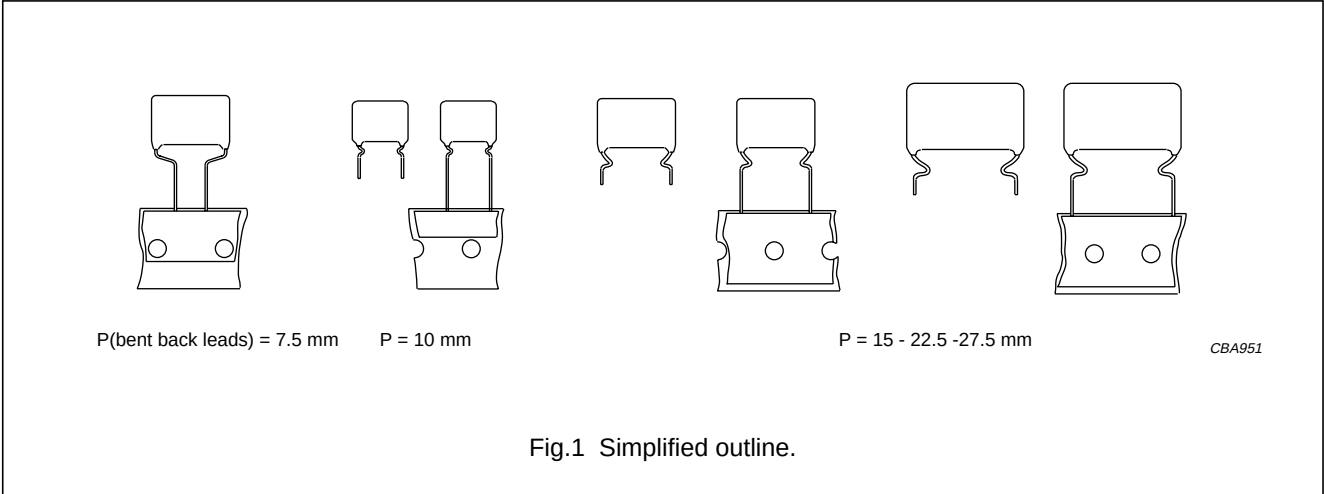

DATA SHEET

AC and pulse
metallized polypropylene film

KP/MKP 375

KP/MKP RADIAL LACQUERED TYPE

PITCH 10/15/22.5/27.5 mm
PITCH 7.5 mm (bent back leads)



FEATURES

- 10 to 27.5 mm lead pitch
- Supplied loose and taped
- Taped products available on request.

APPLICATIONS

- Where high currents and steep pulses occur
- For deflection circuits in television receivers.

DETAIL SPECIFICATION

For more detailed data and test requirements see “Type detail specification HQN-384-17/104”.

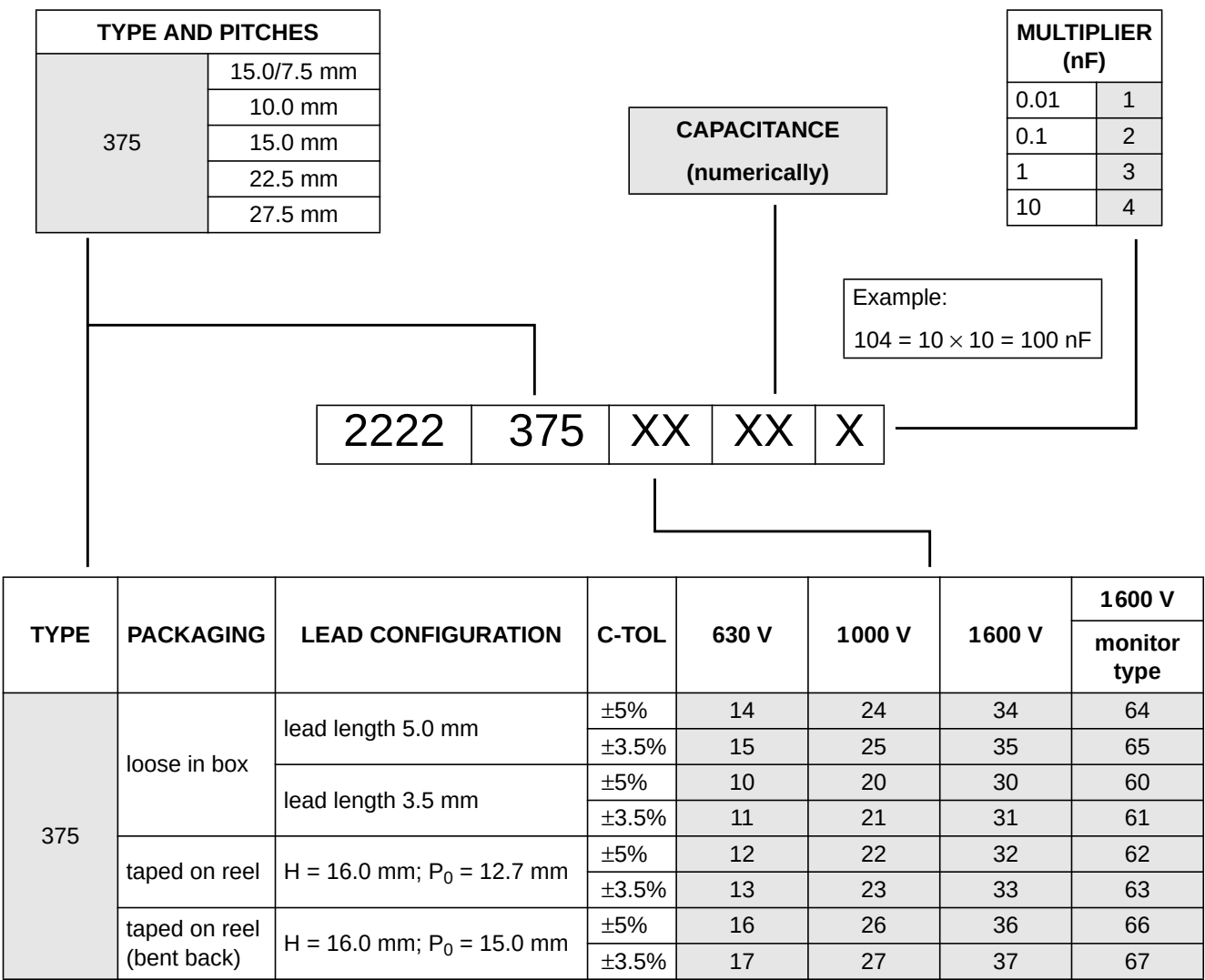
QUICK REFERENCE DATA

DESCRIPTION	VALUE
Capacitance range (E24 series)	100 pF to 270 nF
Capacitance tolerance	±5%; ±3.5%
Rated (DC) voltage	630 V; 1000 V; 1600 V; 2000 V; 2500 V
Rated (AC) voltage	300 V; 400 V; 500 V; 600 V; 880 V
Rated peak-to-peak voltage	850 V; 1100 V; 1400 V; 1700 V; 2500 V
Climatic category	55/105/56
Maximum application temperature	105 °C
Rated temperature	85 °C
Reference specification	IEC 60384-17
Performance grade: for C > 5.6 nF and 2500 V for C ≤ 5.6 nF	grade 1 (long life) grade 2 (general purpose)
Stability grade	grade 2

AC and pulse
metallized polypropylene film capacitors

KP/MKP 375

COMPOSITION OF CATALOGUE NUMBER



AC and pulse
metallized polypropylene film capacitors

KP/MKP 375

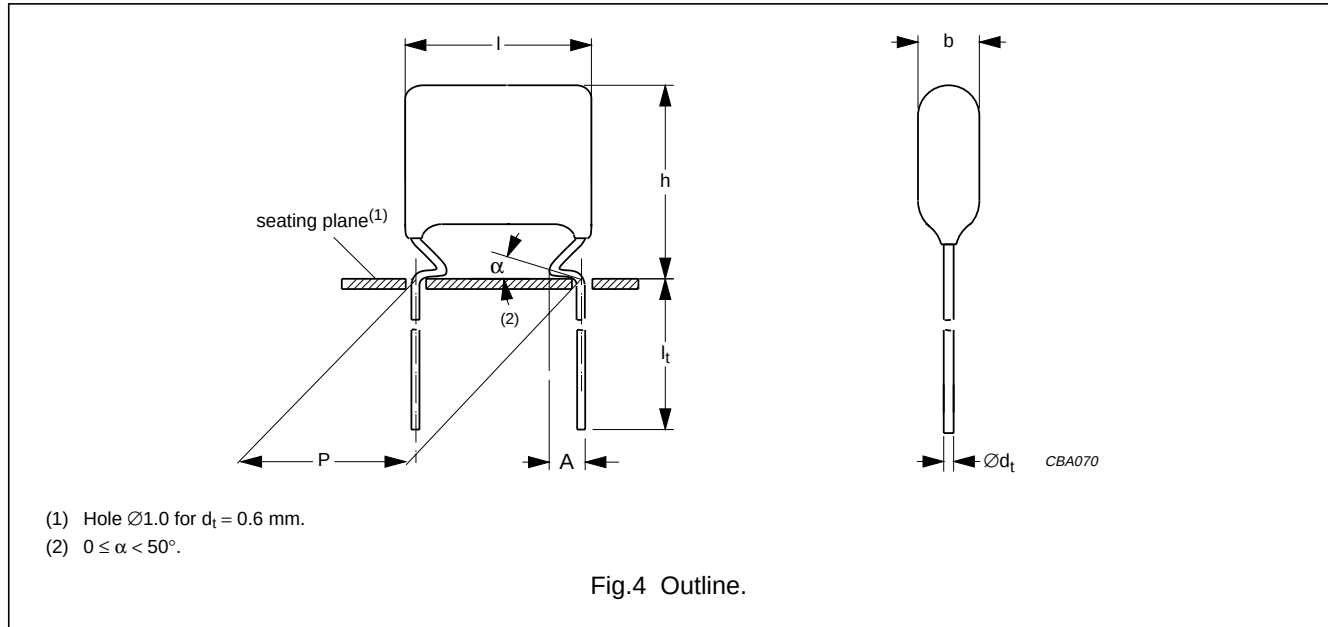
TYPE AND PITCHES		CAPACITANCE (numerically)		MULTIPLIER (nF)	
375	15.0/7.5 mm			0.01	1
	10.0 mm			0.1	2
	15.0 mm			1	3
	22.5 mm			10	4
	27.5 mm				

Example:
104 = 10 × 10 = 100 nF

2222	375	XX	XX	X
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TYPE	PACKAGING	LEAD CONFIGURATION	C-TOL	2000 V	2000 V monitor type	2500 V	2500 V monitor type
375	loose in box	lead length 5.0 mm	±5%	44	74	91	84
			±3.5%	45	75	91	85
		lead length 3.5 mm	±5%	40	70	91	80
			±3.5%	41	71	91	81
	taped on reel	H = 16.0 mm; P ₀ = 12.7 mm	±5%	42	72	–	82
			±3.5%	43	73	–	83
	taped on reel (bent back)	H = 16.0 mm; P ₀ = 15.0 mm	±5%	46	–	–	–
			±3.5%	47	–	–	–

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 10 mm

Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 630 V (DC)	15000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	>400 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1008 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 630 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 14...	preferred
		$\pm 3.5\%$	2222 375 15...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 10...	on request
		$\pm 3.5\%$	2222 375 11...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 12...	on request
		$\pm 3.5\%$	2222 375 13...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

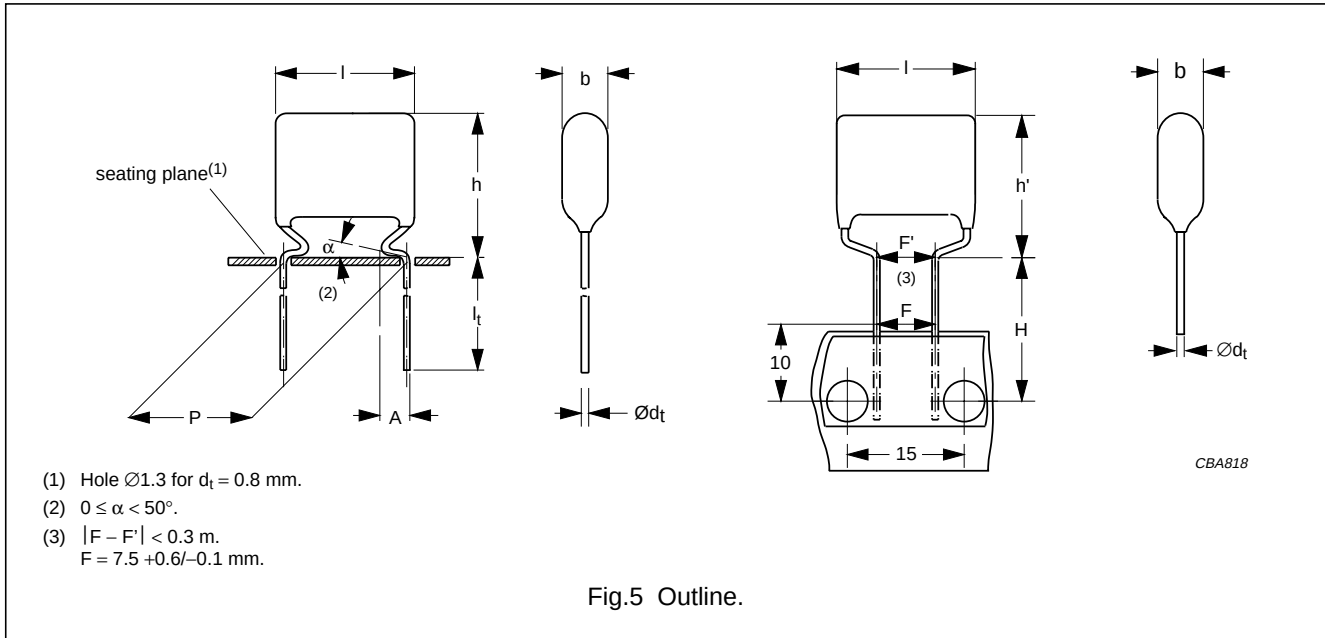
$U_{Rdc} = 630 \text{ V}$; $U_{Rac} = 300 \text{ V}$ / $U_{p-p} = 850 \text{ V}$

C (pF)	DIMENSIONS $b_{\max} \times h_{\max} \times l_{\max}$ (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			$l_t = 5.0 \pm 1.0$ mm
			C-tol = $\pm 5\%$
Pitch = 10.0 $\pm$ 0.4 mm; $d_t = 0.60 \pm 0.06$ mm; A = 2.0 +1.0/−0.5 mm			
680	5.0 $\times$ 13.0 $\times$ 14.5	0.65	2222 375 14 681
750		0.65	2222 375 14 751
820	5.5 $\times$ 13.5 $\times$ 14.5	0.70	2222 375 14 821
910		0.70	2222 375 14 911
1000		0.70	2222 375 14 102
1100		0.75	2222 375 14 112
1200		0.75	2222 375 14 122
1300		0.75	2222 375 14 132
1500		0.80	2222 375 14 152
1600		0.85	2222 375 14 162
1800	6.0 $\times$ 14.0 $\times$ 14.5	0.80	2222 375 14 182
2000		0.85	2222 375 14 202
2200		0.90	2222 375 14 222
2400		1.0	2222 375 14 242
2700	6.5 $\times$ 14.5 $\times$ 14.5	1.1	2222 375 14 272

Note

1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 15 mm
PITCH 7.5 mm (bent back leads)

Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 630 V (DC)	8000 V/ μ s	
R between leads at 500 V; 1 minute	> 100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	> 100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	> 400 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1008 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 630 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 14...	preferred
		$\pm 3.5\%$	2222 375 15...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 10...	on request
		$\pm 3.5\%$	2222 375 11...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 12...	on request
		$\pm 3.5\%$	2222 375 13...	on request
Taped on reel (bent back)	$H = 16.0$ mm; $P_0 = 15.0$ mm; note 2	$\pm 5\%$	2222 375 16...	preferred
		$\pm 3.5\%$	2222 375 17...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

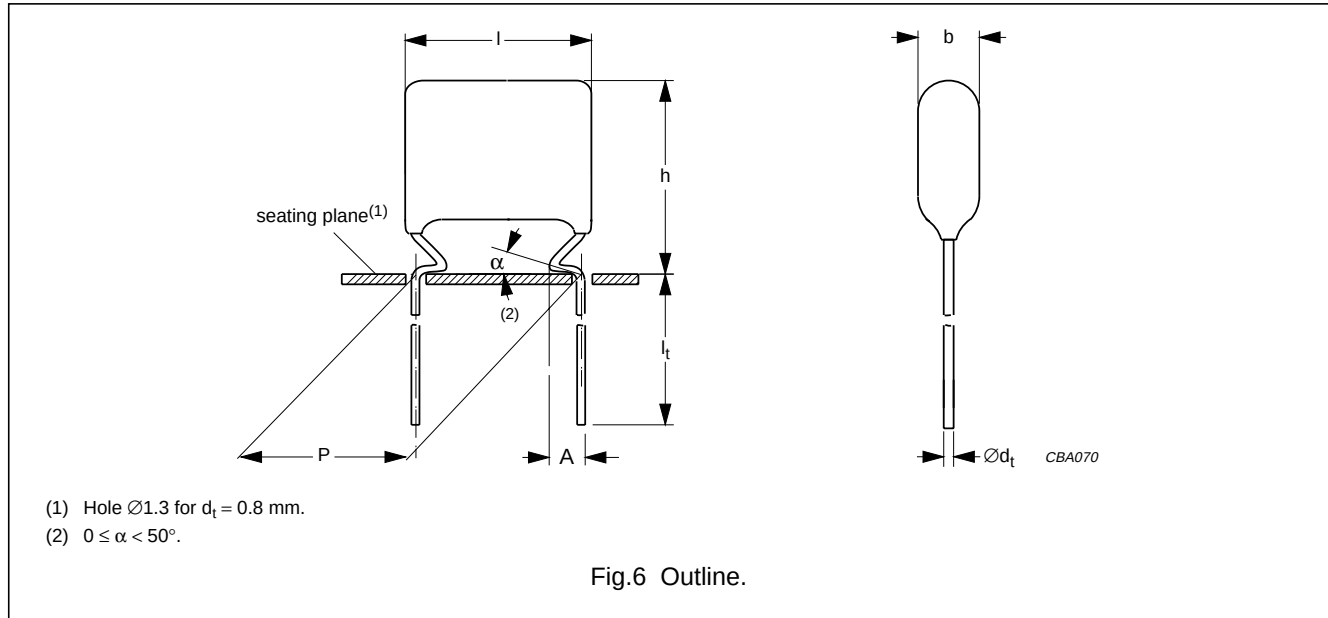
$U_{Rdc} = 630 \text{ V}$; $U_{Rac} = 300 \text{ V}$ / $U_{p-p} = 850 \text{ V}$

C (pF)	DIMENSIONS ⁽¹⁾ b _{max} × h (h') _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX	REEL DIAMETER = 500 mm; H = 16.0 mm; P ₀ = 15.0 mm ⁽²⁾
			l _t = 5.0 ±1.0 mm	pitch 7.5 mm (bent back)
			C-tol = ±5%	C-tol = ±5%
			catalogue number ⁽³⁾	last 5 digits ⁽³⁾
Pitch = 15.0 ±0.4 mm (pitch = 7.5 ±0.4 mm for bent back leads); d _t = 0.80 ±0.08 mm; A = 2.5 +1.5/-0.5 mm				
3000 3300	5.0 × 14.0 (15.5) × 18.5	1.0	2222 375 14302 2222 375 14332	.. 16302 .. 16332
3600 3900 4300 4700 5100 5600	5.5 × 14.5 (16.0) × 18.5	1.1	2222 375 14362 2222 375 14392 2222 375 14432 2222 375 14472 2222 375 14512 2222 375 14562	.. 16362 .. 16392 .. 16432 .. 16472 .. 16512 .. 16562
6200 6800 7500 8200 9100 10000 11000 12000 13000 15000 16000	6.0 × 15.0 (16.5) × 18.5	1.2	2222 375 14622 2222 375 14682 2222 375 14752 2222 375 14822 2222 375 14912 2222 375 14103 2222 375 14113 2222 375 14123 2222 375 14133 2222 375 14153 2222 375 14163	.. 16622 .. 16682 .. 16752 .. 16822 .. 16912 .. 16103 .. 16113 .. 16123 .. 16133 .. 16153 .. 16163
18000 20000	6.5 × 15.5 (17.0) × 18.5	1.3	2222 375 14183 2222 375 14203	.. 16183 .. 16203
22000	7.0 × 16.0 (17.5) × 18.5	1.5	2222 375 14223	.. 16223
24000	7.5 × 16.5 (18.0) × 18.5	1.6	2222 375 14243	.. 16243
27000 30000	8.0 × 17.0 (18.5) × 18.5	1.9	2222 375 14273 2222 375 14303	.. 16273 .. 16303
33000	8.5 × 17.5 (19.0) × 18.5	2.0	2222 375 14333	.. 16333
36000 39000	9.5 × 18.5 (20.0) × 18.5	2.3	on request	on request

