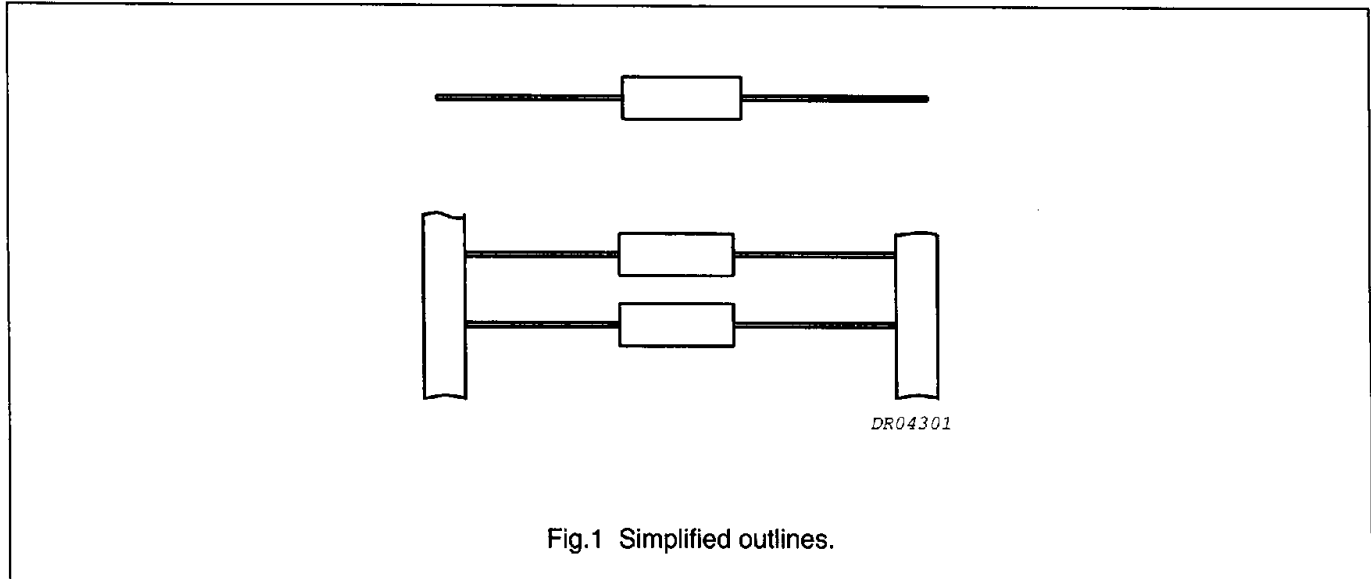


Polystyrene film foil capacitors

KS 424 to 431

KS AXIAL CAPACITORS



FEATURES

- Supplied loose in box and taped on reel.

APPLICATIONS

In circuits where close tolerance, reliability and low losses are of prime importance, for example: tuned circuits, filter and timing networks.

