
39 000	15	8.0	28	39n	3903

*See MARKING

ELECTRICAL DATA

Unless otherwise specified, all characteristics apply at an ambient temperature of 20 ± 5 °C, atmospheric pressure of 10^5 Pa (1000 mbars) and a relative humidity of 75% maximum.

Characteristic	Conditions	427. (630 V)	426. (250 V)	425. (160 V)	424. (63 V)
Capacitance range (E24 Series)	—	100 to 750 pF	820 to 1000 pF	820 to 8200 pF	9100 to 39 000 pF
Capacitance tolerance	—	± 1 or ± 5%	± 1% or ± 5%	± 1 or ± 5%	± 1%
Rated voltage (d.c.)	category temperature range	630 V	250 V	160 V	63 V



ELECTRICAL DATA (continued)

Characteristic	Conditions	427. (630 V)	426. (250 V)	425. (160 V)	424. (63 V)
Rated voltage (r.m.s.)	at f = 50 Hz, over temperature range	250 V	125 V	63 V	25 V
Tangent of loss angle (tan δ)	f = 10 kHz C > 20 000 pF				≤ 10 × 10 ⁻⁴
	f = 100 kHz C ≤ 20 000 pF > 10 000 pF			≤ 15 × 10 ⁻⁴	≤ 15 × 10 ⁻⁴
	f = 100 kHz C ≤ 10 000 pF > 1000 pF			10 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴
	f = 1 MHz C ≤ 1000 pF	≤ 10 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴		
Category temperature range	—	-40 to + 85 °C.	-40 to + 85 °C	-40 to + 85 °C	-40 to + 70 °C
Temperature coefficient	category temperature range	(-125 ± 60) × 10 ⁻⁶ °C	(-125 ± 60) × 10 ⁻⁶ °C	(-125 ± 60 × 10 ⁻⁶ °C	(-125 ± 60) × 10 ⁻⁶ °C
Insulation resistance	after 1 min. at indicated voltage	min. 10 ⁵ MΩ at 500 V	min. 10 ⁵ MΩ at 100 V	min. 10 ⁵ MΩ at 100 V	min. 10 ⁵ MΩ at 10 V
Test voltage terminals to case (d.c.)	applied for 1 minute	1250 V	500 V	400 V	400 V
Voltage proof (d.c.)	applied for 1 minute	1250 V	500 V	320 V	125 V

SOLDERING CONDITIONS

For capacitors in printed-wiring board applications, where the distance between the solder point and the capacitor body is 1.5 mm minimum, the temperature and soldering times are as follows:-

Solder temperature	Maximum solder time
240 °C	3 seconds
260 °C	2 seconds

If longer soldering times are necessary, a greater distance between the solder point and the capacitor body must be used.



**424 425
426 427
SERIES**

MARKING

The capacitors are marked with:-

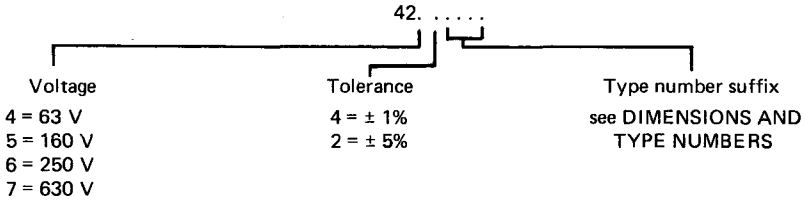
Capacitance code

Tolerance code (F = $\pm 1\%$, J = $\pm 5\%$) and rated voltage

Dielectric code (KS = polystyrene)

Date code, month, year.