Notes

- Dimensions in brackets for bent back leads.
- H = in-tape height; P₀ = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".
 - For pitch = 15.0 mm: H = 16.0 mm and P₀ = 12.7 mm.
 - For pitch = 15/7.5 mm (bent back): H = 16.0 mm and P₀ = 15.0 mm.
Standard reel diameter = 500 mm. Small reel diameter = 356 mm is available on request.
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm

Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 8 \times 10^{-4}$ $\leq 8 \times 10^{-4}$	$\leq 15 \times 10^{-4}$ $\leq 20 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 630 V (DC): P = 22.5 mm P = 27.5 mm	2800 V/ μ s 1900 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	>400 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1008 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 630 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 14...	preferred
		$\pm 3.5\%$	2222 375 15...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 10...	on request
		$\pm 3.5\%$	2222 375 11...	on request
Taped on reel	H = 16.0 mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 12...	on request
		$\pm 3.5\%$	2222 375 13...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

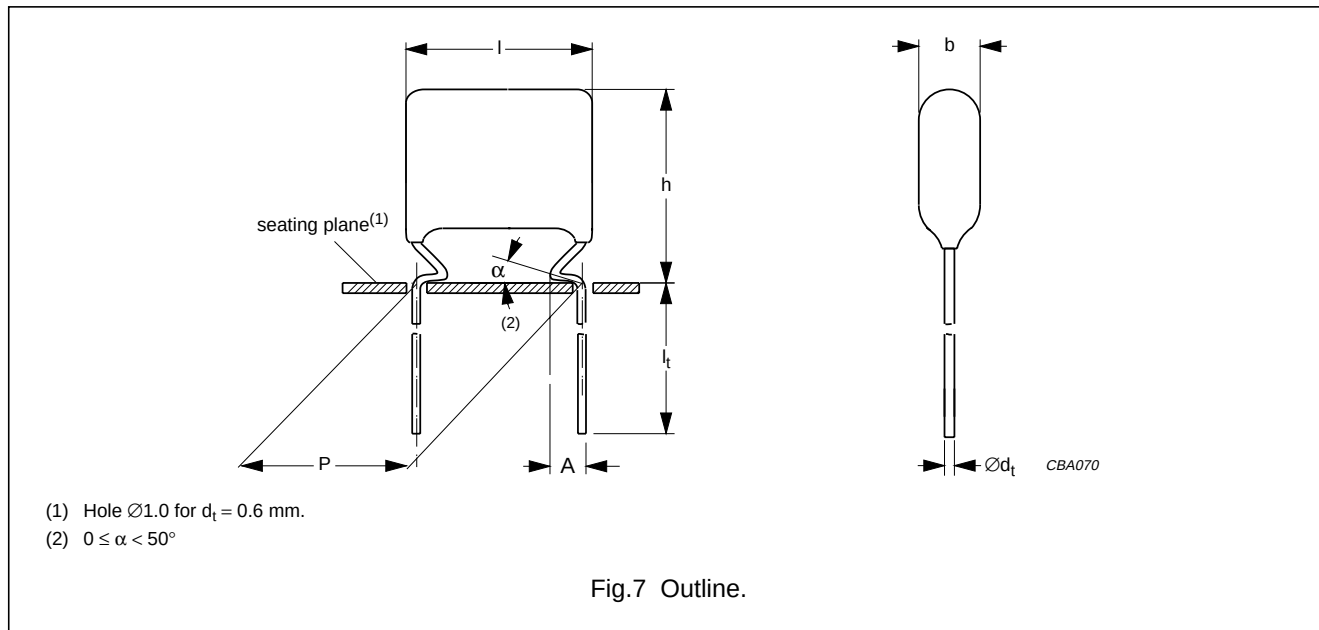
 $U_{Rdc} = 630 \text{ V}; U_{Rac} = 300 \text{ V}/U_{p-p} = 850 \text{ V}$

C (μF)	DIMENSIONS b _{max} × h _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			l _t = 5.0 ±1.0 mm
			C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.036	7.0 × 20.0 × 26.0	2.7	2222 375 14363
0.039			2222 375 14393
0.043			2222 375 14433
0.047			2222 375 14473
0.051			2222 375 14513
0.056			2222 375 14563
0.062			2222 375 14623
0.068	7.5 × 20.5 × 26.0	3.0	2222 375 14683
0.075	8.0 × 21.0 × 26.0	3.3	2222 375 14753
0.082			2222 375 14823
0.091	8.5 × 21.5 × 26.0	3.8	2222 375 14913
0.1	9.0 × 22.0 × 26.0	4.0	2222 375 14104
0.11	9.5 × 22.5 × 26.0	4.3	2222 375 14114
0.12	10.0 × 23.0 × 26.0	4.7	2222 375 14124
Pitch = 27.5 ±0.5 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.13	9.5 × 22.5 × 30.0	4.7	2222 375 14134
0.15	10.0 × 23.0 × 30.0	5.2	2222 375 14154
0.16	10.5 × 23.5 × 30.0	5.5	2222 375 14164
0.18	11.0 × 24.0 × 30.0	6.0	2222 375 14184
0.2	11.5 × 24.5 × 30.0	6.6	2222 375 14204
0.22	12.5 × 25.5 × 30.0	7.1	2222 375 14224
0.24	13.0 × 26.0 × 30.0	7.7	2222 375 14244
0.27	13.5 × 26.5 × 30.0	8.5	2222 375 14274

Note

1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 10 mm

Specific reference data for the 1000 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1000 V (DC)	27000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	>500 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1600 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1000 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 24...	preferred
		$\pm 3.5\%$	2222 375 25...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 20...	on request
		$\pm 3.5\%$	2222 375 21...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 22...	on request
		$\pm 3.5\%$	2222 375 23...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 1000 \text{ V}$; $U_{Rac} = 400 \text{ V}$ / $U_{p-p} = 1100 \text{ V}$

C (pF)	DIMENSIONS $b_{\max} \times h_{\max} \times l_{\max}$ (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			$l_t = 5.0 \pm 1.0$ mm
			C-tol = $\pm 5\%$
Pitch = 10.0 $\pm$ 0.4 mm; $d_t = 0.60 \pm 0.06$ mm; A = 2.0 +1.0/−0.5 mm			
100	5.0 $\times$ 13.0 $\times$ 14.5	0.50	2222 375 24101
110			2222 375 24111
120			2222 375 24121
130			2222 375 24131
150	5.5 $\times$ 13.5 $\times$ 14.5	0.55	2222 375 24151
160		0.55	2222 375 24161
180		0.55	2222 375 24181
200		0.55	2222 375 24201
220		0.60	2222 375 24221
240		0.60	2222 375 24241
270		0.60	2222 375 24271
300		0.60	2222 375 24301
330		0.60	2222 375 24331
360		0.60	2222 375 24361
390		0.65	2222 375 24391
430		0.70	2222 375 24431
470		0.75	2222 375 24471
510		0.75	2222 375 24511
560		0.80	2222 375 24561
620		0.80	2222 375 24621
680		0.80	2222 375 24681
750		0.70	2222 375 24751
820		0.70	2222 375 24821
910		0.70	2222 375 24911
1000	6.0 $\times$ 14.0 $\times$ 14.5	0.75	2222 375 24102
1100		0.85	2222 375 24112
1200		0.90	2222 375 24122
1300		0.85	2222 375 24132
1500		0.90	2222 375 24152

Note

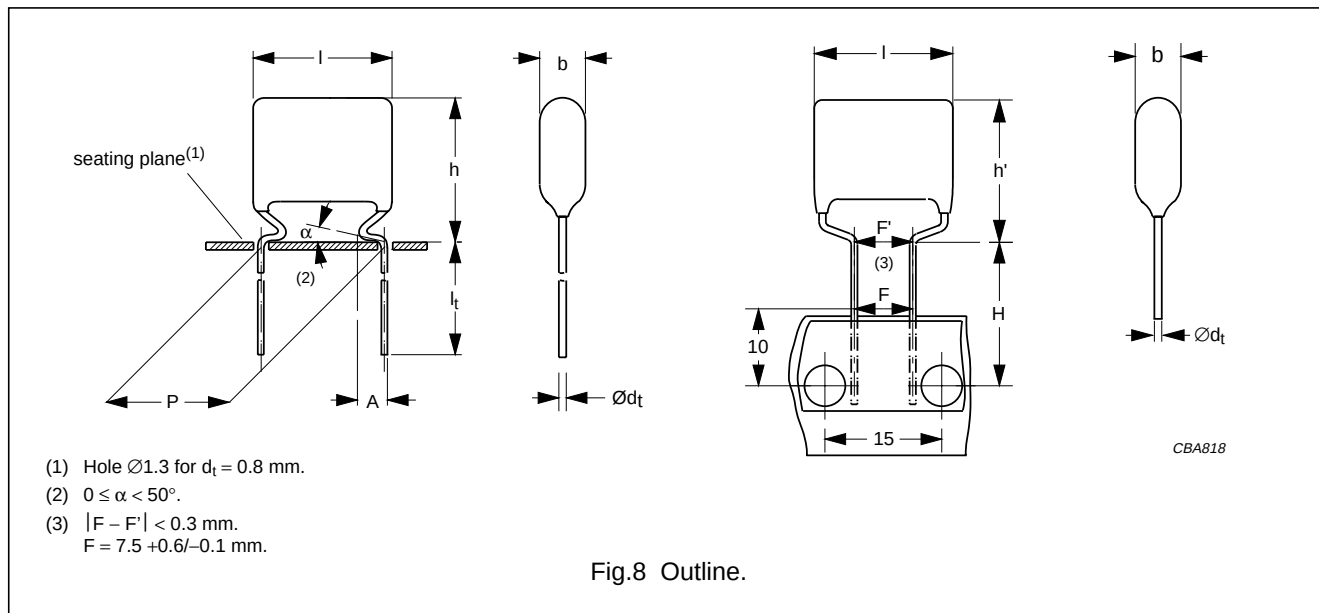
1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

KP/MKP 375 GENERAL DATA

PITCH 15 mm
PITCH 7.5 mm (bent back leads)



Specific reference data for the 1000 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1000 V (DC)	15000 V/ μ s	
R between leads at 500 V; 1 minute	> 100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	> 100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	> 500 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1600 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1000 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 24...	preferred
		$\pm 3.5\%$	2222 375 25...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 20...	on request
		$\pm 3.5\%$	2222 375 21...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 22...	on request
		$\pm 3.5\%$	2222 375 23...	on request
Taped on reel (bent back)	$H = 16.0$ mm; $P_0 = 15.0$ mm; note 2	$\pm 5\%$	2222 375 26...	preferred
		$\pm 3.5\%$	2222 375 27...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 1000 \text{ V}$; $U_{Rac} = 400 \text{ V}$ / $U_{p-p} = 1100 \text{ V}$

C (pF)	DIMENSIONS ⁽¹⁾ b _{max} × h (h') _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX	REEL DIAMETER = 500 mm; H = 16.0 mm; P ₀ = 15.0 mm ⁽²⁾
			l _t = 5.0 ±1.0 mm	pitch 7.5 mm (bent back)
			C-tol = ±5%	C-tol = ±5%
			catalogue number ⁽³⁾	last 5 digits ⁽³⁾
Pitch = 15.0 ±0.4 mm (Pitch = 7.5 0.4 mm for bent back leads); d _t = 0.80 ±0.08 mm; A = 2.5 +1.5/–0.5 mm				
1600	5.5 × 14.5 (16.0) × 18.5	1.1	2222 375 24 162	.. 26 162
1800			2222 375 24 182	.. 26 182
2000			2222 375 24 202	.. 26 202
2200			2222 375 24 222	.. 26 222
2400			2222 375 24 242	.. 26 242
2700	6.0 × 15.0 (16.5) × 18.5	1.2	2222 375 24 272	.. 26 272
3000			2222 375 24 302	.. 26 302
3300			2222 375 24 332	.. 26 332
3600			2222 375 24 362	.. 26 362
3900			2222 375 24 392	.. 26 392
4300			2222 375 24 432	.. 26 432
4700			2222 375 24 472	.. 26 472
5100			2222 375 24 512	.. 26 512
5600			2222 375 24 562	.. 26 562
6200			2222 375 24 622	.. 26 622
6800			2222 375 24 682	.. 26 682
7500	7.0 × 16.0 (17.5) × 18.5	1.4	2222 375 24 752	.. 26 752
8200			2222 375 24 822	.. 26 822
9100			2222 375 24 912	.. 26 912
10000	7.5 × 16.5 (18.0) × 18.5	1.6	2222 375 24 103	.. 26 103
11000	8.0 × 17.0 (18.5) × 18.5	1.8	2222 375 24 113	.. 26 113
12000			2222 375 24 123	.. 26 123
13000	8.5 × 17.5 (19.0) × 18.5	1.9	2222 375 24 133	.. 26 133
15000	9.0 × 18.0 (19.5) × 18.5	2.1	2222 375 24 153	.. 26 153

Notes

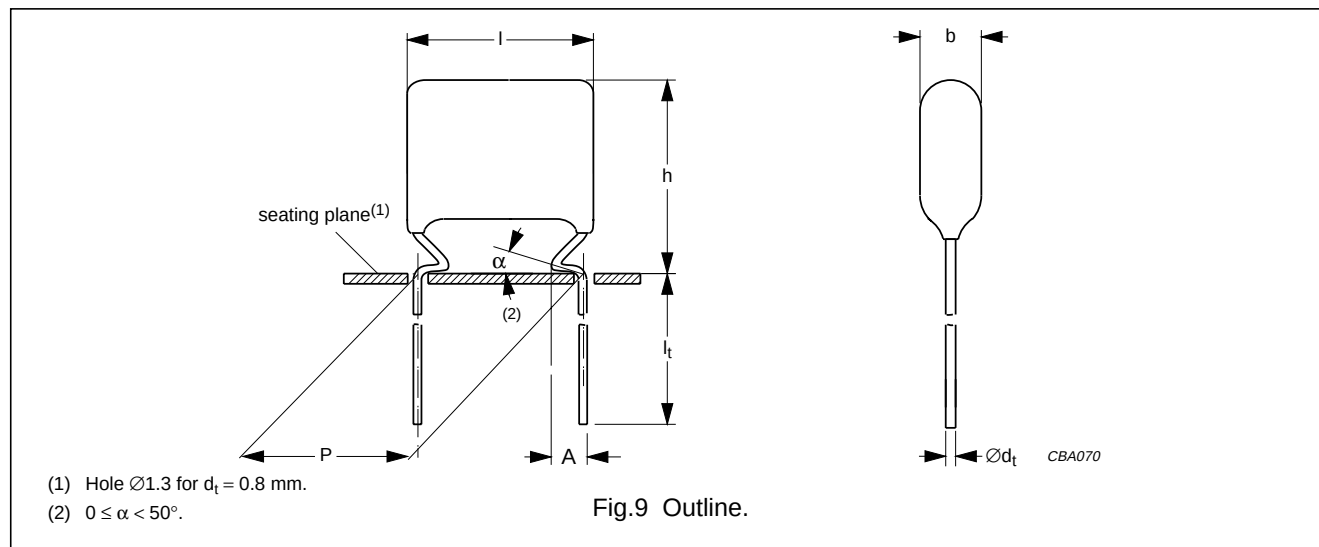
- Dimensions in brackets for bent back leads.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information":
 - For pitch = 15.0 mm: H = 16.0 mm and $P_0 = 12.7 \text{ mm}$.
 - For pitch = 15/7.5 mm (bent back): H = 16.0 mm and $P_0 = 15.0 \text{ mm}$.
Standard reel diameter = 500 mm. Small reel diameter = 356 mm is available on request.
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

KP/MKP 375 GENERAL DATA

PITCH 22.5/27.5 mm



Specific reference data for the 1000 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1000 V (DC): P = 22.5 mm P = 27.5 mm	5000 V/ μ s 3300 V/ μ s	
R between leads at 500 V; 1 minute	$>100000 \text{ M}\Omega$	
R between interconnected leads and case; 500 V; 1 minute	$>100000 \text{ M}\Omega$	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	$>500 \text{ V}$	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s for $C \leq 47 \text{ nF}$ for $C > 47 \text{ nF}$	1600 V; 1 minute $[1.6 - (0.0364 \times \sqrt{C - 47})] \times 1000 \text{ V}; 1 \text{ minute}$	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1000 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0 \text{ mm}$	$\pm 5\%$	2222 375 24...	preferred
		$\pm 3.5\%$	2222 375 25...	on request
	$l_t = 3.5 \pm 0.5 \text{ mm}$	$\pm 5\%$	2222 375 20...	on request
		$\pm 3.5\%$	2222 375 21...	on request
Taped on reel	$H = 16.0 \text{ mm}; P_0 = 12.7 \text{ mm}; \text{note 2}$	$\pm 5\%$	2222 375 22...	on request
		$\pm 3.5\%$	2222 375 23...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

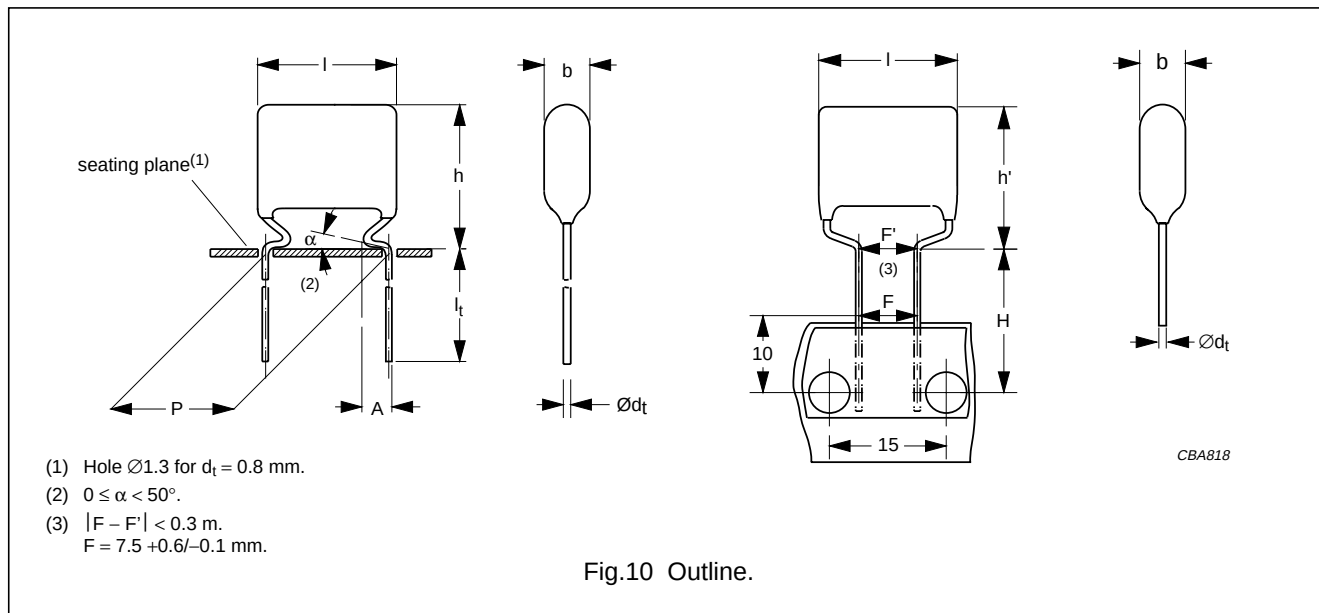
$U_{Rdc} = 1000 \text{ V}$; $U_{Rac} = 400 \text{ V}$ / $U_{p-p} = 1100 \text{ V}$

C (μF)	DIMENSIONS $b_{\max} \times h_{\max} \times l_{\max}$ (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			$l_t = 5.0 \pm 1.0$ mm
			C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.016	6.0 × 19.0 × 26.0	2.2	2222 375 24163
0.018			2222 375 24183
0.02	6.5 × 19.5 × 26.0	2.5	2222 375 24203
0.022			2222 375 24223
0.024	7.0 × 20.0 × 26.0	2.7	2222 375 24243
0.027	7.5 × 20.5 × 26.0	3.1	2222 375 24273
0.03			2222 375 24303
0.033	8.0 × 21.0 × 26.0	3.4	2222 375 24333
0.036	8.5 × 21.5 × 26.0	3.7	2222 375 24363
0.039			2222 375 24393
0.043	9.0 × 22.0 × 26.0	4.1	2222 375 24433
Pitch = 27.5 ±0.5 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.047	6.0 × 19.0 × 30.0	3.1	2222 375 24473
0.051	7.5 × 20.5 × 30.0	3.4	2222 375 24513
0.056			2222 375 24563
0.062	8.0 × 21.0 × 30.0	3.8	2222 375 24623
0.068	8.5 × 21.5 × 30.0	4.0	2222 375 24683
0.075	9.0 × 22.0 × 30.0	4.4	2222 375 24753
0.082	9.5 × 22.5 × 30.0	4.7	2222 375 24823
0.091	10.0 × 23.0 × 30.0	5.1	2222 375 24913
0.1	10.5 × 23.5 × 30.0	5.5	2222 375 24104
0.11	11.0 × 24.0 × 30.0	5.9	2222 375 24114
0.12	11.5 × 24.5 × 30.0	6.3	2222 375 24124
0.13	12.0 × 25.0 × 30.0	6.8	2222 375 24134
0.15	12.5 × 25.5 × 30.0	7.6	2222 375 24154