QUICK REFERENCE DATA

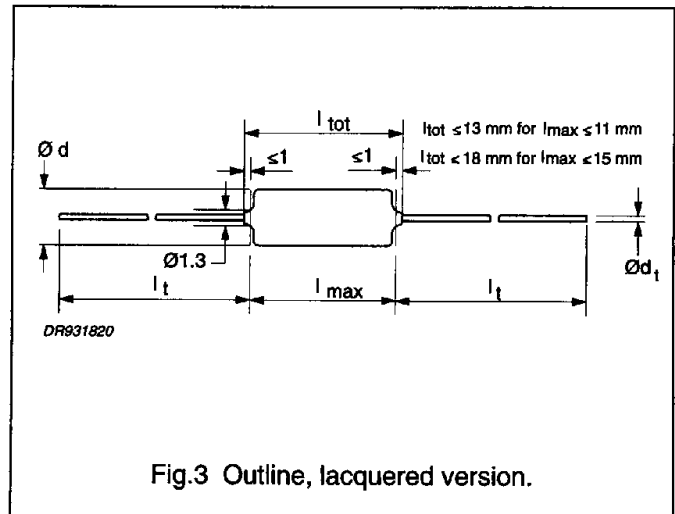
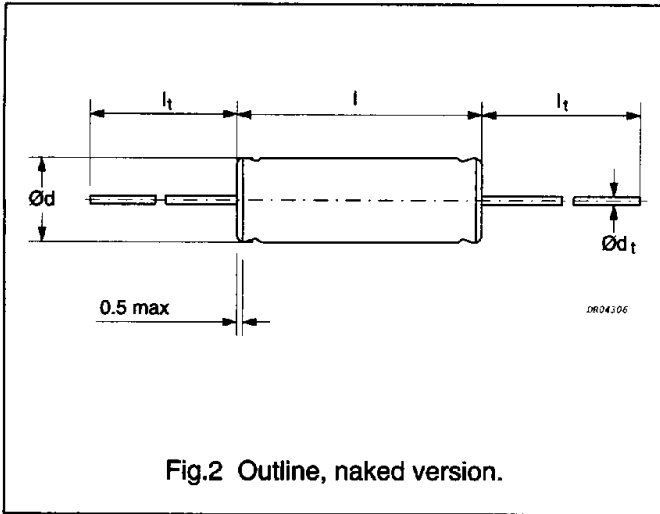
DESCRIPTION	VALUE
Capacitance range	47 to 39000 pF
Capacitance tolerance	±5%; ±2%; ±1%
Rated voltage (DC)	63 V; 160 V; 250 V; 630 V
Climatic category	40/085/21
Rated temperature	85 °C
Reference specification	IEC 384-7
Stability class	Class 3

D 12F ■ 9004121 0006230 593 ■

Polystyrene film foil capacitors

KS 424/428

KS 424/428 GENERAL DATA



Specific reference data for the 63 V DC capacitors

DESCRIPTION	VALUE	
	at 1 kHz	at 100 kHz
Tangent of loss angle:		
1000 pF < C ≤ 10000 pF	≤ 5 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴
10000 pF < C ≤ 20000 pF	≤ 5 × 10 ⁻⁴	≤ 15 × 10 ⁻⁴
C > 20000 pF	≤ 5 × 10 ⁻⁴	≤ 25 × 10 ⁻⁴
R between leads	> 100000 MΩ	

Available 63 V DC versions

PACKAGING	VERSION	C-tol	FIRST 8 DIGITS OF CATALOGUE NUMBER	ORDERING
Taped on reel; note 1	naked	±1%	2222 428 8...	on request
		±2%	2222 428 7...	on request
		±5%	2222 428 6...	on request
Loose in box		±1%	2222 424 4...	on request
		±2%	2222 424 3...	on request
		±5%	2222 424 2...	on request
Taped on reel; note 1	lacquered	±1%	2222 428 4...	on request
		±2%	2222 428 3...	on request
		±5%	2222 428 2...	on request
Loose in box		±1%	2222 424 8...	on request
		±2%	2222 424 7...	on request
		±5%	2222 424 6...	on request

Note

- For detailed specifications refer to this handbook, Chapter "Packaging".

D 12F ■ 9004121 0006231 42T ■

Polystyrene film foil capacitors

KS 424 to 431

 $U_{Rdc} = 63 \text{ V}$; $U_{Rac} = 25 \text{ V}$

loose and taped

C ⁽¹⁾ (E-24) (pF)	DIMENSIONS ⁽²⁾ $d_{max} \times l_{max}$ (mm)	MASS (g)	CATALOGUE NUMBER AND PACKAGING				
			2222 428		2222 424		
			naked version taped on reel			loose in box	
			last 5 digits of catalogue number		SPQ ⁽³⁾	SPQ ⁽³⁾	
C-tol = $\pm 2\%$	C-tol = $\pm 1\%$						
$l_t = 30.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$							
2000	3.8 × 11.0	0.3	72002	82002	3000 (2500)	400 (300)	
2200		0.3	72202	82202			
2400		0.4	72402	82402			
2700	4.0 × 11.0	0.4	72702	82702	2500	400 (300)	
3000		0.4	73002	83002			
3300		0.4	73302	83302			
3600		0.4	73602	83602			
3900		0.4	73902	83902			
4300	4.5 × 11.0	0.5	74302	84302	2500	300 (250)	
4700		0.5	74702	84702			
5100		0.5	75102	85102			
5600		0.5	75602	85602			
6200	5.0 × 11.0	0.6	76202	86202	1500	250 (200)	
6800		0.6	76802	86802			
$l_t = 28.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$							
7500	5.0 × 15.0	0.6	77502	87502	1500	300 (250)	
8200		0.6	78202	88202			
9100		0.7	79102	89102			
10000		0.7	71003	81003			
11000	5.5 × 15.0	0.8	71103	81103	1500	250 (200)	
12000		0.8	71203	81203			
13000		0.9	71303	81303			
15000		0.9	71503	81503			
16000		6.0 × 15.0	1.1	71603			81603
18000	1.1		71803	81803			
20000	1.3		72003	82003			
22000	6.5 × 15.0	1.3	72203	82203	1000	200 (150)	
24000		1.4	72403	82403			
27000	7.0 × 15.0	1.5	72703	82703	1000	150 (100)	
30000		1.7	73003	83003			
33000	7.5 × 15.0	1.9	73303	83303	1000	150 (100)	
36000		1.9	73603	83603			
39000	8.0 × 15.0	2.0	73903	83903	1000	150 (100)	