COMPOSITION OF TYPE NUMBER



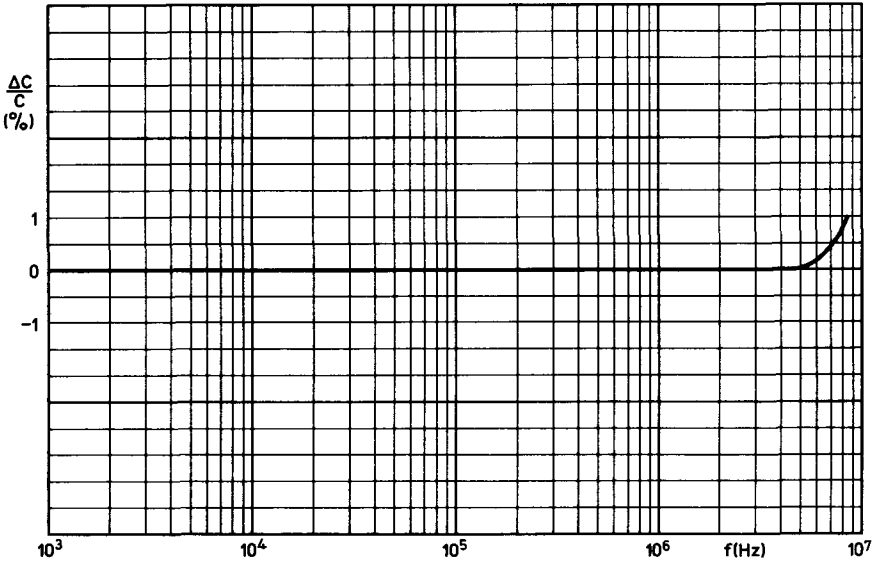
ORDERING PROCEDURE

These capacitors should be ordered by quoting their full type number, as indicated under COMPOSITION OF TYPE NUMBER above.

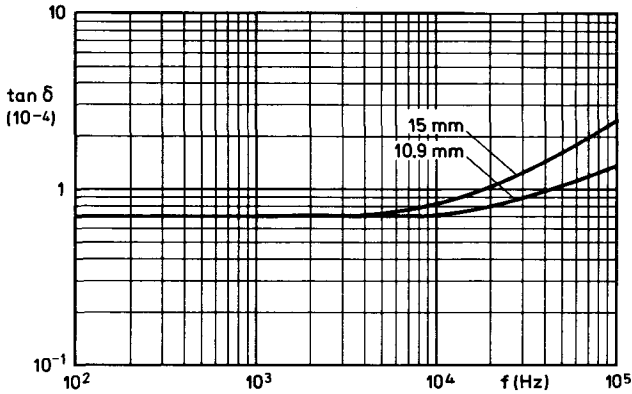
Example:- A 100 pF $\pm 1\%$ 630 V rated capacitor should be ordered by quoting the type number 427 41001.

The 424, 425, 426 and 427 series can be supplied in bandoliers to facilitate automatic handling by either crop and form processing or by fully automatic insertion. Full details of the bandoliering specification, type numbers and drum quantities can be obtained from Mullard Ltd.



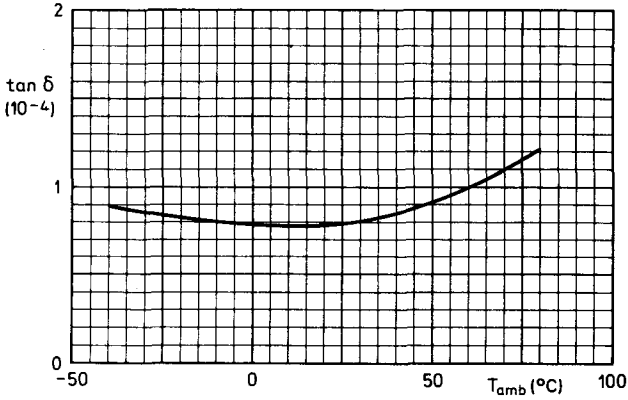


Typical change in capacitance as a function of frequency

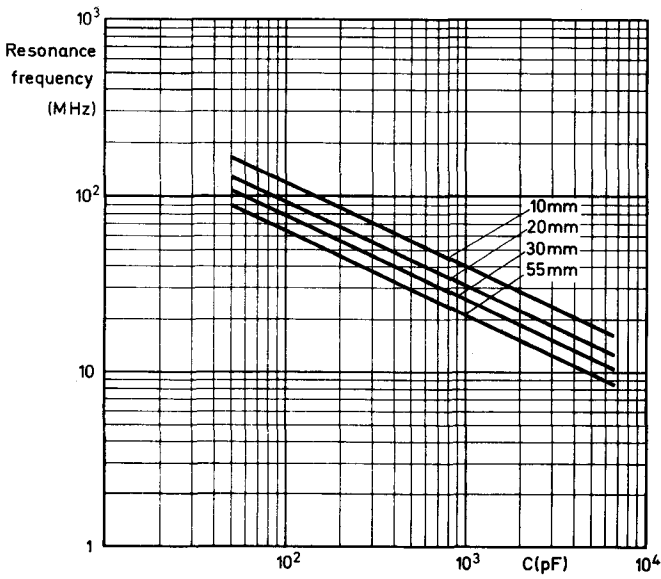


Typical loss factor as a function of frequency





Typical loss factor as a function of temperature



Self resonance frequency as a function of capacitance, for various total lead lengths