Note

1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 15 mm
PITCH 7.5 mm (bent back leads)

Specific reference data for the 1600 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1600 V (DC)	21000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>550 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2560 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1600 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 34...	preferred
		$\pm 3.5\%$	2222 375 35...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 30...	on request
		$\pm 3.5\%$	2222 375 31...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 32...	on request
		$\pm 3.5\%$	2222 375 33...	on request
Taped on reel (bent back)	$H = 16.0$ mm; $P_0 = 15.0$ mm; note 2	$\pm 5\%$	2222 375 36...	preferred
		$\pm 3.5\%$	2222 375 37...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

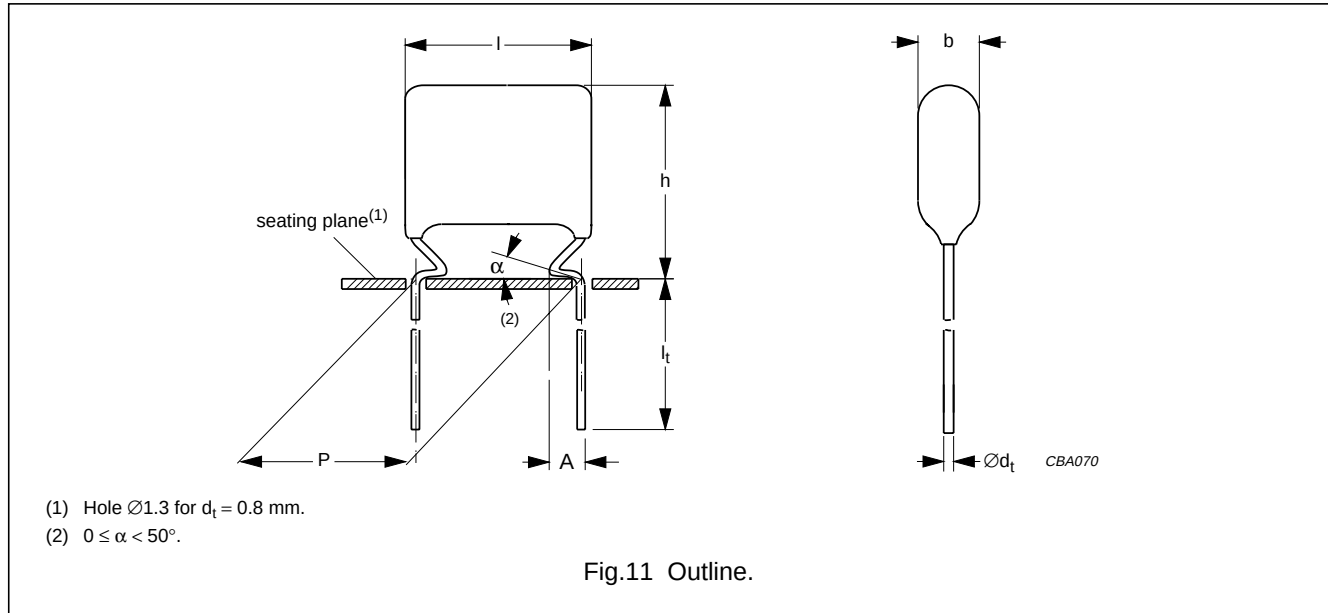
$U_{Rdc} = 1600 \text{ V}$; $U_{Rac} = 500 \text{ V}$ / $U_{p-p} = 1400 \text{ V}$

C (pF)	DIMENSIONS ⁽¹⁾ b _{max} × h (h') _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX	REEL DIAMETER = 500 mm; H = 16.0 mm; P ₀ = 15.0 mm ⁽²⁾
			l _t = 5.0 ±1.0 mm	pitch 7.5 mm (bent back)
			C-tol = ±5%	C-tol = ±5%
			catalogue number ⁽³⁾	last 5 digits ⁽³⁾
Pitch = 15.0 ±0.4 mm (pitch = 7.5 ±0.4 mm for bent back leads); d _t = 0.80 ±0.08 mm; A = 2.5 +1.5/-0.5 mm				
680	5.5 × 14.5 (15.0) × 18.5	0.75	2222 375 34 681	.. 36 681
750			2222 375 34 751	.. 36 751
820			2222 375 34 821	.. 36 821
910	6.0 × 15.0 (15.5) × 18.5	0.80	2222 375 34 911	.. 36 911
1000		0.85	2222 375 34 102	.. 36 102
1100		0.85	2222 375 34 112	.. 36 112
1200		0.90	2222 375 34 122	.. 36 122
1300		0.95	2222 375 34 132	.. 36 132
1500	5.5 × 14.5 (16.0) × 18.5	1.1	2222 375 34 152	.. 36 152
1600			2222 375 34 162	.. 36 162
1800	6.0 × 15.0 (16.5) × 18.5	1.2	2222 375 34 182	.. 36 182
2000	6.5 × 15.5 (17.0) × 18.5	1.3	2222 375 34 202	.. 36 202
2200			2222 375 34 222	.. 36 222
2400	7.0 × 16.0 (17.5) × 18.5	1.4	2222 375 34 242	.. 36 242
2700	7.5 × 16.5 (18.0) × 18.5	1.6	2222 375 34 272	.. 36 272
3000			2222 375 34 302	.. 36 302
3300	8.0 × 17.0 (18.5) × 18.5	1.7	2222 375 34 332	.. 36 332
3600	8.5 × 17.5 (19.0) × 18.5	1.8	2222 375 34 362	.. 36 362
3900	9.0 × 18.0 (19.5) × 18.5	2.0	2222 375 34 392	.. 36 392
4300			2222 375 34 432	.. 36 432

Notes

- Dimensions in brackets for bent back leads.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".
 - For pitch = 15.0 mm: H = 16.0 mm and $P_0 = 12.7 \text{ mm}$.
 - For pitch = 15/7.5 mm (bent back): H = 16.0 mm and $P_0 = 15.0 \text{ mm}$.
Standard reel diameter = 500 mm. Small reel diameter = 356 mm is available on request.
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm

Specific reference data for the 1600 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1600 V (DC): P = 22.5 mm P = 27.5 mm	7000 V/ μ s 4700 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>550 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2560 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1600 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 34...	preferred
		$\pm 3.5\%$	2222 375 35...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 30...	on request
		$\pm 3.5\%$	2222 375 31...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 32...	on request
		$\pm 3.5\%$	2222 375 33...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 1600 \text{ V}$; $U_{Rac} = 500 \text{ V}$ / $U_{p-p} = 1400 \text{ V}$

C (μF)	DIMENSIONS b _{max} × h _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			l _t = 5.0 ±1.0 mm
			C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.0047	6.0 × 19.0 × 26.0	2.0	2222 375 34472
0.0051			2222 375 34512
0.0056			2222 375 34562
0.0062	6.5 × 19.5 × 26.0	2.1	2222 375 34622
0.0068			2222 375 34682
0.0075	7.0 × 20.0 × 26.0	2.3	2222 375 34752
0.0082			2222 375 34822
0.0091	7.5 × 20.5 × 26.0	2.5	2222 375 34912
0.01	8.0 × 21.0 × 26.0	2.6	2222 375 34103
0.011	8.5 × 21.5 × 26.0	2.9	2222 375 34113
0.012			2222 375 34123
0.013	9.0 × 22.0 × 26.0	3.1	2222 375 34133
0.015	9.5 × 22.5 × 26.0	3.5	2222 375 34153
0.016	10.0 × 23.0 × 26.0	3.6	2222 375 34163
0.018	10.5 × 23.5 × 26.0	4.0	2222 375 34183
Pitch = 27.5 ±0.5 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.02	9.0 × 22.0 × 30.0	4.2	2222 375 34203
0.022	9.5 × 22.5 × 30.0	4.4	2222 375 34223
0.024	10.0 × 23.0 × 30.0	4.7	2222 375 34243
0.027	10.5 × 23.5 × 30.0	5.2	2222 375 34273
0.03	11.0 × 24.0 × 30.0	5.6	2222 375 34303
0.033	11.5 × 24.5 × 30.0	6.0	2222 375 34333
0.036	12.0 × 25.0 × 30.0	6.5	2222 375 34363
0.039	12.5 × 25.5 × 30.0	6.9	2222 375 34393

Note

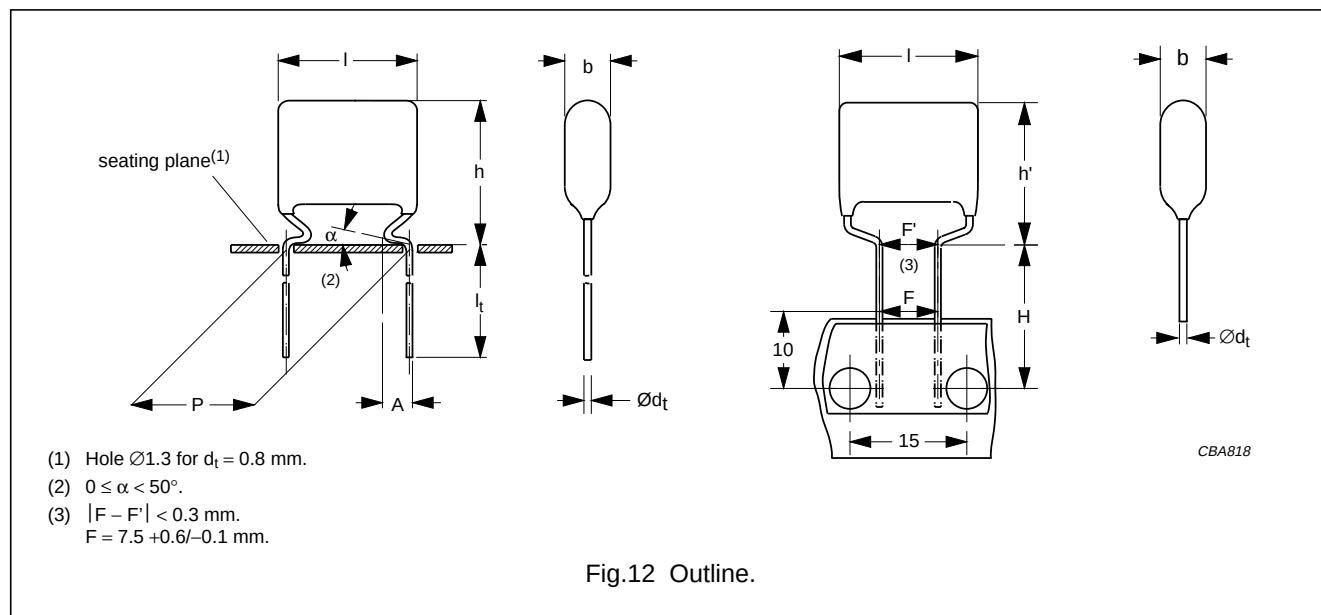
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

KP/MKP 375 GENERAL DATA

PITCH 15 mm
PITCH 7.5 mm (bent back leads)



Specific reference data for the 1600 V DC capacitors (monitor type)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1600 V (DC)	21000 V/ μ s	
R between leads at 500 V; 1 minute	> 100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	> 100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	> 550 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2560 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1600 V DC versions (monitor type)

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 64...	preferred
		$\pm 3.5\%$	2222 375 65...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 60...	on request
		$\pm 3.5\%$	2222 375 61...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 62...	on request
		$\pm 3.5\%$	2222 375 63...	on request
Taped on reel (bent back)	$H = 16.0$ mm; $P_0 = 15.0$ mm; note 2	$\pm 5\%$	2222 375 66...	preferred
		$\pm 3.5\%$	2222 375 67...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

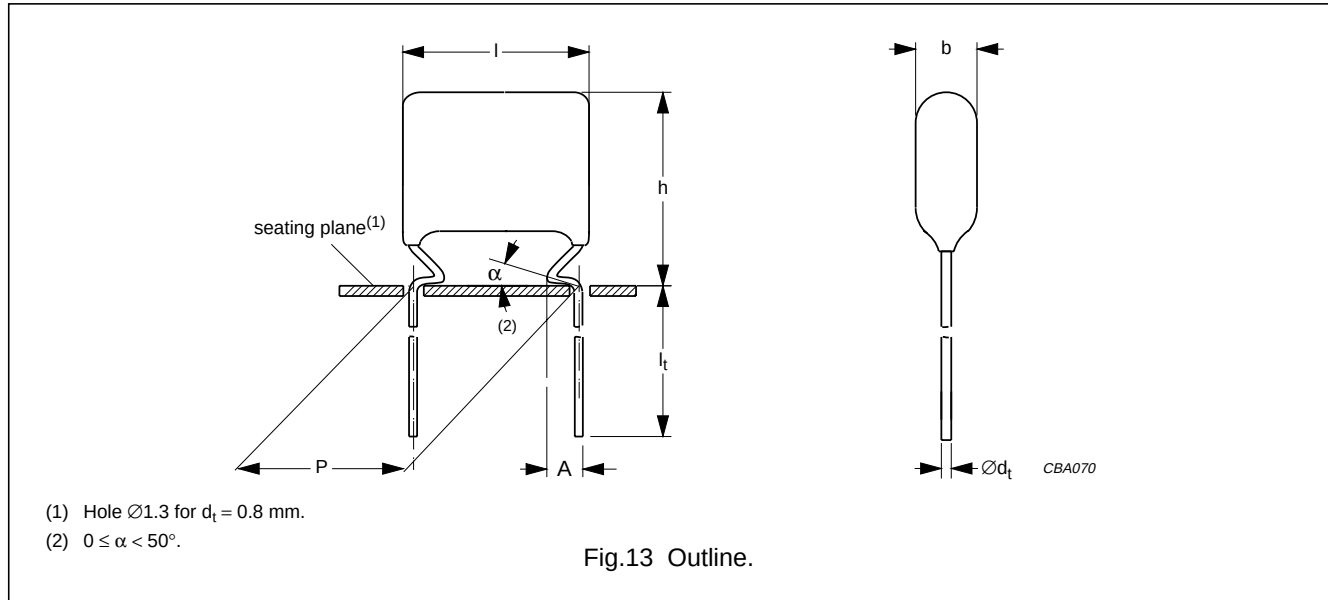
$U_{Rdc} = 1600 \text{ V}$; $U_{Rac} = 500 \text{ V}$ / $U_{p-p} = 1400 \text{ V}$ (monitor type)

C (pF)	DIMENSIONS ⁽¹⁾ b _{max} × h (h') _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX	REEL DIAMETER = 500 mm; H = 16.0 mm; P ₀ = 15.0 mm ⁽²⁾
			l _t = 5.0 ±1.0 mm	pitch 7.5 mm (bent back)
			C-tol = ±5%	C-tol = ±5%
			catalogue number ⁽³⁾	last 5 digits ⁽³⁾
Pitch = 15.0 ±0.4 mm (pitch = 7.5 ±0.4 mm for bent back leads); d _t = 0.80 ±0.08 mm; A = 2.5 +1.5/-0.5 mm				
1000	7.5 × 16.5 (18.0) × 18.5	1.6	2222 375 64 102	.. 66 102
1100	8.0 × 17.0 (18.5) × 18.5	1.7	2222 375 64 112	.. 66 112
1200			2222 375 64 122	.. 66 122
1300	8.5 × 17.5 (19.0) × 18.5	1.8	2222 375 64 132	.. 66 132
1500	9.0 × 18.0 (19.5) × 18.5	2.0	2222 375 64 152	.. 66 152
1600	9.5 × 18.5 (20.0) × 18.5	2.3	2222 375 64 162	.. 66 162

Notes

- Dimensions in brackets for bent back leads.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information":
 - For pitch = 15.0 mm: H = 16.0 mm and $P_0 = 12.7 \text{ mm}$.
 - For pitch = 15/7.5 mm (bent back): H = 16.0 mm and $P_0 = 15.0 \text{ mm}$.
Standard reel diameter = 500 mm. Small reel diameter = 356 mm is available on request.
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm

Specific reference data for the 1600 V DC capacitors (monitor type)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 1600 V (DC): P = 22.5 mm P = 27.5 mm	7000 V/ μ s 4700 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>550 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2560 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 1600 V DC versions (monitor type)

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 64...	preferred
		$\pm 3.5\%$	2222 375 65...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 60...	on request
		$\pm 3.5\%$	2222 375 61...	on request
Taped on reel	H = 16.0 mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 62...	on request
		$\pm 3.5\%$	2222 375 63...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse
metallized polypropylene film capacitors

KP/MKP 375

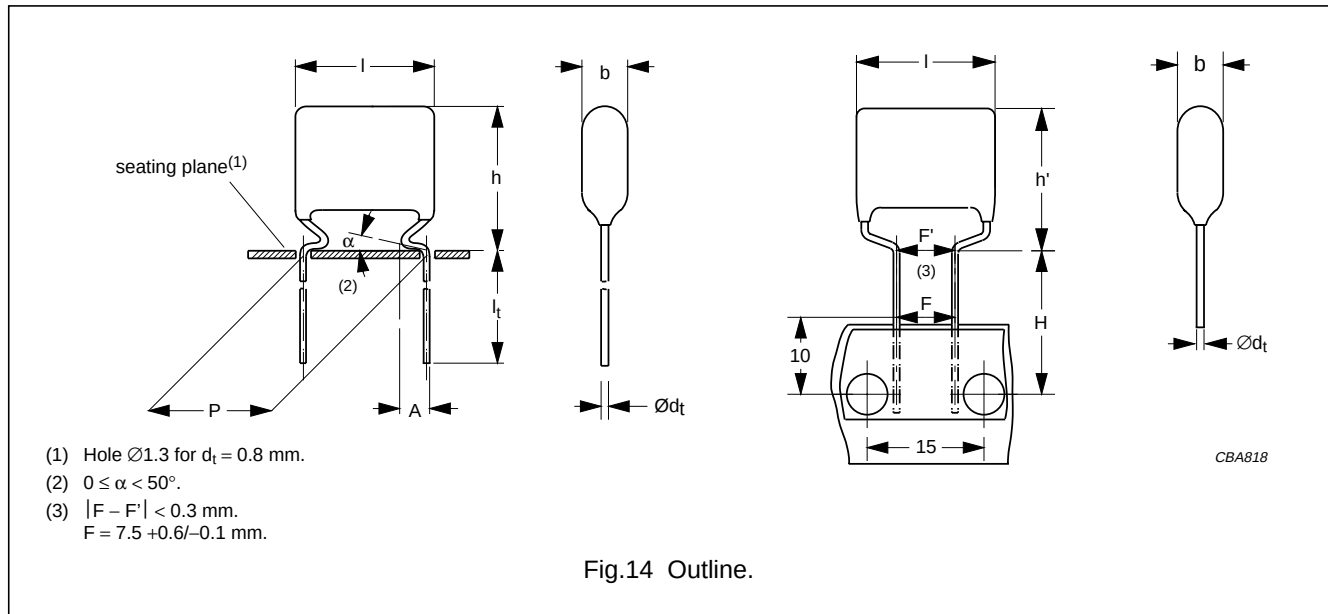
$U_{Rdc} = 1600\text{ V}$; $U_{Rac} = 500\text{ V}$ / $U_{p-p} = 1400\text{ V}$ (monitor type)

C (μF)	DIMENSIONS b _{max} × h _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			l _t = 5.0 ±1.0 mm C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.0018	6.0 × 19.0 × 26.0	2.0	2222 375 64+

Note

1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 15 mm
PITCH 7.5 mm (bent back leads)

Specific reference data for the 2000 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle	$\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 2000 V (DC)	30000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>600 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3200 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 2000 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 44...	preferred
		$\pm 3.5\%$	2222 375 45...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 40...	on request
		$\pm 3.5\%$	2222 375 41...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 42...	on request
		$\pm 3.5\%$	2222 375 43...	on request
Taped on reel (bent back)	$H = 16.0$ mm; $P_0 = 15.0$ mm; note 2	$\pm 5\%$	2222 375 46...	preferred
		$\pm 3.5\%$	2222 375 47...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information".
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