Notes

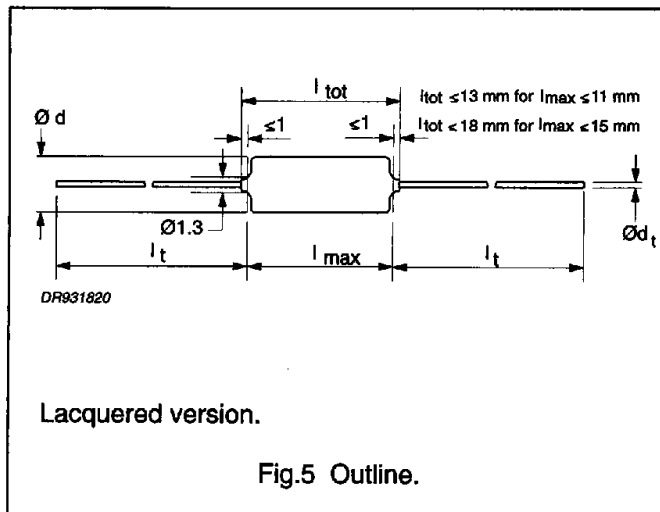
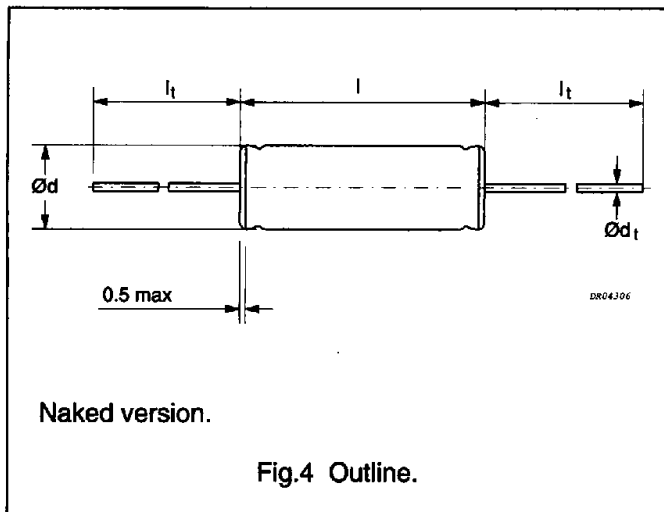
- In addition to the values of the E24 series as quoted, intermediate values are available of the E48 series (with a tolerance of $\pm 2\%$ or $\pm 1\%$) and of the E96 series (with a tolerance of $\pm 1\%$). The specifications of these intermediate values are equal to the specifications of the next higher value of the E24 series.
- Diameter $d_{max} + 0.7 \text{ mm}$ for lacquered versions.
- SPQ in brackets for lacquered version.