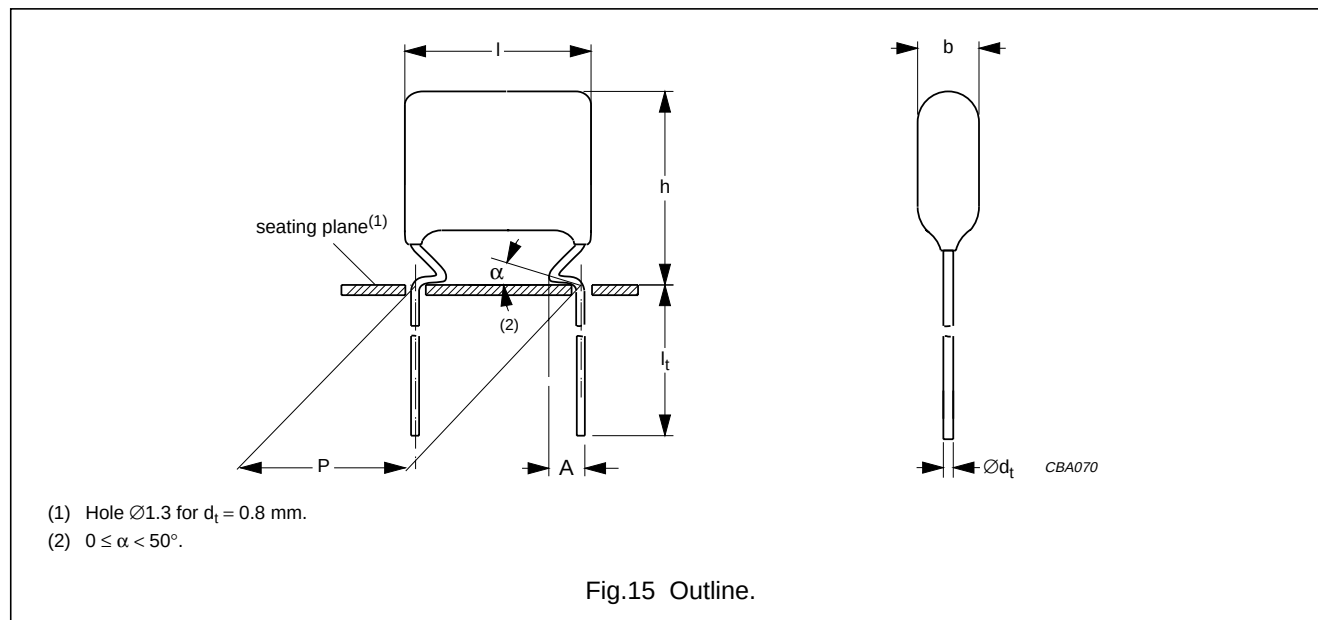
$U_{Rdc} = 2000 \text{ V}$; $U_{Rac} = 600 \text{ V}$ / $U_{p-p} = 1700 \text{ V}$

C (pF)	DIMENSIONS ⁽¹⁾ b _{max} × h (h') _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX	REEL DIAMETER = 500 mm; H = 16.0 mm; P ₀ = 15.0 mm ⁽²⁾
			l _t = 5.0 1.0 mm	pitch 7.5 mm (bent back)
			C-tol = ±5%	C-tol = ±5%
			catalogue number ⁽³⁾	last 5 digits ⁽³⁾
Pitch = 15.0 ±0.4 mm (pitch = 7.5 ±0.4 mm for bent back leads); d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm				
100	5.5 × 14.5 (15.0) × 18.5	0.75	2222 375 44101	.. 46101
110		0.75	2222 375 44111	.. 46111
120		0.75	2222 375 44121	.. 46121
130		0.75	2222 375 44131	.. 46131
150		0.75	2222 375 44151	.. 46151
160		0.75	2222 375 44161	.. 46161
180		0.75	2222 375 44181	.. 46181
200		0.75	2222 375 44201	.. 46201
220		0.75	2222 375 44221	.. 46221
240		0.75	2222 375 44241	.. 46241
270		0.75	2222 375 44271	.. 46271
300		0.75	2222 375 44301	.. 46301
330		0.75	2222 375 44331	.. 46331
360		0.75	2222 375 44361	.. 46361
390		0.75	2222 375 44391	.. 46391
430		0.75	2222 375 44431	.. 46431
470		0.80	2222 375 44471	.. 46471
510	0.80	2222 375 44511	.. 46511	
560	0.80	2222 375 44561	.. 46561	
620	6.0 × 15.0 (15.5) × 18.5	0.85	2222 375 44621	.. 46621
680		0.85	2222 375 44681	.. 46681
750		0.90	2222 375 44751	.. 46751
820	6.5 × 15.5 (16.0) × 18.5	0.95	2222 375 44821	.. 46821
910	5.5 × 14.5 (16.0) × 18.5	1.1	2222 375 44911	.. 46911
1000	6.0 × 15.0 (16.5) × 18.5	1.2	2222 375 44102	.. 46102
1100			2222 375 44112	.. 46112
1200			2222 375 44122	.. 46122
1300	6.5 × 15.5 (17.0) × 18.5	1.3	2222 375 44132	.. 46132
1500	7.0 × 16.0 (17.5) × 18.5	1.4	2222 375 44152	.. 46152
1600	7.5 × 16.5 (18.0) × 18.5	1.5	2222 375 44162	.. 46162
1800			2222 375 44182	.. 46182
2000	8.0 × 17.0 (18.5) × 18.5	1.6	2222 375 44202	.. 46202
2200	8.5 × 17.5 (19.0) × 18.5	1.7	2222 375 44222	.. 46222
2400	9.0 × 18.0 (19.5) × 18.5	1.8	2222 375 44242	.. 46242
2700	9.5 × 18.5 (20.0) × 18.5	2.0	2222 375 44272	.. 46272

Notes

- Dimensions in brackets for bent back leads.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications see chapter "Packaging information".
 - For pitch = 15.0 mm: H = 16.0 mm and $P_0 = 12.7 \text{ mm}$. b) For pitch = 15/7.5 mm (bent back): H = 16.0 mm and $P_0 = 15.0 \text{ mm}$. Standard reel diameter = 500 mm. Small reel diameter = 356 mm is available on request.
- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm

Specific reference data for the 2000 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 2000 V (DC): P = 22.5 mm P = 27.5 mm	10000 V/ μ s 6700 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>600 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3200 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 2000 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 44...	preferred
		$\pm 3.5\%$	2222 375 45...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 40...	on request
		$\pm 3.5\%$	2222 375 41...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 42...	on request
		$\pm 3.5\%$	2222 375 43...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

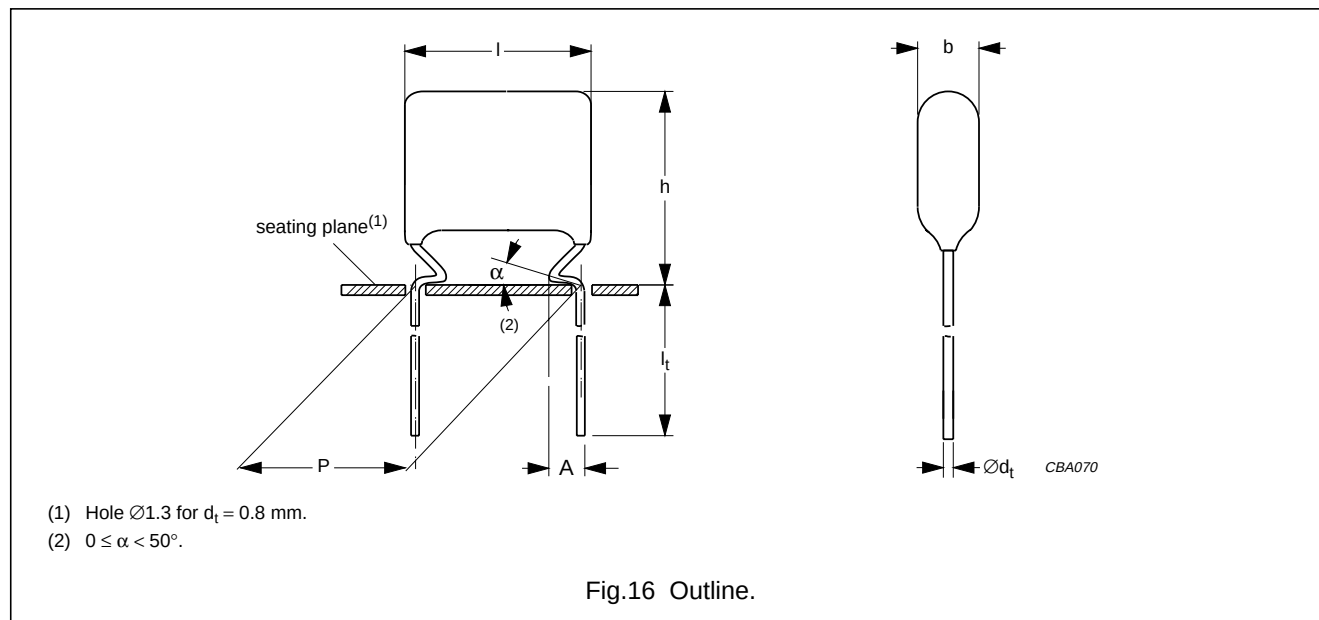
$U_{Rdc} = 2000 \text{ V}$; $U_{Rac} = 600 \text{ V}$ / $U_{p-p} = 1700 \text{ V}$

C (μF)	DIMENSIONS b _{max} × h _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			l _t = 5.0 ±1.0 mm
			C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.003 0.0033 0.0036 0.0039	6.0 × 19.0 × 26.0	2.1	2222 375 44302
2222 375 44332			
2222 375 44362			
2222 375 44392			
0.0043 0.0047	6.5 × 19.5 × 26.0	2.3	2222 375 44432
2222 375 44472			
0.0051 0.0056	7.0 × 20.0 × 26.0	2.6	2222 375 44512
2222 375 44562			
0.0062	7.5 × 20.5 × 26.0	2.8	2222 375 44622
0.0068 0.0075	8.0 × 21.0 × 26.0	3.0	2222 375 44682
2222 375 44752			
0.0082	8.5 × 21.5 × 26.0	3.3	2222 375 44822
0.0091	9.0 × 22.0 × 26.0	3.6	2222 375 44912
0.01	9.5 × 22.5 × 26.0	3.8	2222 375 44103
Pitch = 27.5 ±0.5 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.011	9.0 × 22.0 × 30.0	3.8	2222 375 44113
0.012	9.5 × 22.5 × 30.0	4.1	2222 375 44123
0.013	10.0 × 23.0 × 30.0	4.4	2222 375 44133
0.015	10.5 × 23.5 × 30.0	4.9	2222 375 44153
0.016	11.0 × 24.0 × 30.0	5.1	2222 375 44163
0.018	11.5 × 24.5 × 30.0	5.6	2222 375 44183
0.02	12.5 × 25.5 × 30.0	6.1	2222 375 44203
0.022	13.0 × 26.0 × 30.0	6.5	2222 375 44223

Note

- The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm

Specific reference data for the 2000 V DC capacitors (monitor type)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 2000 V (DC): P = 22.5 mm P = 27.5 mm	10000 V/ μ s 6700 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>600 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3200 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 2000 V DC versions (monitor type)

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 74...	preferred
		$\pm 3.5\%$	2222 375 75...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 70...	on request
		$\pm 3.5\%$	2222 375 71...	on request
Taped on reel	H = 16.0 mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 72...	on request
		$\pm 3.5\%$	2222 375 73...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 2000 \text{ V}$; $U_{Rac} = 600 \text{ V}$ / $U_{p-p} = 1700 \text{ V}$ (monitor type)

C (μF)	DIMENSIONS b _{max} × h _{max} × l _{max} (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			l _t = 5.0 ±1.0 mm
			C-tol = ±5%
Pitch = 22.5 ±0.4 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.001	6.0 × 19.0 × 26.0	2.1	2222 375 74102
0.0011			2222 375 74112
0.0012	6.5 × 19.5 × 26.0	2.3	2222 375 74122
0.0013			2222 375 74132
0.0015	7.0 × 20.0 × 26.0	2.6	2222 375 74152
0.0016			2222 375 74162
0.0018	7.5 × 20.5 × 26.0	2.8	2222 375 74182
0.002	8.0 × 21.0 × 26.0	3.0	2222 375 74202
0.0022	8.5 × 21.5 × 26.0	3.3	2222 375 74222
0.0024	9.0 × 22.0 × 26.0	3.6	2222 375 74242
0.0027	9.5 × 22.5 × 26.0	3.8	2222 375 74272
0.003	10.0 × 23.0 × 26.0	4.2	2222 375 74302
0.0033	10.5 × 23.5 × 26.0	4.5	2222 375 74332
0.0036	11.0 × 24.0 × 26.0	4.9	2222 375 74362
0.0039			2222 375 74392
0.0043			2222 375 74432
0.0047	11.5 × 24.5 × 26.0	5.3	2222 375 74472
0.0051			2222 375 74512
Pitch = 27.5 ±0.5 mm; d _t = 0.80 ±0.08 mm; A = 2.5 +1.4/−0.5 mm			
0.0056	11.0 × 24.0 × 30.0	5.1	2222 375 74562
0.0062	11.5 × 24.5 × 30.0	5.6	2222 375 74622
0.0068	12.0 × 25.0 × 30.0	5.8	2222 375 74682
0.0075	12.5 × 25.5 × 30.0	6.1	2222 375 74752
0.0082	13.0 × 26.0 × 30.0	6.5	2222 375 74822
0.0091	14.0 × 27.0 × 30.0	7.0	2222 375 74912
0.01	14.5 × 27.5 × 30.0	7.5	2222 375 74103
0.011	15.5 × 29.5 × 30.0	8.1	2222 375 74113
0.012			2222 375 74123
0.013			2222 375 74133
0.015			2222 375 74153

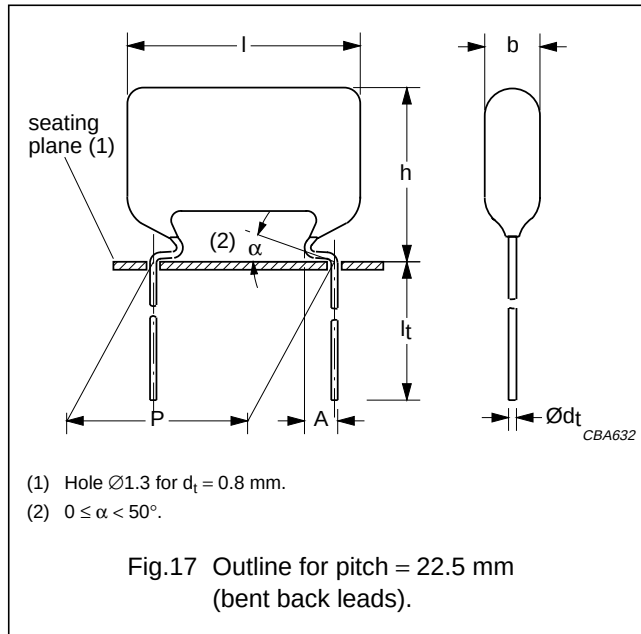
Note

1. The shading indicates preferred types.

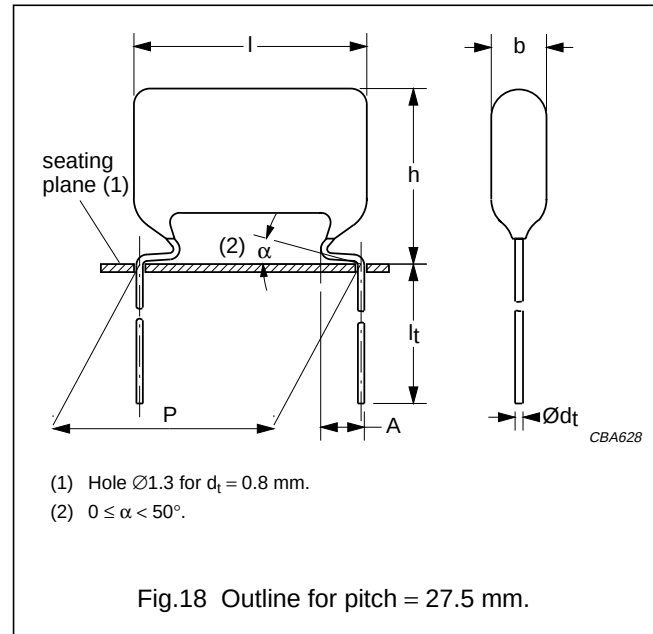
AC and pulse metallized polypropylene film capacitors

KP/MKP 375

KP/MKP 375 GENERAL DATA



PITCH 22.5 (bent back leads)/27.5 mm



Specific reference data for the 2500 V DC capacitors

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 2500 V (DC)	18000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>900 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3500 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 2500 V DC versions

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 91...	on request
		$\pm 3.5\%$	2222 375 91...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 91...	on request
		$\pm 3.5\%$	2222 375 91...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375	on request
		$\pm 3.5\%$	2222 375	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 2500 \text{ V}$; $U_{Rac} = 880 \text{ V}$ / $U_{p-p} = 2500 \text{ V}$

C (μF)	DIMENSIONS $b_{\max} \times h_{\max} \times l_{\max}$ (mm)	MASS (g)	CATALOGUE NUMBER	
			LOOSE IN BOX; $l_t = 3.5 \pm 0.5 \text{ mm}$	
			$P = 22.5 \pm 0.4 \text{ mm}^{(1)}$	$P = 27.5 \pm 0.4 \text{ mm}$
			C-tol = $\pm 5\%$	
			catalogue number	last 5 digits
$d_t = 0.80 \pm 0.08 \text{ mm}$; $A = 2.5 +1.4/-0.5 \text{ mm}$				
0.001	$7.0 \times 20.0 \times 30.0$	2.9	2222 375 91001	.. 91003
0.0011			2222 375 91005	.. 91007
0.0012			2222 375 91011	.. 91013
0.0013			2222 375 91015	.. 91017
0.0015			2222 375 91021	.. 91023
0.0016			2222 375 91025	.. 91027
0.0018			2222 375 91031	.. 91033
0.0020	$7.5 \times 20.5 \times 30.0$	2.9	2222 375 91035	.. 91037
0.0022	$8.0 \times 21.0 \times 30.0$	3.2	2222 375 91041	.. 91043
0.0024			2222 375 91045	.. 91047
0.0025			2222 375 91051	.. 91053
0.0027	$8.5 \times 21.5 \times 30.0$	3.5	2222 375 91055	.. 91057
0.0030	$9.0 \times 22.0 \times 30.0$	3.8	2222 375 91061	.. 91063
0.0033	$9.5 \times 22.5 \times 30.0$	4.0	2222 375 91065	.. 91067
0.0036	$10.0 \times 23.0 \times 30.0$	4.3	2222 375 91071	.. 91073
0.0039	$10.5 \times 23.5 \times 30.0$	4.6	2222 375 91075	.. 91077
0.0043	$11.0 \times 24.0 \times 30.0$	5.0	2222 375 91081	.. 91083
0.0047	$11.5 \times 24.5 \times 30.0$	5.3	2222 375 91085	.. 91087
0.0051	$12.0 \times 25.0 \times 30.0$	5.7	2222 375 91091	.. 91093
0.0056	$12.5 \times 25.5 \times 30.0$	6.1	2222 375 91095	.. 91097
0.0062	$13.5 \times 26.5 \times 30.0$	6.6	2222 375 91101	.. 91103
0.0068	$14.0 \times 27.5 \times 30.0$	7.2	2222 375 91105	.. 91107

Note

1. Only for bent back leads.

AC and pulse metallized polypropylene film capacitors

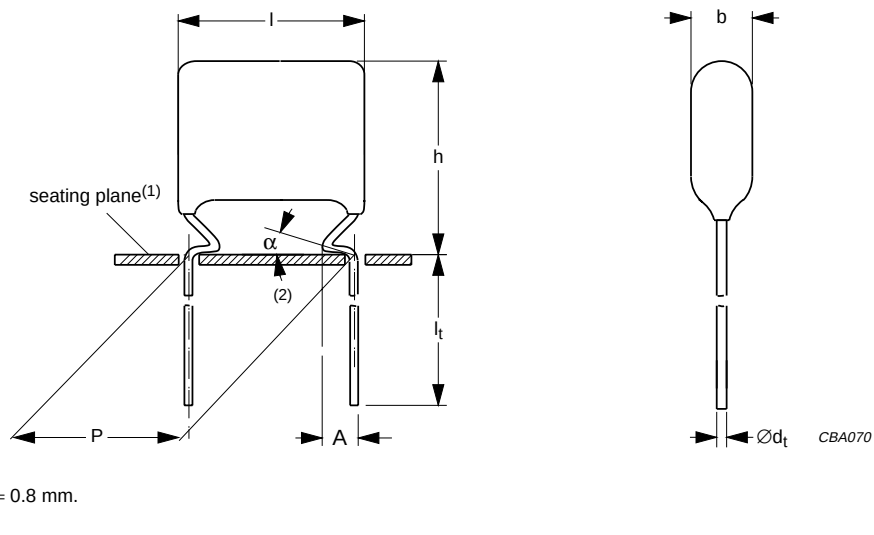
KP/MKP 375
KP/MKP 375 GENERAL DATA
PITCH 22.5/27.5 mm


Fig.19 Outline.

Specific reference data for the 2500 V DC capacitors (monitor type)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle: P = 22.5 mm P = 27.5 mm	$\leq 6 \times 10^{-4}$ $\leq 6 \times 10^{-4}$	$\leq 10 \times 10^{-4}$ $\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 2500 V (DC)	18000 V/ μ s	
R between leads at 500 V; 1 minute	>100000 M Ω	
R between interconnected leads and case; 500 V; 1 minute	>100000 M Ω	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>900 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3500 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

Available 2500 V DC versions (monitor type)

PACKAGING ⁽¹⁾	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	$l_t = 5.0 \pm 1.0$ mm	$\pm 5\%$	2222 375 84...	preferred
		$\pm 3.5\%$	2222 375 85...	on request
	$l_t = 3.5 \pm 0.5$ mm	$\pm 5\%$	2222 375 80...	on request
		$\pm 3.5\%$	2222 375 81...	on request
Taped on reel	$H = 16.0$ mm; $P_0 = 12.7$ mm; note 2	$\pm 5\%$	2222 375 82...	on request
		$\pm 3.5\%$	2222 375 83...	on request

Notes

- For SPQ refer to this handbook, chapter "Packaging information"; taped on reel pitch = 27.5 mm is not available.
- H = in-tape height; P_0 = sprocket hole distance; for detailed specifications refer to this handbook, chapter "Packaging information".

AC and pulse metallized polypropylene film capacitors

KP/MKP 375

$U_{Rdc} = 2500 \text{ V}$; $U_{Rac} = 600 \text{ V}$ / $U_{p-p} = 1700 \text{ V}$ (monitor type)

C (μF)	DIMENSIONS $b_{\max} \times h_{\max} \times l_{\max}$ (mm)	MASS (g)	CATALOGUE NUMBER ⁽¹⁾
			LOOSE IN BOX
			$l_t = 5.0 \pm 1.0$ mm
			C-tol = $\pm 5\%$
Pitch = 22.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm; A = $2.5 +1.4/-0.5$ mm			
0.001	$7.0 \times 20.0 \times 26.0$	2.6	2222 375 84102
0.0011			2222 375 84112
0.0012	$7.5 \times 20.5 \times 26.0$	2.8	2222 375 84122
0.0013			2222 375 84132
0.0015	$8.5 \times 21.5 \times 26.0$	3.3	2222 375 84152
0.0016			2222 375 84162
0.0018	$9.0 \times 22.0 \times 26.0$	3.6	2222 375 84182
0.002	$9.5 \times 22.5 \times 26.0$	3.8	2222 375 84202
0.0022	$10.0 \times 23.0 \times 26.0$	4.1	2222 375 84222
0.0024	$10.5 \times 23.5 \times 26.0$	4.5	2222 375 84242
0.0027	$11.0 \times 24.0 \times 26.0$	4.9	2222 375 84272
Pitch = 27.5 ± 0.5 mm; $d_t = 0.80 \pm 0.08$ mm; A = $2.5 +1.4/-0.5$ mm			
0.003	$11.0 \times 24.0 \times 30.0$	5.1	2222 375 84302
0.0033	$11.5 \times 24.5 \times 30.0$	5.4	2222 375 84332
0.0036	$12.0 \times 25.0 \times 30.0$	5.8	2222 375 84362
0.0039	$12.5 \times 25.5 \times 30.0$	6.1	2222 375 84392
0.0043	$13.0 \times 26.0 \times 30.0$	6.5	2222 375 84432
0.0047	$13.5 \times 26.5 \times 30.0$	6.9	2222 375 84472
0.0051	$14.0 \times 27.0 \times 30.0$	7.3	2222 375 84512
0.0056	$15.0 \times 29.0 \times 30.0$	7.8	2222 375 84562
0.0062	$15.5 \times 29.5 \times 30.0$	8.2	2222 375 84622
0.0068			2222 375 84682
0.0075			2222 375 84752
0.0082			2222 375 84822
0.0091			2222 375 84912

Note

1. The shading indicates preferred types.

AC and pulse metallized polypropylene film capacitors

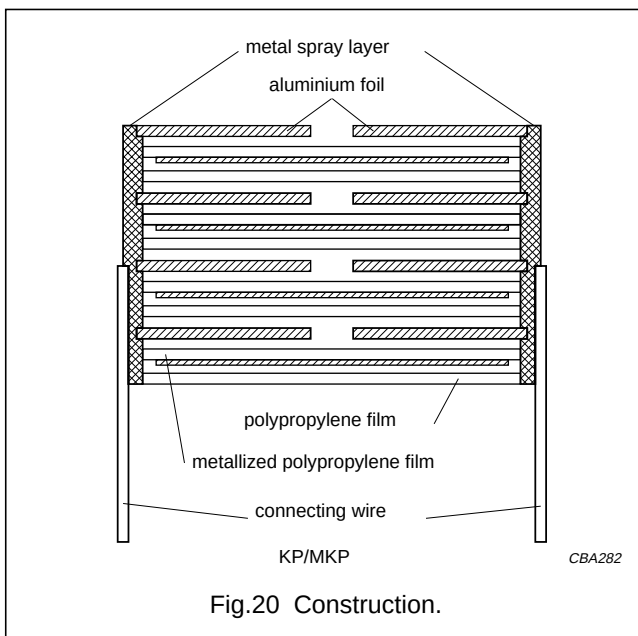
KP/MKP 375

CONSTRUCTION

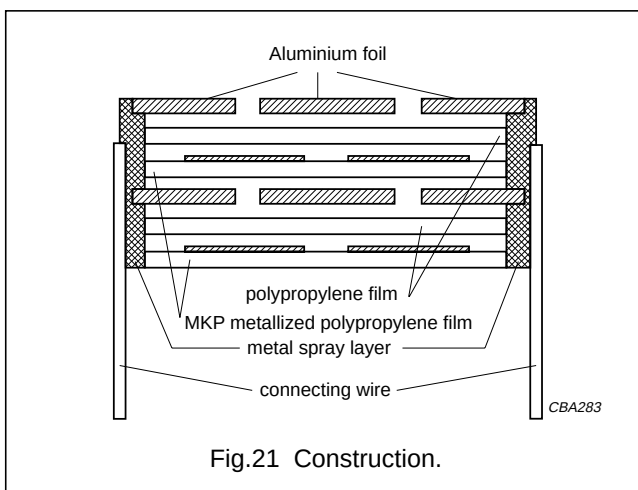
Description

- Series-constructed, impregnated polypropylene film, aluminium foil and metallized internal electrode
- Protected by a hard, water-repellent, solvent-resistant epoxy lacquer
- Radial leads, solder-coated:
 - Copper clad steel wire for original pitch = 10 mm
 - Copper wire for original pitch = 15, 22.5 and 27.5 mm.

FOR KP/MKP 630 V - 2000 V AND 2500 V (MONITOR TYPE)



FOR KP/MKP 2500 V (2222 375 91...)



Mounting

NORMAL USE

The capacitors are designed for printed-circuit boards applications. The capacitors packed in bandoliers are designed for mounting on printed-circuit boards by means of automatic insertion machines. For detailed tape specifications refer to this handbook, chapter "Packaging information".

SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK

- For pitches of ≤ 15 mm capacitors shall be mechanically fixed by the leads.
- For larger pitches the capacitors shall be mounted in the same way and the body clamped.

Storage temperature

- Storage temperature: $T_{stg} = -25$ to $+40$ °C with RH maximum 80% without condensation.

RATINGS AND CHARACTERISTICS REFERENCE CONDITIONS

Unless otherwise specified, all electrical values apply to an ambient free air temperature of 23 ± 1 °C, an atmospheric pressure of 86 to 106 kPa and a relative humidity of $50 \pm 2\%$.

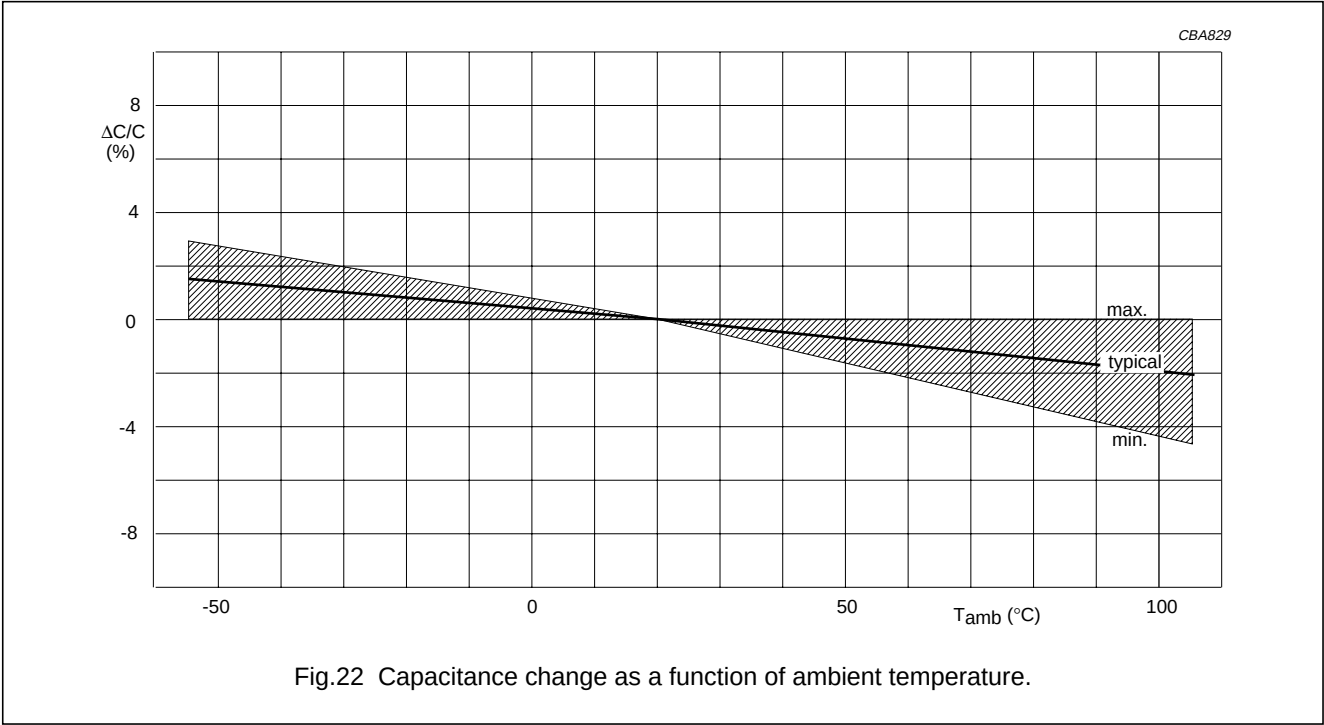
For reference testing, a conditioning period shall be applied over 96 ± 4 hours by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20%.

AC and pulse
metallized polypropylene film capacitors

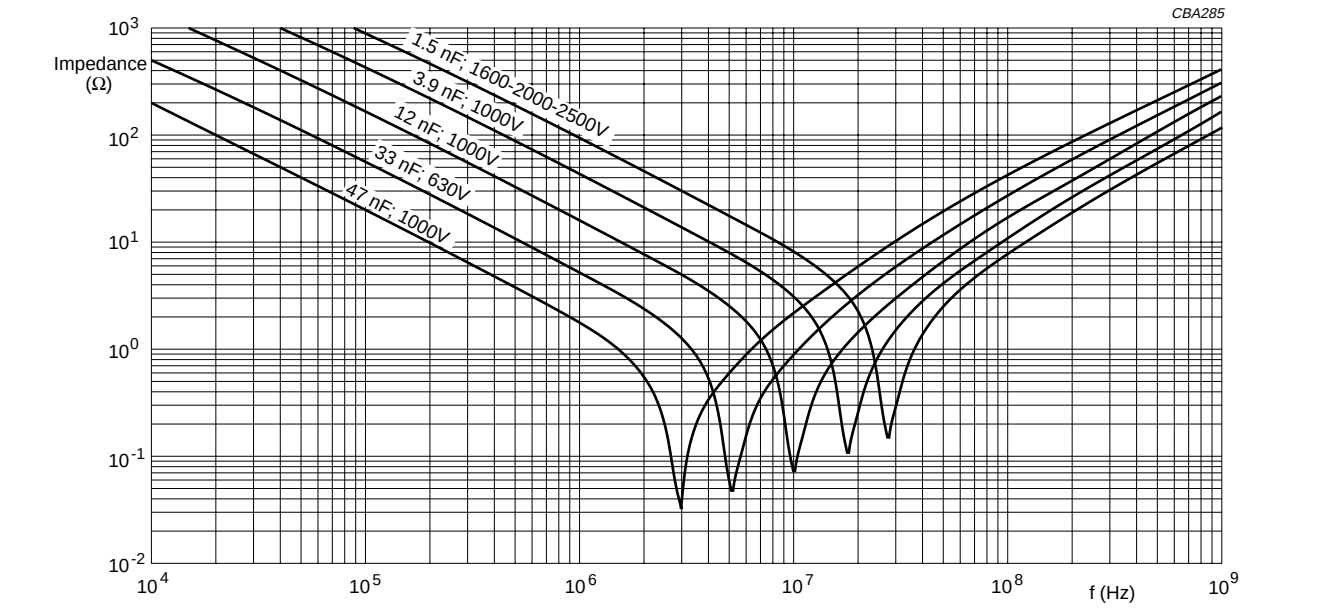
KP/MKP 375

CHARACTERISTICS

Capacitance



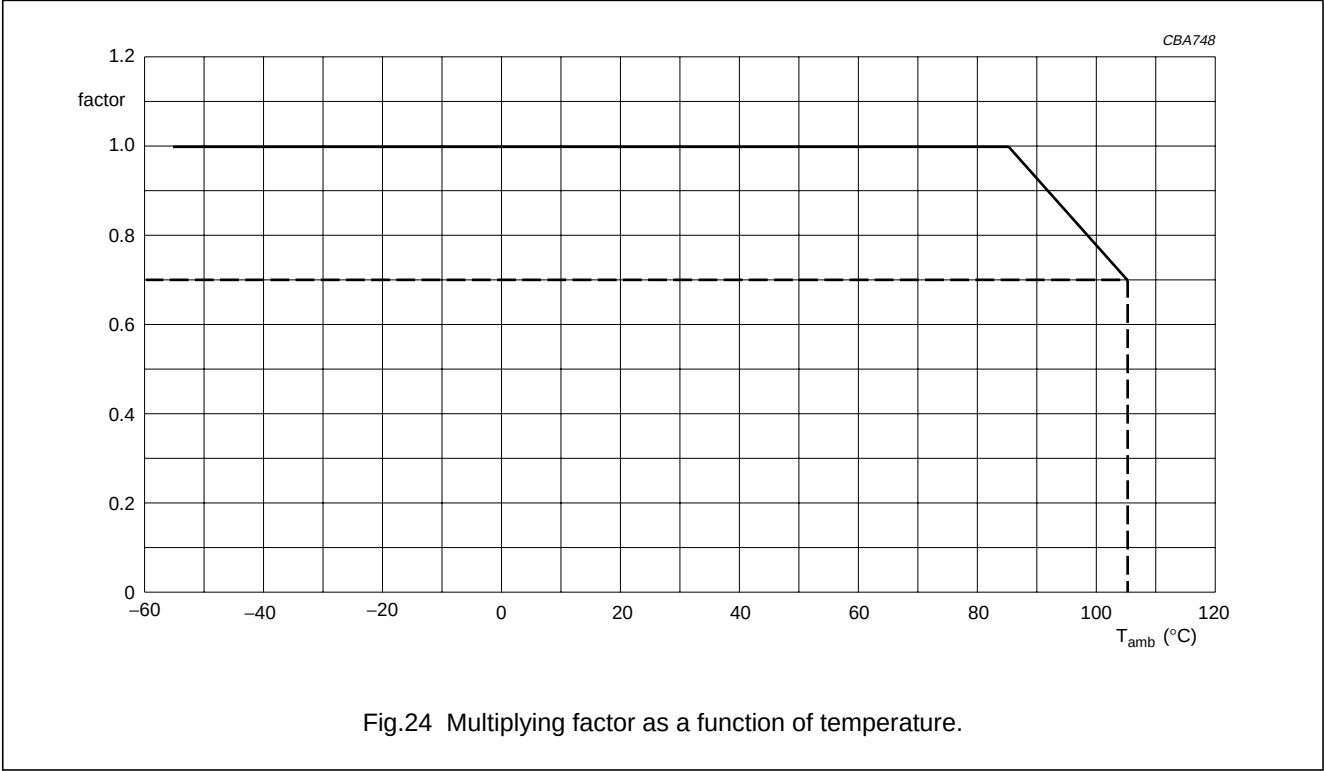
Impedance



AC and pulse
metallized polypropylene film capacitors

KP/MKP 375

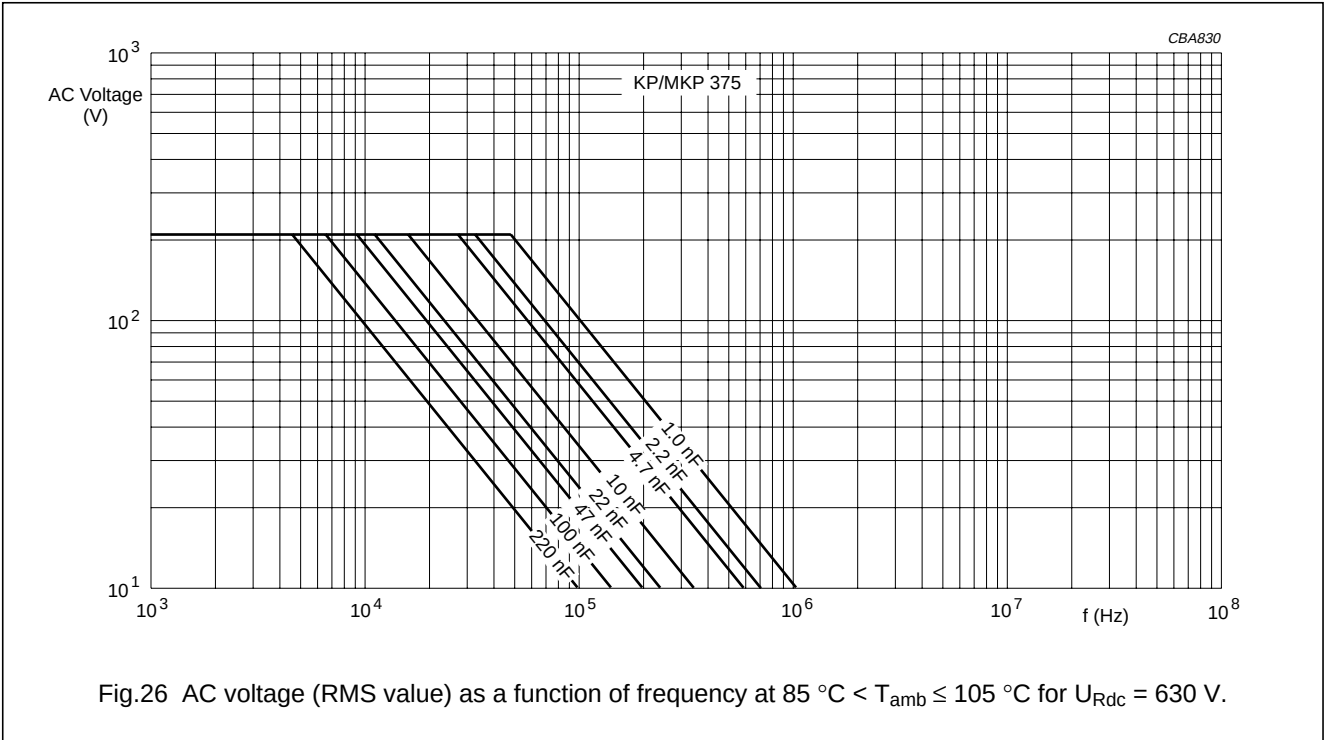
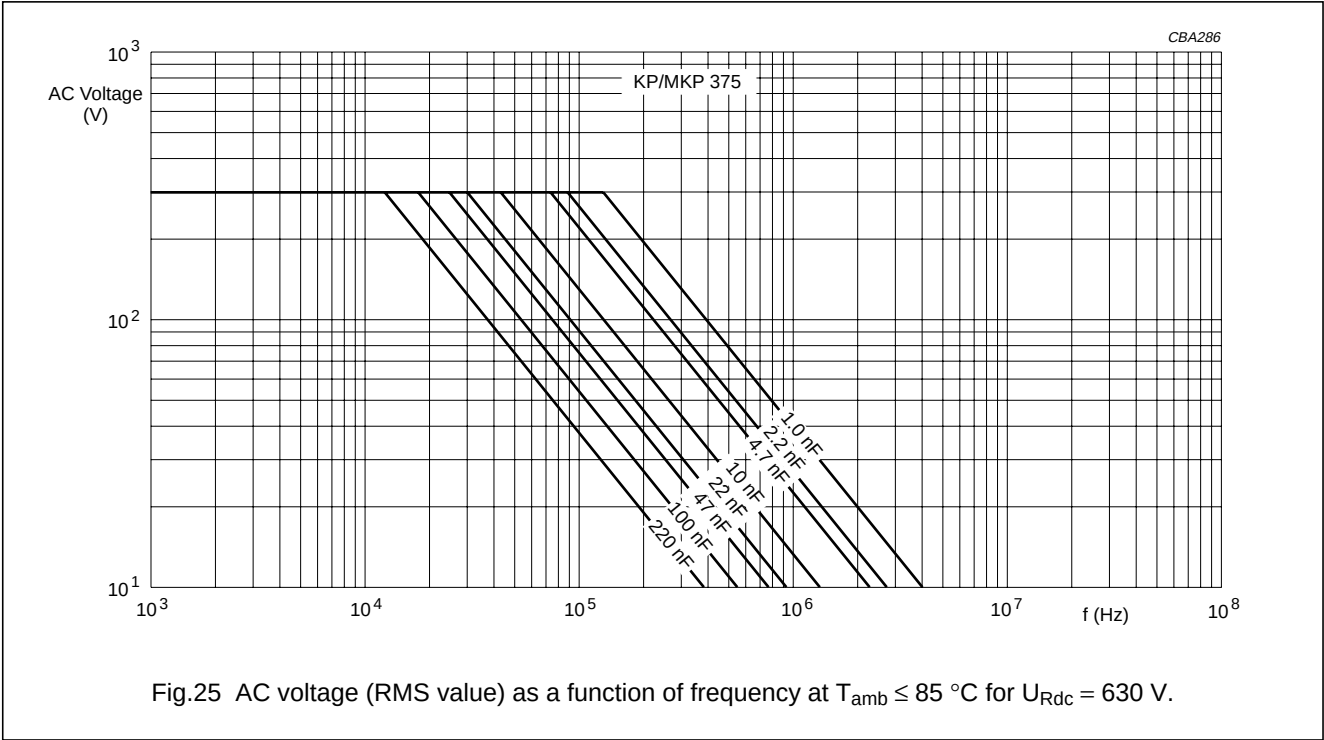
Maximum DC voltage as a function of temperature