D 12F ■ 9004121 0006232 366 ■

Polystyrene film foil capacitors

KS 425/429

KS 425/429 GENERAL DATA



Specific reference data for the 160 V DC capacitors

DESCRIPTION	VALUE	
	at 1 kHz	at 100 kHz
Tangent of loss angle: 1000 pF < C ≤ 10000 pF	≤ 5 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴
10000 pF < C ≤ 20000 pF	≤ 5 × 10 ⁻⁴	≤ 15 × 10 ⁻⁴
R between leads	> 100000 MΩ	

Available 160 V DC versions

PACKAGING	VERSION	C-tol	FIRST 8 DIGITS OF CATALOGUE NUMBER	ORDERING
Taped on reel; note 1	naked	±1%	2222 429 8....	on request
		±2%	2222 429 7....	on request
		±5%	2222 429 6....	on request
Loose in box		±1%	2222 425 4....	on request
		±2%	2222 425 3....	on request
		±5%	2222 425 2....	on request
Taped on reel; note 1	lacquered	±1%	2222 429 4....	on request
		±2%	2222 429 3....	on request
		±5%	2222 429 2....	on request
Loose in box		±1%	2222 425 8....	on request
		±2%	2222 425 7....	on request
		±5%	2222 425 6....	on request

Note

1. For detailed specifications refer to this handbook, Chapter "Packaging".

D 12F ■ 9004121 0006233 2T2 ■

Polystyrene film foil capacitors

KS 424 to 431

 $U_{Rdc} = 160 \text{ V}$; $U_{Rac} = 63 \text{ V}$

loose and taped

C ⁽¹⁾ (E-24) (pF)	DIMENSIONS ⁽²⁾ $d_{max} \times l_{max}$ (mm)	MASS (g)	CATALOGUE NUMBER AND PACKAGING			
			2222 429		2222 425	
			naked version taped on reel		loose in box	
			last 5 digits of catalogue number		SPQ ⁽³⁾	SPQ ⁽³⁾
C-tol = $\pm 2\%$	C-tol = $\pm 1\%$					
$l_t = 30.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$						
1100	3.8 × 11.0	0.3	71102	81102	3000 (2500)	400 (300)
1200		0.3	71202	81202		
1300		0.3	71302	81302		
1500	4.0 × 11.0	0.4	71502	81502	2500	400 (300)
1600		0.4	71602	81602		
1800		0.4	71802	81802		
2000	4.5 × 11.0	0.4	72002	82002	2500	300 (250)
2200		0.4	72202	82202		
2400		0.5	72402	82402		
2700		0.5	72702	82702		
3000	5.0 × 11.0	0.5	73002	83002	1500	250 (200)
3300		0.5	73302	83302		
3600		0.6	73602	83602		
3900		0.6	73902	83902		
$l_t = 28.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$						
4300	5.0 × 15.0	0.6	74302	84302	1500	300 (250)
4700		0.6	74702	84702		
5100		0.6	75102	85102		
5600		0.7	75602	85602		
6200		0.7	76202	86202		
6800	5.5 × 15.0	0.8	76802	86802	1500	250 (200)
7500		0.8	77502	87502		
8200	6.0 × 15.0	0.9	78202	88202	1500	250 (200)
9100		0.9	79102	89102		
10000		1.1	71003	81003		
11000	6.5 × 15.0	1.1	71103	81103	1000	200 (150)
12000		1.2	71203	81203		
13000		1.3	71303	81303		
15000	7.0 × 15.0	1.4	71503	81503	1000	150 (100)
16000		1.5	71603	81603		

Notes

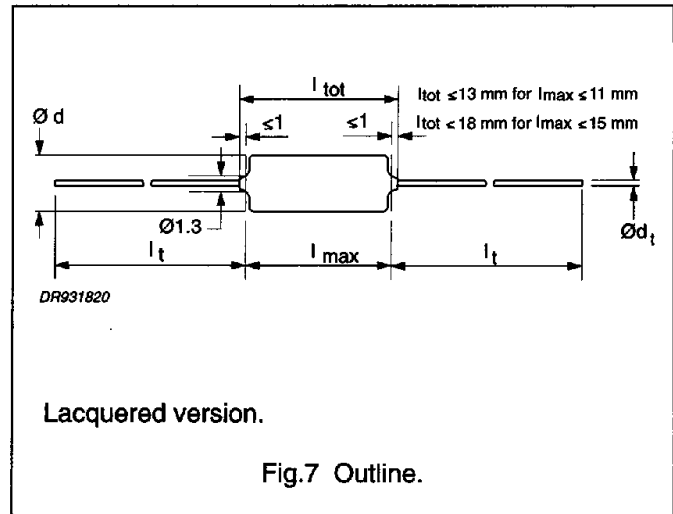
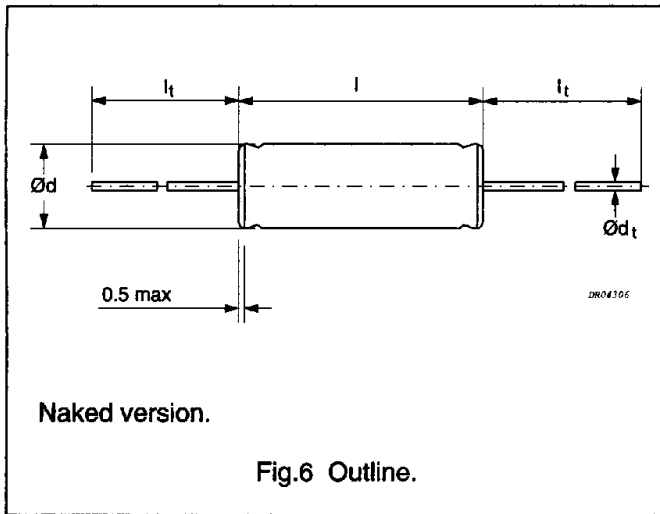
- In addition to the values of the E24 series as quoted, intermediate values are available of the E48 series (with a tolerance of $\pm 2\%$ or $\pm 1\%$) and of the E96 series (with a tolerance of $\pm 1\%$). The specifications of these intermediate values are equal to the specifications of the next higher value of the E24 series.
- Diameter $d_{max} + 0.7 \text{ mm}$ for lacquered versions.
- SPQ in brackets for lacquered version.

D 12F ■ 9004121 0006234 139 ■

Polystyrene film foil capacitors

KS 426/430

KS 426/430 GENERAL DATA



Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
	at 1 kHz	at 100 kHz	at 1 MHz
Tangent of loss angle:			
C ≤ 1000 pF	≤ 5 × 10 ⁻⁴	-	≤ 10 × 10 ⁻⁴
1000 pF < C ≤ 10000 pF	≤ 5 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴	-
10000 pF < C ≤ 20000 pF	≤ 5 × 10 ⁻⁴	≤ 15 × 10 ⁻⁴	-
R between leads	> 100000 MΩ		

Available 250 V DC versions

PACKAGING	VERSION	C-tol	FIRST 8 DIGITS OF CATALOGUE NUMBER	ORDERING
Taped on reel; note 1	naked	±1%	2222 430 8....	on request
		±2%	2222 430 7....	on request
		±5%	2222 430 6....	on request
Loose in box		±1%	2222 426 4....	on request
		±2%	2222 426 3....	on request
		±5%	2222 426 2....	on request
Taped on reel; note 1	lacquered	±1%	2222 430 4....	on request
		±2%	2222 430 3....	on request
		±5%	2222 430 2....	on request
Loose in box		±1%	2222 426 8....	on request
		±2%	2222 426 7....	on request
		±5%	2222 426 6....	on request

Note

- For detailed specifications refer to this handbook, Chapter "Packaging".