AC and pulse
metallized polypropylene film capacitors

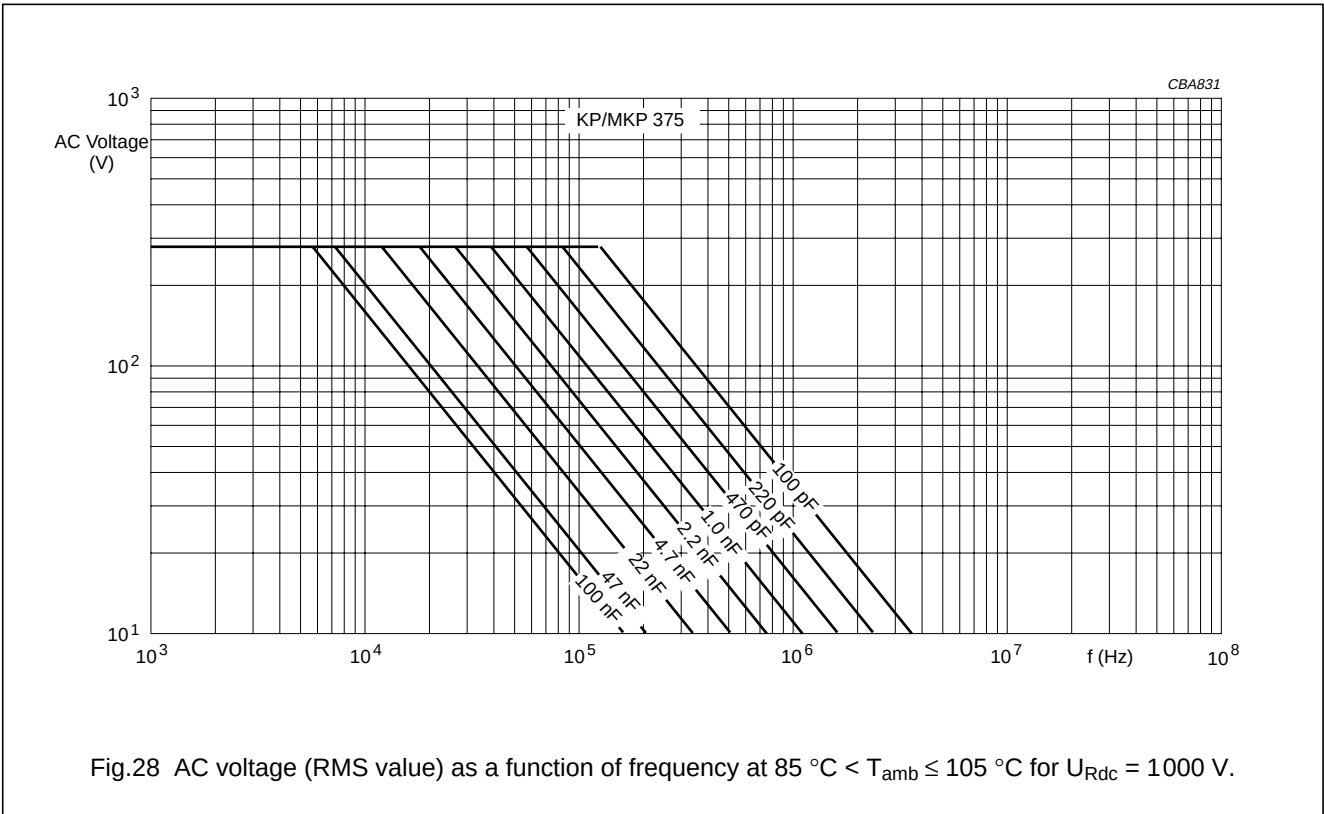
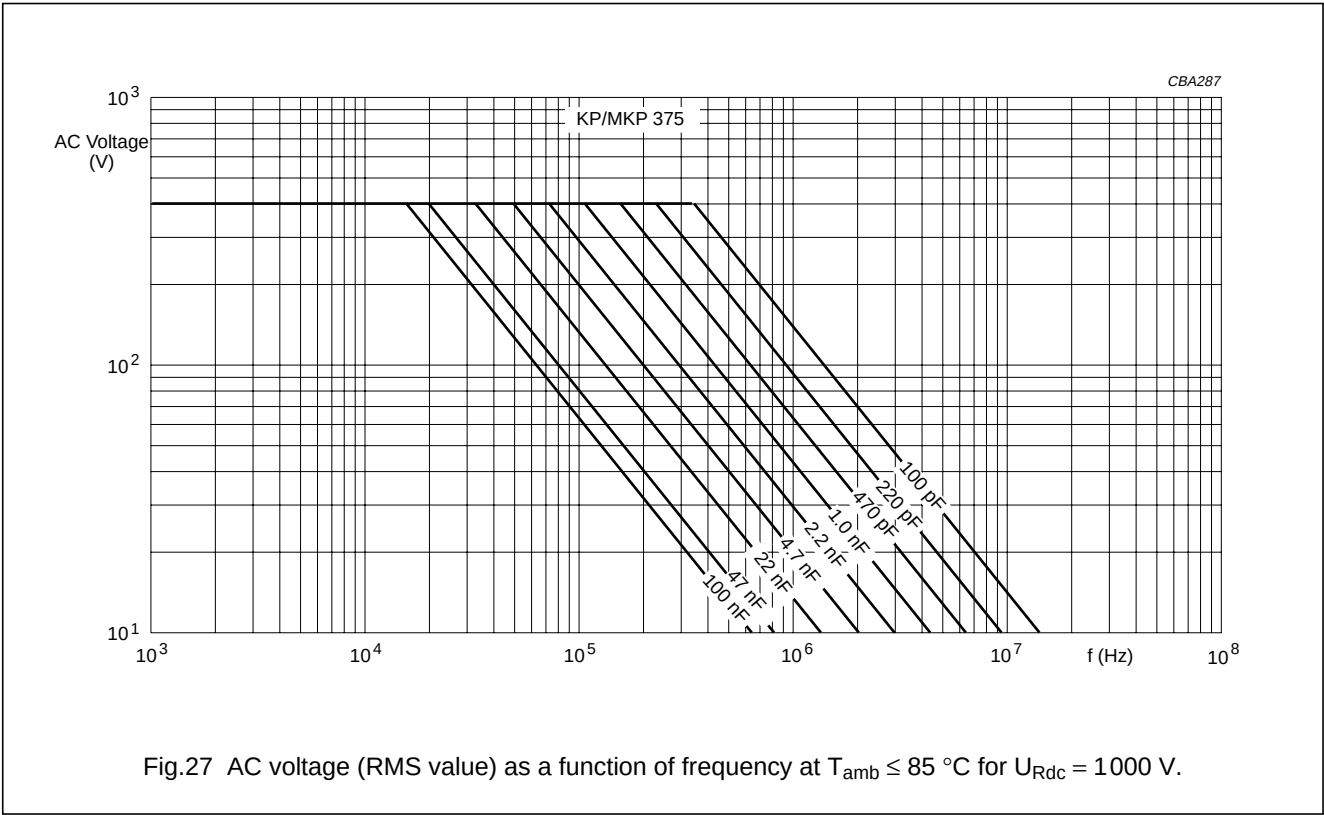
KP/MKP 375

Maximum RMS voltage (sinewave) as a function of frequency



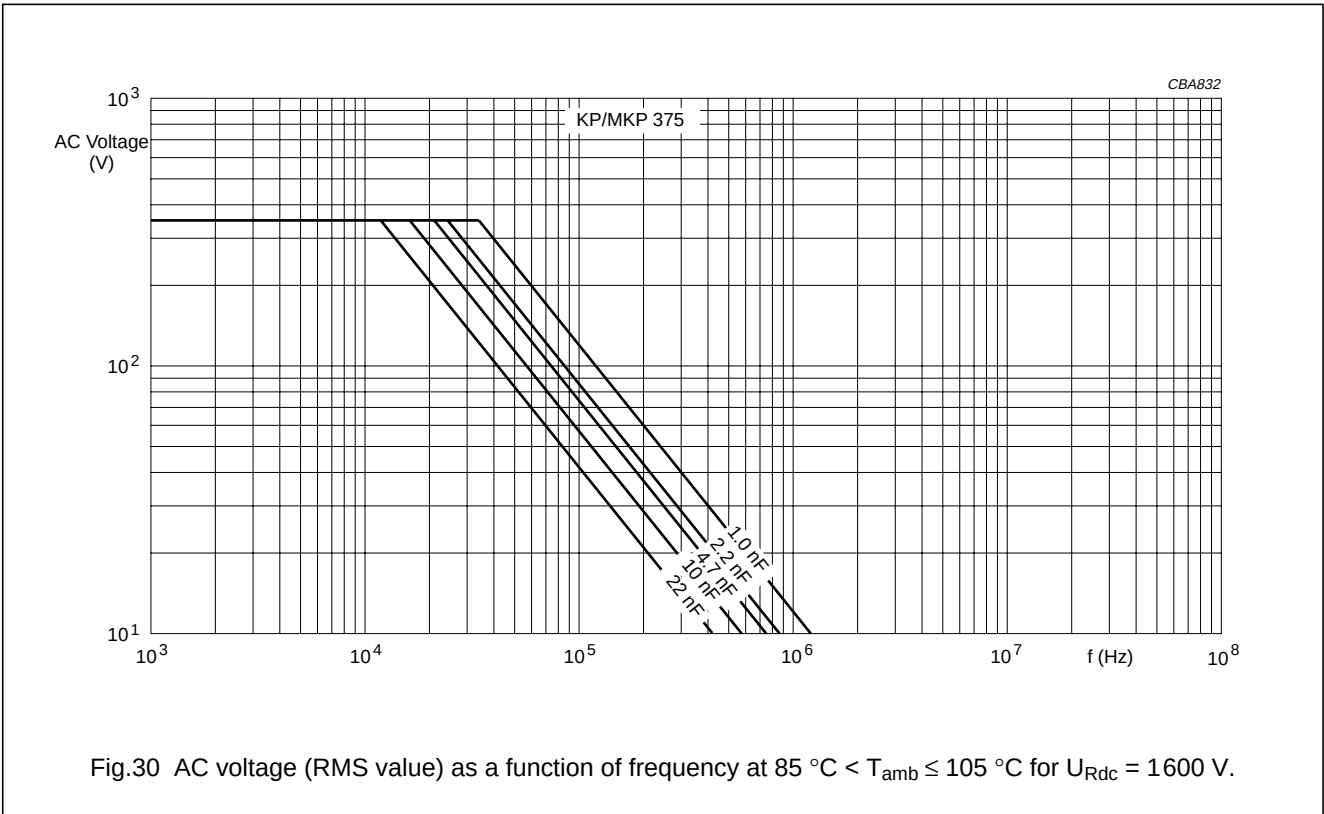
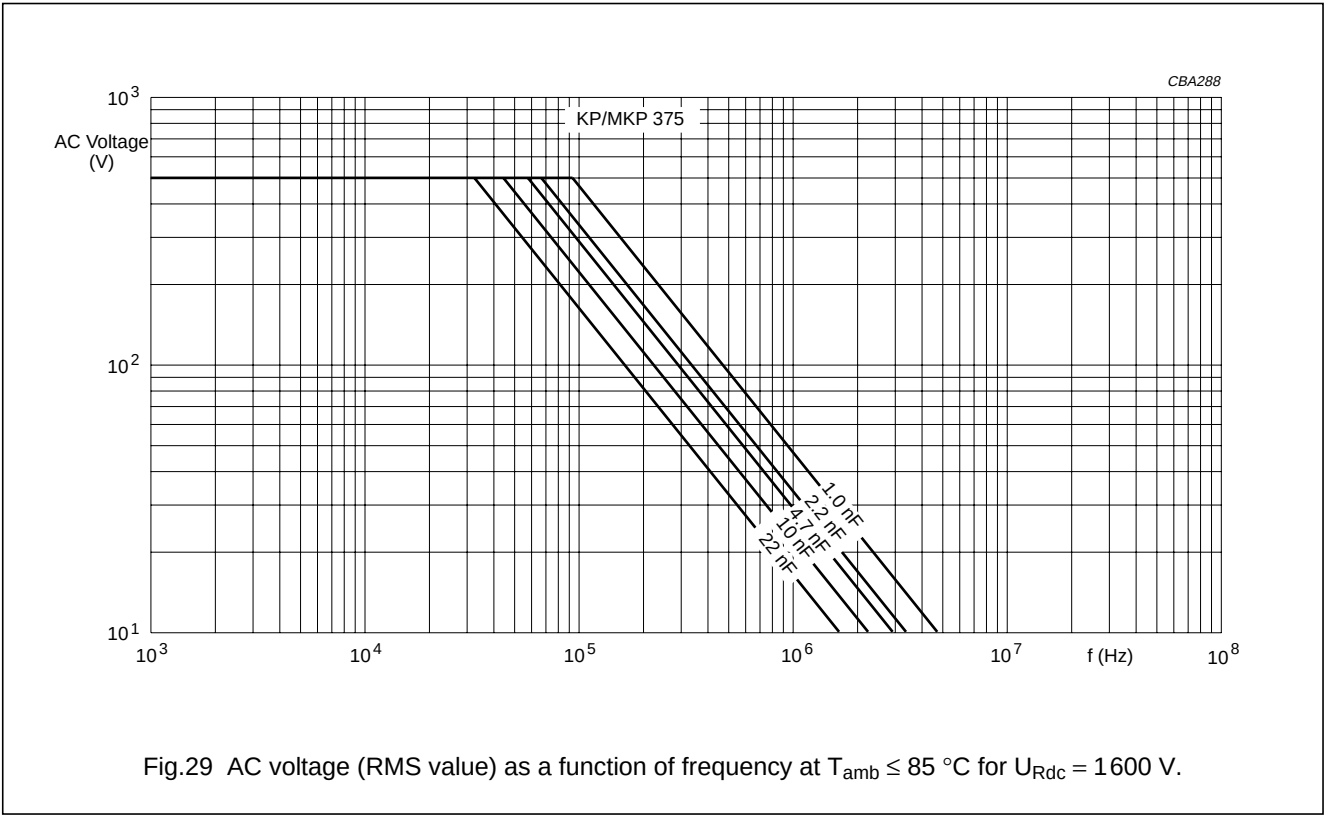
AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



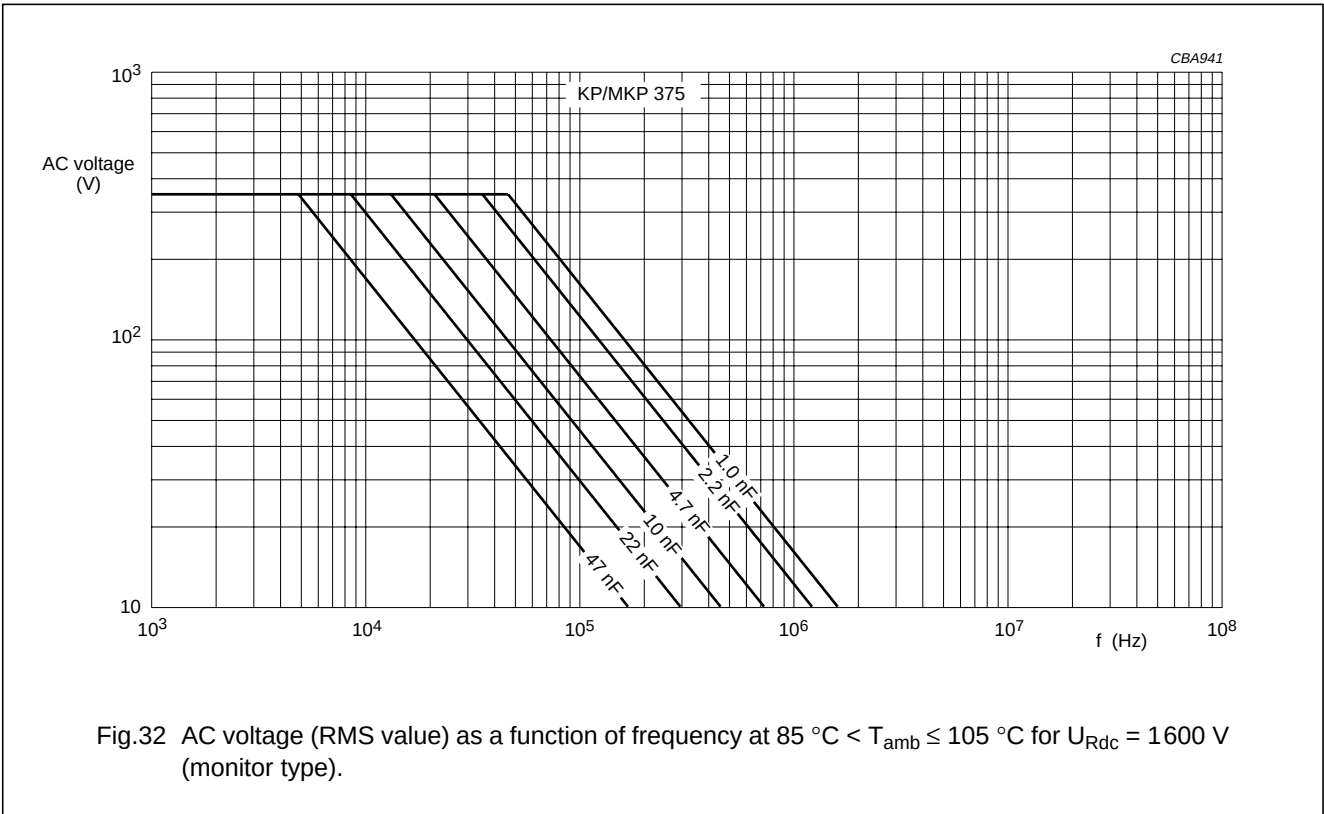
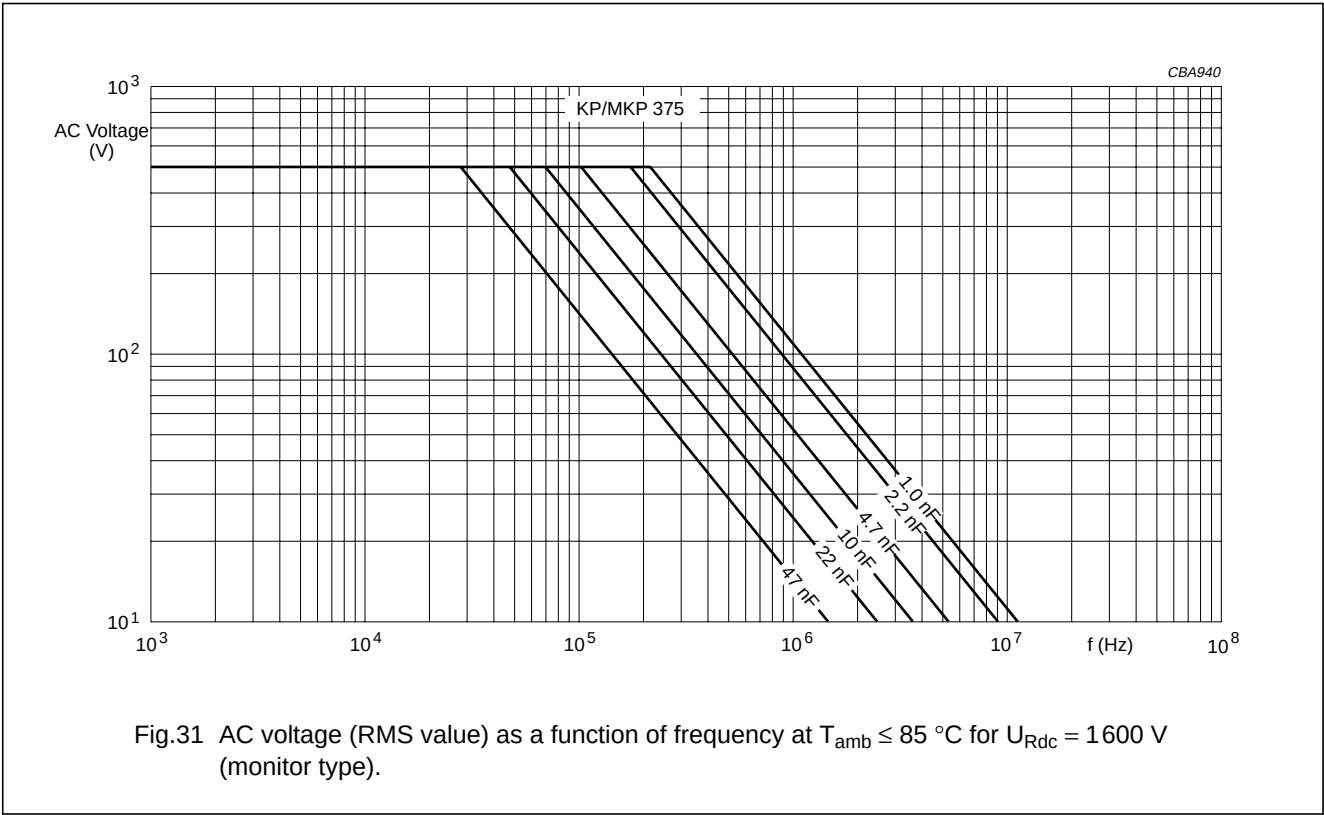
AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