Polystyrene film foil capacitors

KS 424 to 431

 $U_{Rdc} = 250 \text{ V}$; $U_{Rac} = 125 \text{ V}$

loose and taped

C ⁽¹⁾ (E-24) (pF)	DIMENSIONS ⁽²⁾ $d_{max} \times l_{max}$ (mm)	MASS (g)	CATALOGUE NUMBER AND PACKAGING			
			2222 430			2222 426
			naked version taped on reel			loose in box
			last 5 digits of catalogue number		SPQ ⁽³⁾	SPQ ⁽³⁾
			C-tol = $\pm 2\%$	C-tol = $\pm 1\%$		
$l_t = 30.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$						
560	3.8 × 11.0	0.3	75601	85601	3000 (2500)	400 (300)
620		0.3	76201	86201		
680		0.3	76801	86801		
750	4.0 × 11.0	0.3	77501	87501	2500	400 (300)
820		0.4	78201	88201		
910		0.4	79101	89101		
1000		0.4	71002	81002		
1100	4.5 × 11.0	0.4	71102	81102	2500	300 (250)
1200		0.5	71202	81202		
1300		0.5	71302	81302		
1500		0.5	71502	81502		
1600	5.0 × 11.0	0.5	71602	81602	1500	250 (200)
1800		0.5	71802	81802		
2000		0.6	72002	82002		
2200		0.6	72202	82202		
$l_t = 28.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$						
2400	5.0 × 15.0	0.6	72402	82402	1500	300 (250)
2700		0.6	72702	82702		
3000		0.6	73002	83002		
3300		0.6	73302	83302		
3600		0.7	73602	83602		
3900		0.7	73902	83902		
4300		0.7	74302	84302		
4700	5.5 × 15.0	0.8	74702	84702	1500	250 (200)
5100		0.8	75102	85102		
5600	6.0 × 15.0	0.9	75602	85602	1500	250 (200)
6200		0.9	76202	86202		
6800	6.5 × 15.0	1.1	76802	86802	1000	200 (150)
7500		1.1	77502	87502		
8200	7.0 × 15.0	1.3	78202	88202	1000	150 (100)
9100		1.3	79102	89102		
10000	7.5 × 15.0	1.5	71003	81003	1000	150 (100)
11000		1.6	71103	81103		

Notes

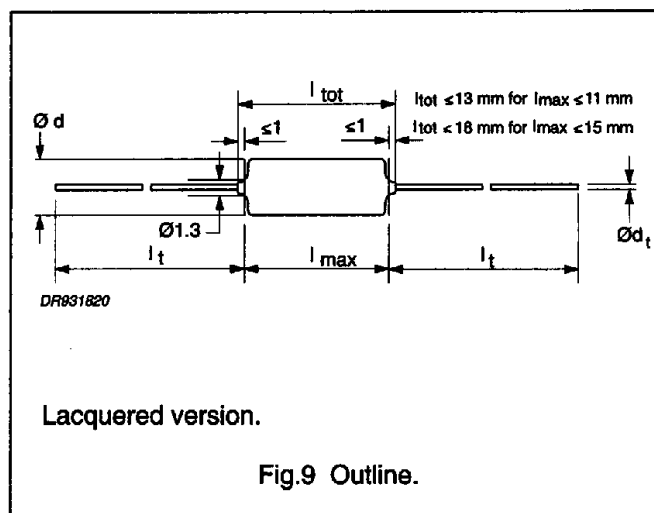
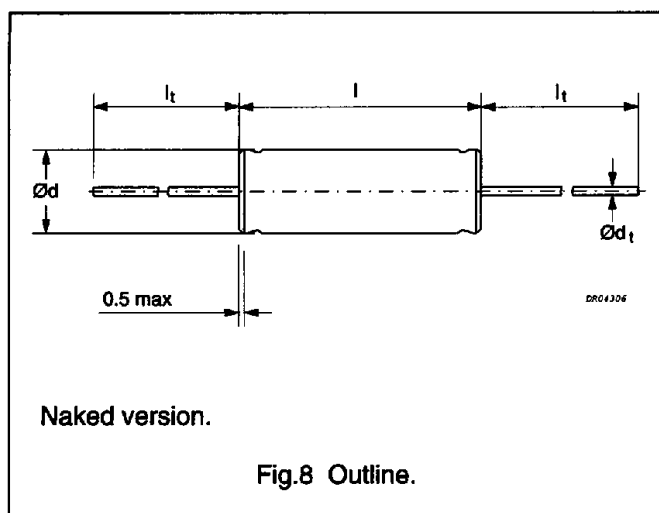
- In addition to the values of the E24 series as quoted, intermediate values are available of the E48 series (with a tolerance of $\pm 2\%$ or $\pm 1\%$) and of the E96 series (with a tolerance of $\pm 1\%$). The specifications of these intermediate values are equal to the specifications of the next higher value of the E24 series.
- Diameter $d_{max} + 0.7 \text{ mm}$ for lacquered versions.
- SPQ in brackets for lacquered version.

D 12F ■ 9004121 0006236 T01 ■

Polystyrene film foil capacitors

KS 427/431

KS 427/431 GENERAL DATA



Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE		
	at 1 kHz	at 10 kHz	at 1 MHz
Tangent of loss angle: C ≤ 1000 pF	≤ 5 × 10 ⁻⁴	-	≤ 10 × 10 ⁻⁴
1000 pF < C ≤ 10000 pF	≤ 5 × 10 ⁻⁴	≤ 10 × 10 ⁻⁴	-
R between leads	> 100000 MΩ		

Available 630 V DC versions

PACKAGING	VERSION	C-tol	FIRST 8 DIGITS OF CATALOGUE NUMBER	ORDERING
Taped on reel; note 1	naked	±1%	2222 431 8....	on request
		±2%	2222 431 7....	on request
		±5%	2222 431 6....	on request
Loose in box		±1%	2222 427 4....	on request
		±2%	2222 427 3....	on request
		±5%	2222 427 2....	on request
Taped on reel; note 1	lacquered	±1%	2222 431 4....	on request
		±2%	2222 431 3....	on request
		±5%	2222 431 2....	on request
Loose in box		±1%	2222 427 8....	on request
		±2%	2222 427 7....	on request
		±5%	2222 427 6....	on request

Note

- For detailed specifications refer to this handbook, Chapter "Packaging".

D 12F ■ 9004121 0006237 948 ■

Polystyrene film foil capacitors

KS 424 to 431

 $U_{Rdc} = 630 \text{ V}$; $U_{Rac} = 250 \text{ V}$

loose and taped

C ⁽¹⁾ (E-24) (pF)	DIMENSIONS ⁽²⁾ $d_{max} \times l_{max}$ (mm)	MASS (g)	CATALOGUE NUMBER AND PACKAGING			
			2222 431		2222 427	
			naked version taped on reel		loose in box	
			last 5 digits of catalogue number		SPQ ⁽³⁾	SPQ ⁽³⁾
C-tol = $\pm 2\%$	C-tol = $\pm 1\%$					
$l_t = 30.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$						
47	3.8 × 11.0	0.2	74709	84709	3000 (2500)	400 (300)
51			75109	85109		
56			75609	85609		
62			76209	86209		
68			76809	86809		
75			77509	87509		
82			78209	88209		
91			79109	89109		
100			71001	81001		
110			71101	81101		
120			71201	81201		
130			71301	81301		
150			71501	81501		
160			71601	81601		
180			71801	81801		
200			72001	82001		
220	72201	82201				
240	0.3	0.3	72401	82401	2500	400 (300)
270			72701	82701		
300			73001	83001		
330			73301	83301		
360	4.0 × 11.0	0.3	73601	83601	2500	400 (300)
390			73901	83901		
430			74301	84301		
470			74701	84701		
510	4.5 × 11.0	0.3	75101	85101	2500	300 (250)
560			75601	85601		
620			76201	86201		
680			76801	86801		
750	5.0 × 11.0	0.4	77501	87501	1500	250 (200)
820		0.4	78201	88201		
910		0.5	79101	89101		
1000		0.5	71002	81002		
1100		0.5	71102	81102		
1200		0.5	71202	81202		

Notes

- In addition to the values of the E24 series as quoted, intermediate values are available of the E48 series (with a tolerance of $\pm 2\%$ or $\pm 1\%$) and of the E96 series (with a tolerance of $\pm 1\%$). The specifications of these intermediate values are equal to the specifications of the next higher value of the E24 series.
- Diameter $d_{max} + 0.7 \text{ mm}$ for lacquered versions with $l_{max} = 11.0 \text{ mm}$.
- SPQ in brackets for lacquered version.