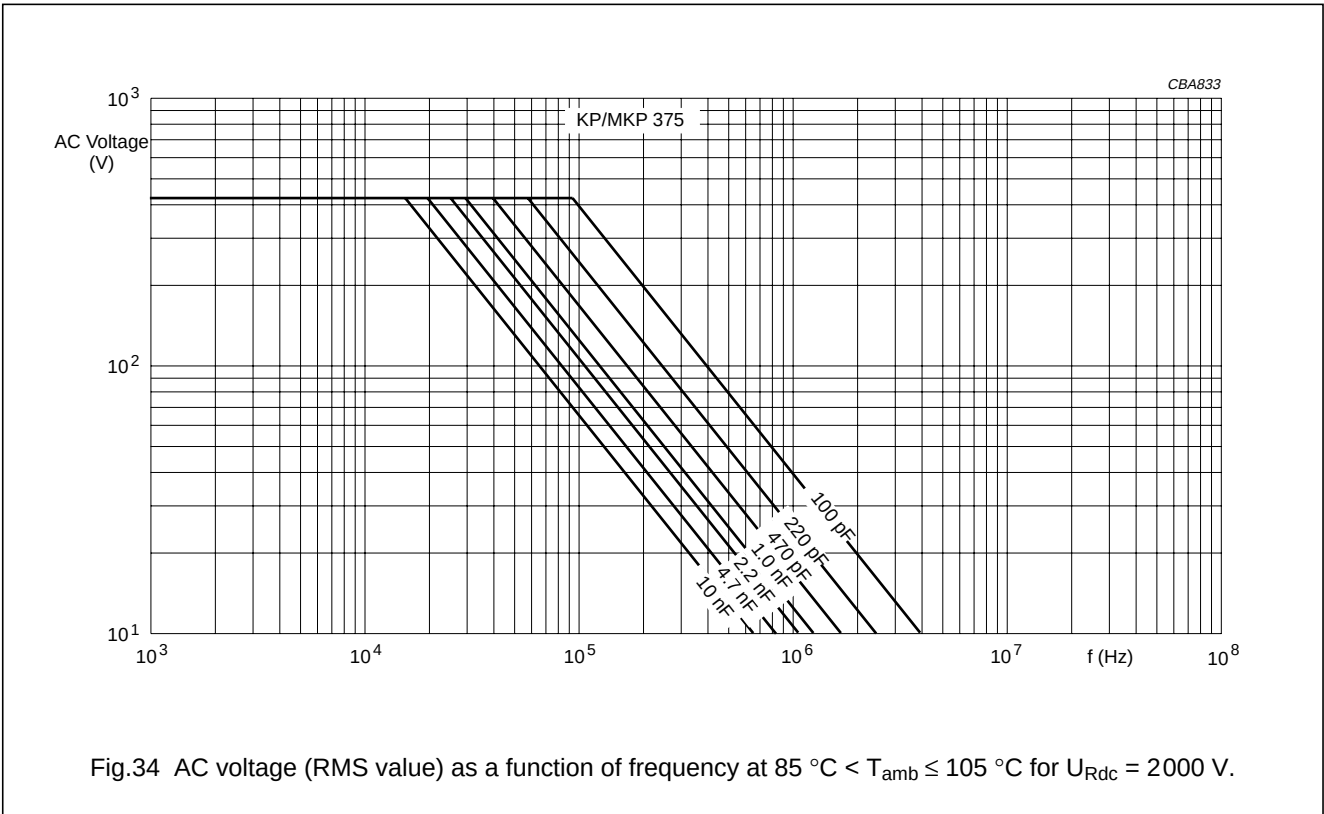
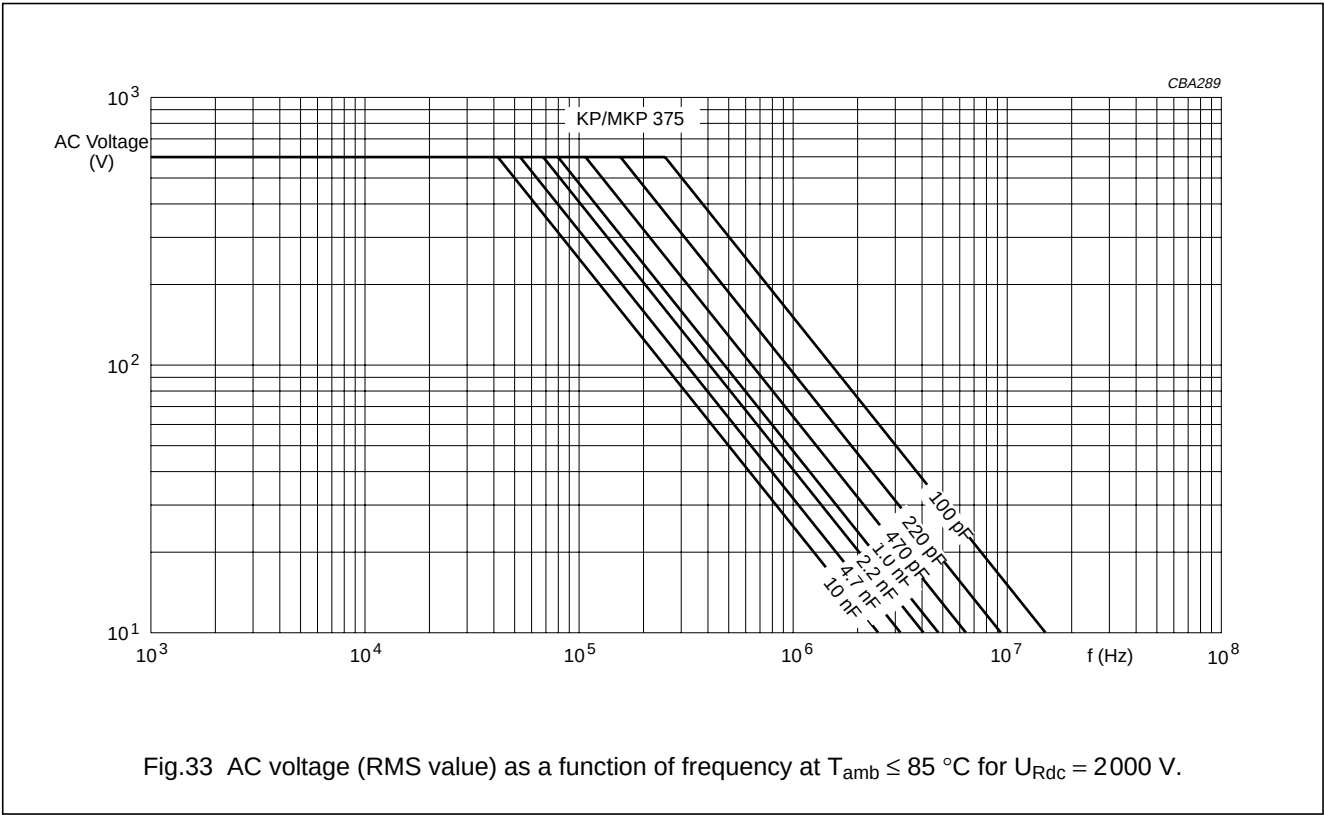
AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



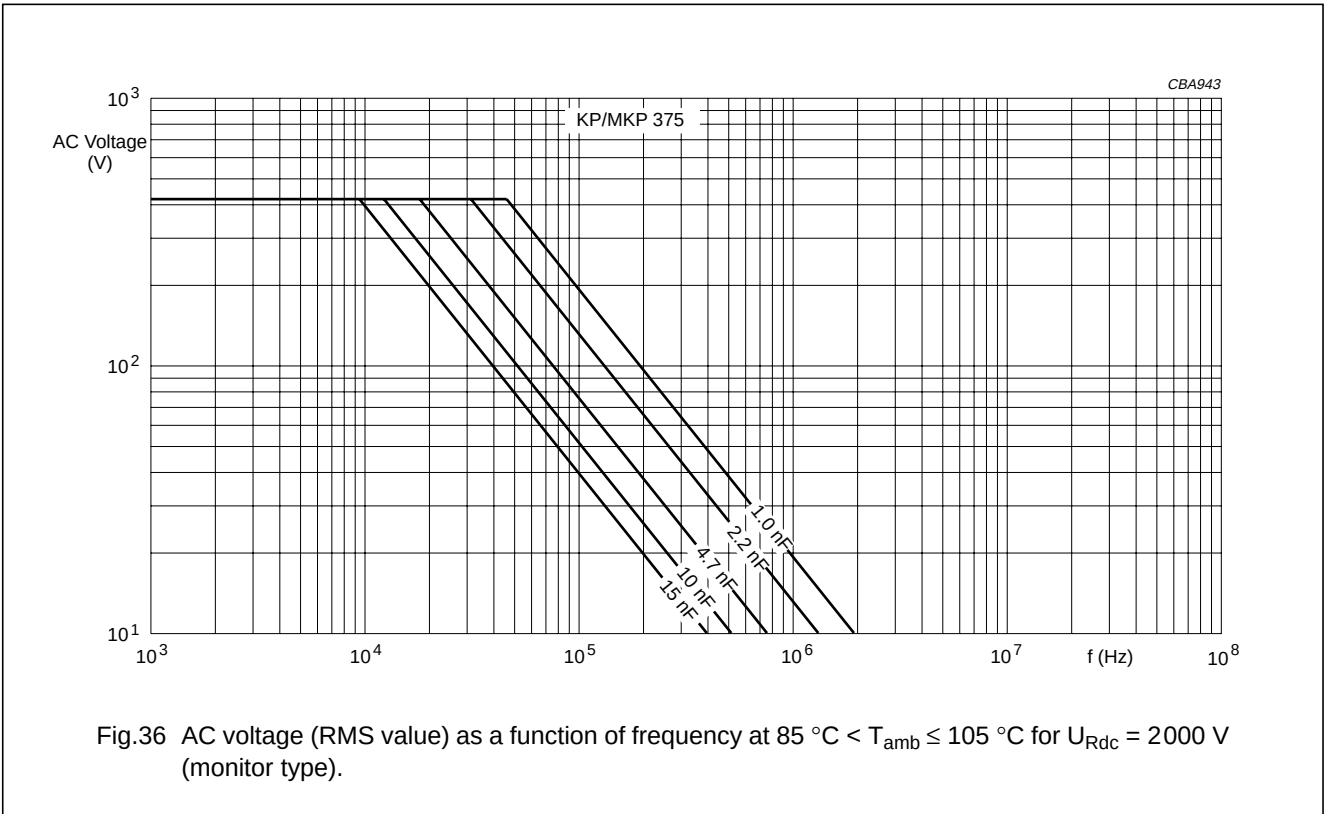
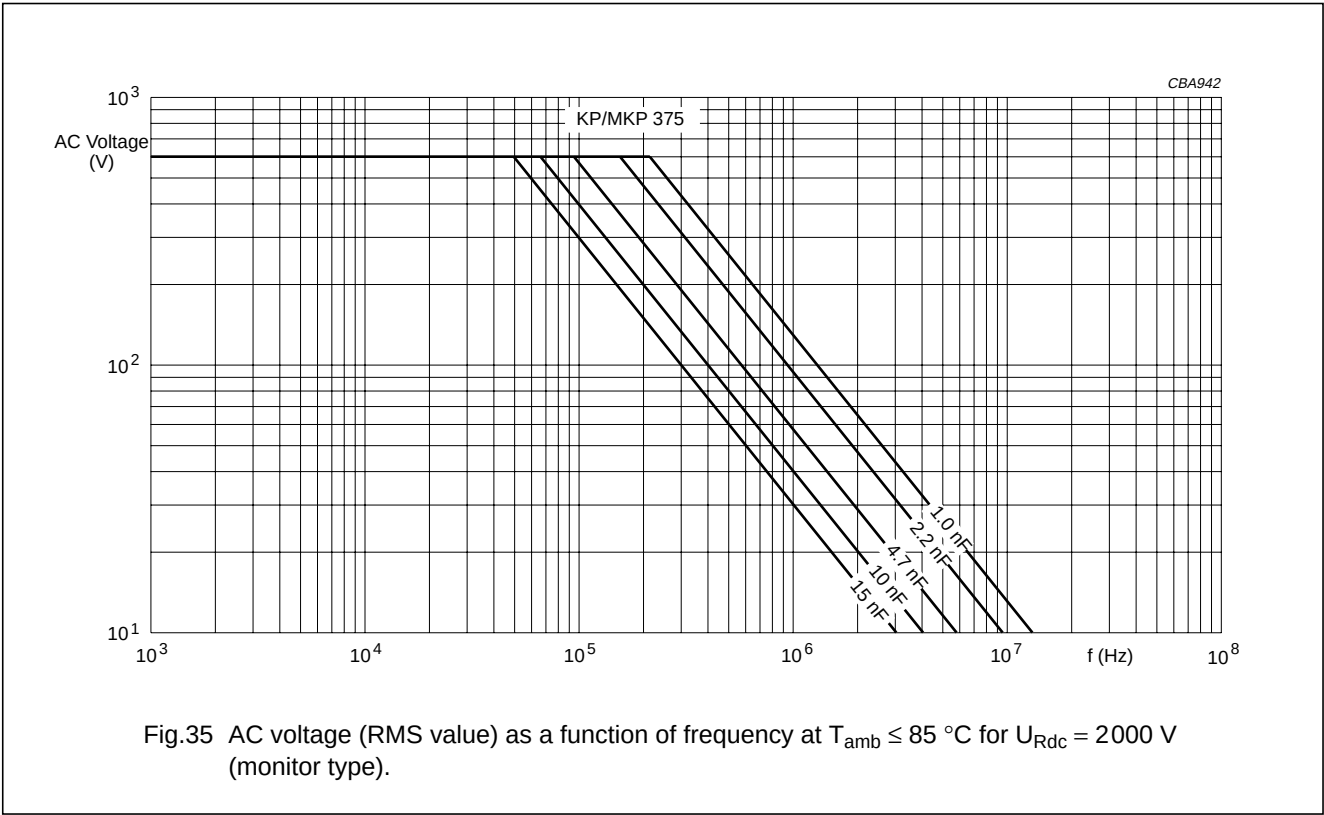
AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



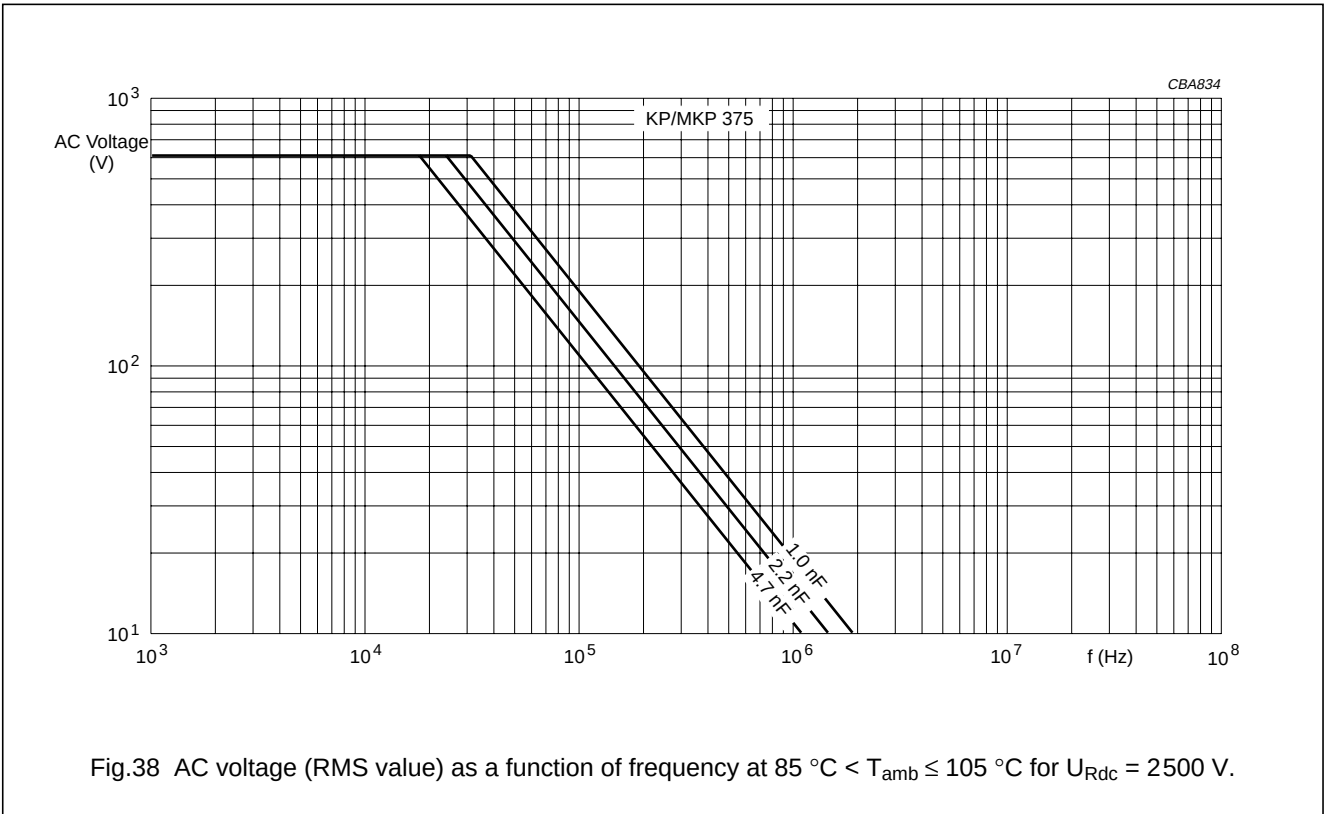
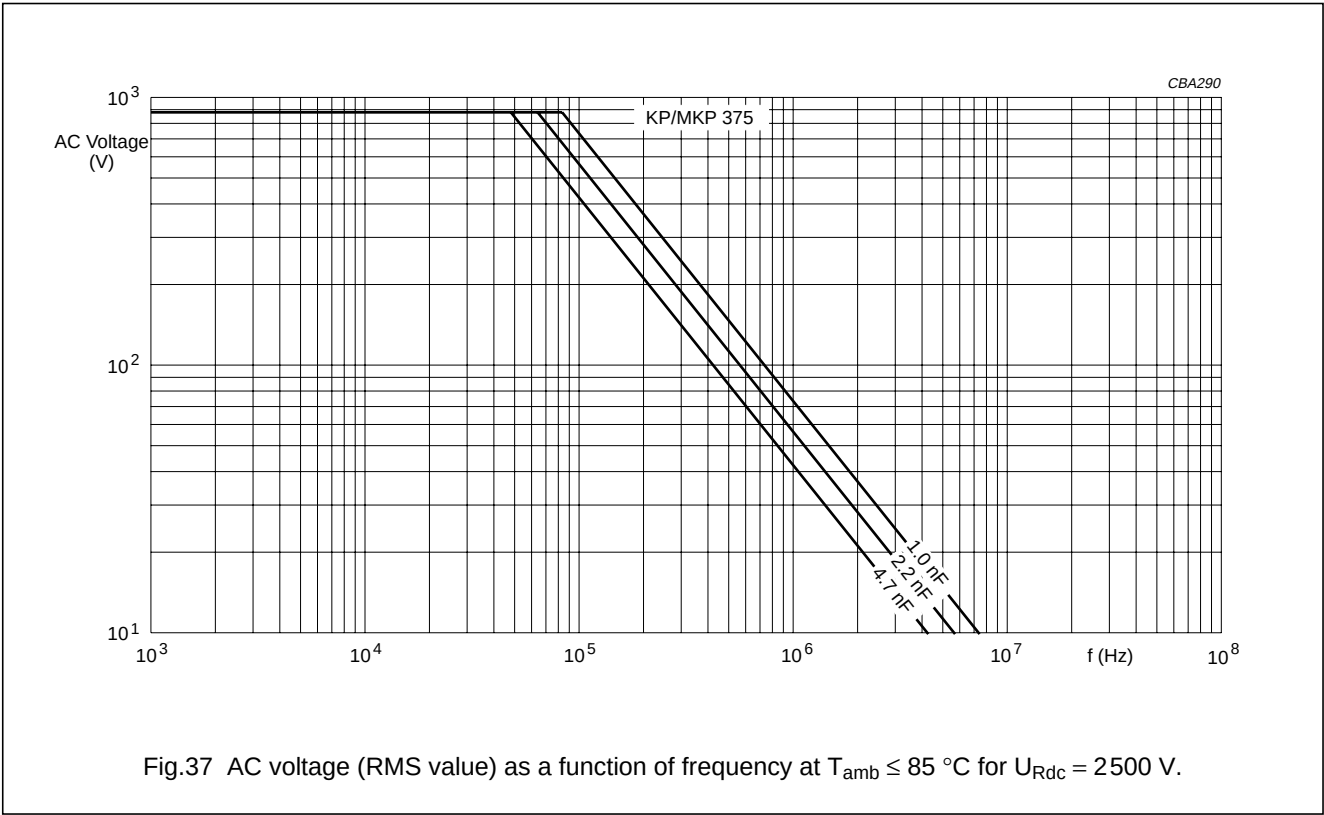
AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