D 12F ■ 9004121 0006238 884 ■

Polystyrene film foil capacitors

KS 427/431

 $U_{Rdc} = 630 \text{ V}$; $U_{Rac} = 250 \text{ V}$

loose and taped

C ⁽¹⁾ (E-24) (pF)	DIMENSIONS ⁽²⁾ $d_{max} \times l_{max}$ (mm)	MASS (g)	CATALOGUE NUMBER AND PACKAGING				
			2222 431		2222 427		
			naked version taped on reel			loose in box	
			last 5 digits of catalogue number		SPQ ⁽³⁾	SPQ ⁽³⁾	
C-tol = $\pm 2\%$	C-tol = $\pm 1\%$						
$l_t = 28.0 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$							
1300	5.0 × 15.0	0.6	71302	81302	1500	300 (250)	
1500		0.6	71502	81502			
1600		0.7	71602	81602			
1800	5.5 × 15.0	0.8	71802	81802	1500	250 (200)	
2000		0.8	72002	82002			
2200		0.9	72202	82202			
2400		0.9	72402	82402			
2700	6.0 × 15.0	1.1	72702	82702	1500	250 (200)	
3000	6.5 × 15.0	1.1	73002	83002	1000	200 (150)	
3300		1.4	73302	83302			
3600	7.0 × 15.0	1.4	73602	83602	1000	150 (100)	
3900		1.4	73902	83902			
4300	7.5 × 15.0	1.7	74302	84302	1000	150 (100)	
4700		1.7	74702	84702			
5100	8.0 × 15.0	1.7	75102	85102	1000	150 (100)	
5600		2.0	75602	85602			

Notes

- In addition to the values of the E24 series as quoted, intermediate values are available of the E48 series (with a tolerance of $\pm 2\%$ or $\pm 1\%$) and of the E96 series (with a tolerance of $\pm 1\%$). The specifications of these intermediate values are equal to the specifications of the next higher value of the E24 series.
- Diameter $d_{max} + 1.0 \text{ mm}$ for lacquered versions with $l_{max} = 15.0 \text{ mm}$.
- SPQ in brackets for lacquered version.

D 12F ■ 9004121 0006239 710 ■

Polystyrene film foil capacitors

KS 424 to 431

MARKING

Product marking

The capacitors are marked with black ink with the following information:





1. Rated capacitance code in accordance with "IEC 62"
2. Tolerance on rated capacitance: F = ±1%; G 2%; J = ±5%
3. Rated voltage (DC) (e.g. 63 V)
4. Code for dielectric material (KS)
5. Production date code in accordance with "IEC 62, clause 5".

MARKING EXAMPLE

8n2
G 63
KS D2.

Package marking

The package containing the capacitors is marked as shown in Fig.10.

<ol style="list-style-type: none"> 1. PHILIPS COMPONENTS 2. MADE IN BELGIUM 3. POLYSTYRENE FILM-FOIL CAPACITOR 4. KS AXIAL TYPE 5. 2000pF ±1% 63V= 40/085/21 6. 7.  WO: 12345678 8. ORIG R170 RPC HQ 1234 9.  TYPE KS 424 10.  QTY 400 DATE 9625 11.  CODENO 2222 424 42002 	<p>Barcode label marking</p> <table border="1"> <thead> <tr> <th>LINE</th> <th>MARKING EXPLANATION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Manufacturer's name</td> </tr> <tr> <td>2</td> <td>Country of origin</td> </tr> <tr> <td>3</td> <td>Sub-family</td> </tr> <tr> <td>4</td> <td>Type description</td> </tr> <tr> <td>5</td> <td>Capacitance value, tolerance, voltage and climatic category ("IEC 68-1")</td> </tr> <tr> <td>6</td> <td>-</td> </tr> <tr> <td>7</td> <td>Preference origin code: A Country of origin in code: 170 (Belgium) Responsible production centre: HQ Work order: WO</td> </tr> <tr> <td>8</td> <td>Product type description</td> </tr> <tr> <td>9</td> <td>Quantity and production period, year and week code</td> </tr> <tr> <td>10</td> <td>Product code (12NC)</td> </tr> </tbody> </table>	LINE	MARKING EXPLANATION	1	Manufacturer's name	2	Country of origin	3	Sub-family	4	Type description	5	Capacitance value, tolerance, voltage and climatic category ("IEC 68-1")	6	-	7	Preference origin code: A Country of origin in code: 170 (Belgium) Responsible production centre: HQ Work order: WO	8	Product type description	9	Quantity and production period, year and week code	10	Product code (12NC)
LINE	MARKING EXPLANATION																						
1	Manufacturer's name																						
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6	-																						
7	Preference origin code: A Country of origin in code: 170 (Belgium) Responsible production centre: HQ Work order: WO																						
8	Product type description																						
9	Quantity and production period, year and week code																						
10	Product code (12NC)																						

CCA345

Fig.10 Barcode label.

D 12F 9004121 0006240 432