AC and pulse
metallized polypropylene film capacitors

KP/MKP 375



AC and pulse metallized polypropylene film capacitors

KP/MKP 375

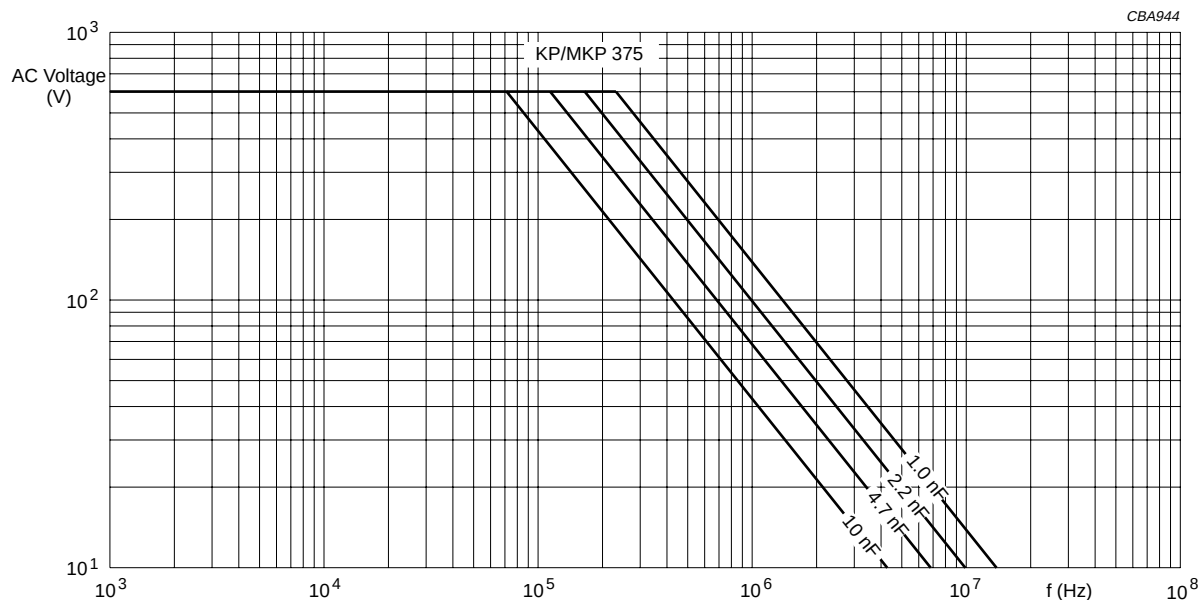


Fig.39 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85^\circ\text{C}$ for $U_{Rdc} = 2500\text{ V}$ (monitor type).

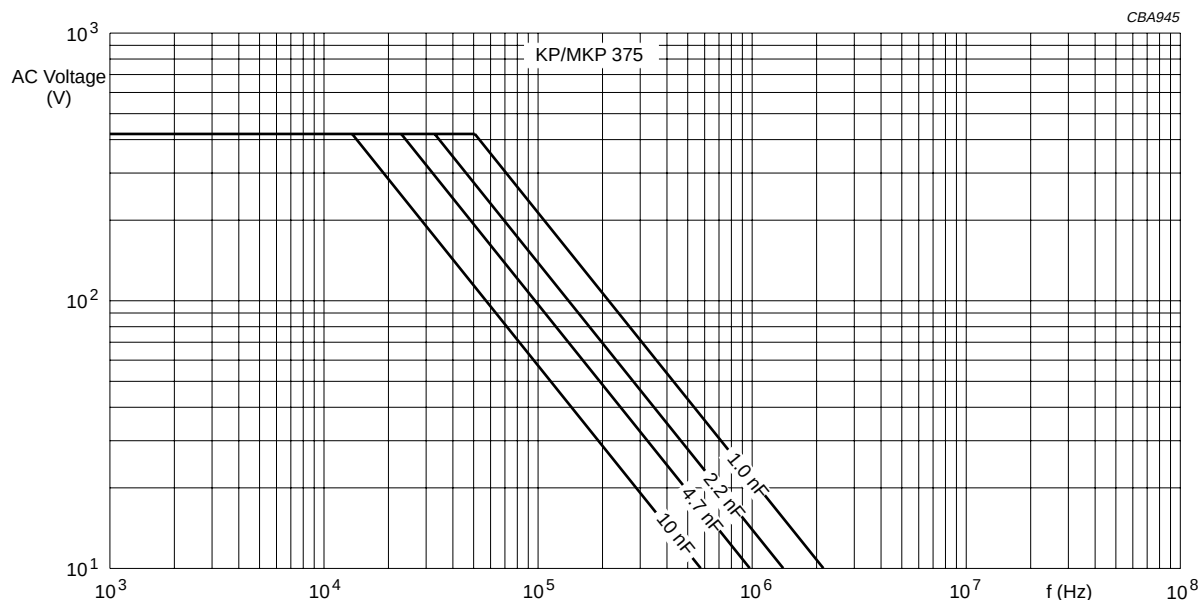


Fig.40 AC voltage (RMS value) as a function of frequency at $85^\circ\text{C} < T_{amb} \leq 105^\circ\text{C}$ for $U_{Rdc} = 2500\text{ V}$ (monitor type).

Maximum RMS current (sinewave) as a function of frequency

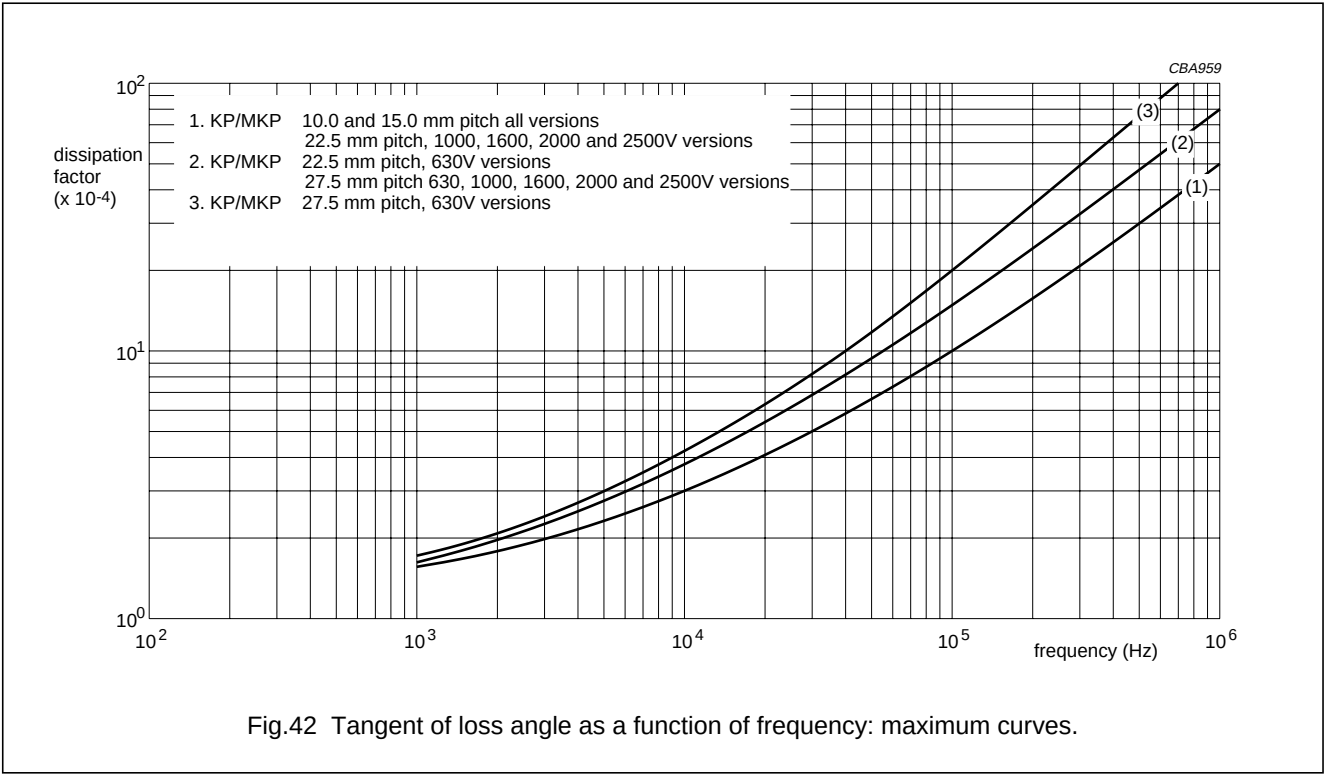
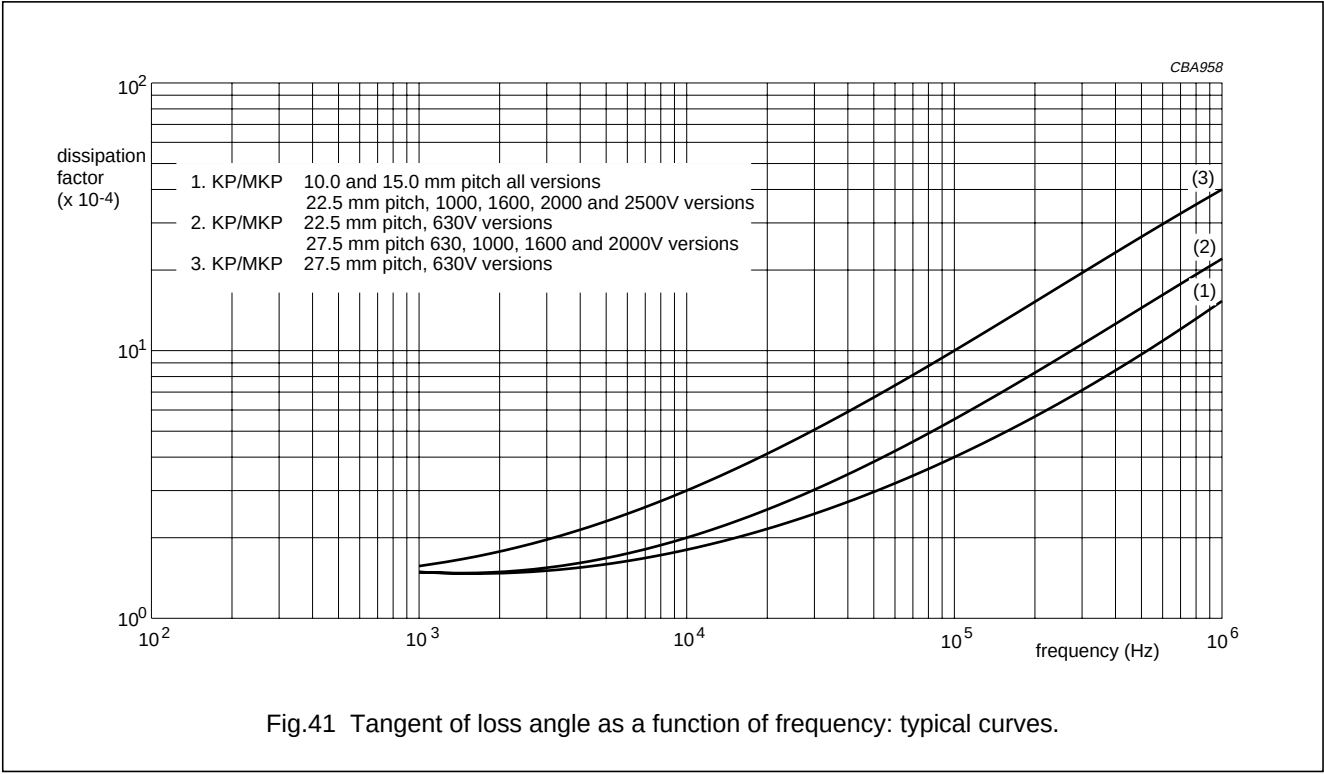
The maximum RMS current is defined by $I_{ac} = \omega \times C \times U_{ac}$.

U_{ac} is the maximum AC voltage depending on the ambient temperature in Figs 25 to 40.

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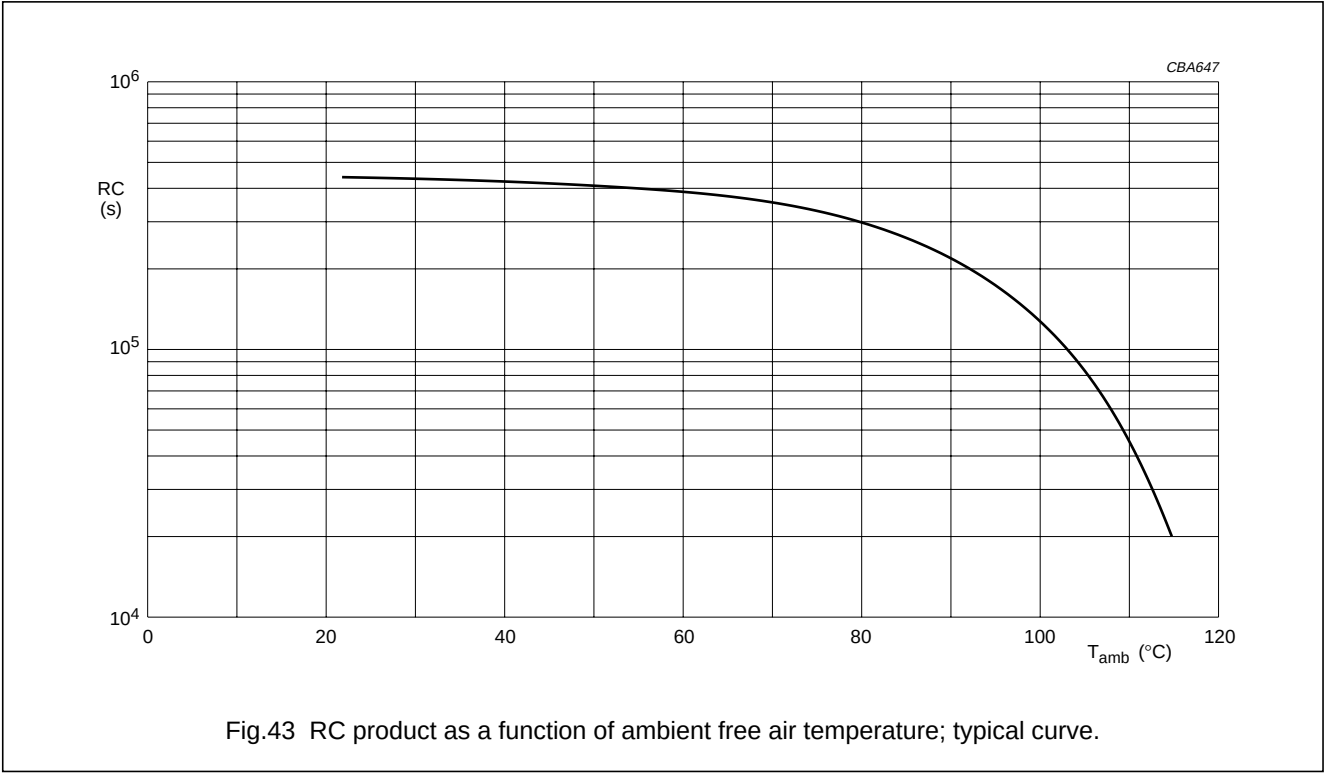
Tangent of loss angle



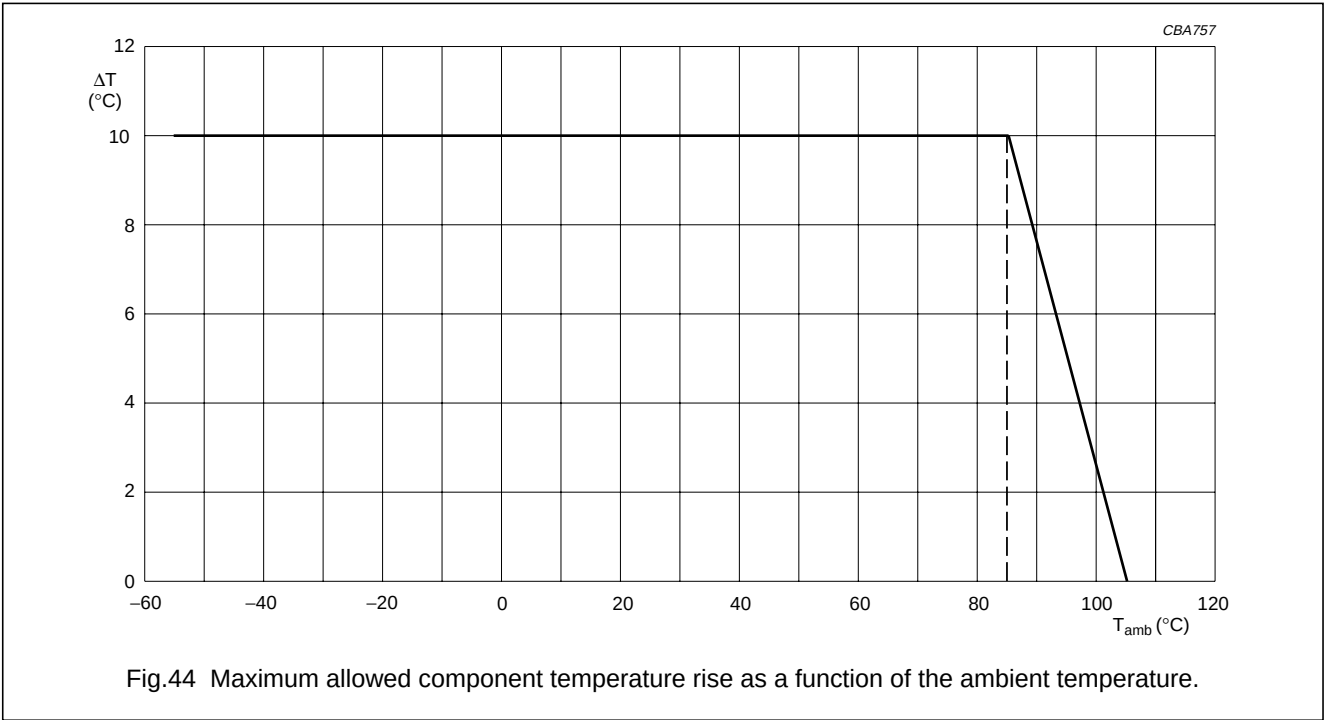
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Insulation resistance



Maximum allowed component temperature rise (ΔT) as a function of the ambient temperature (T_{amb})



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Heat conductivity (G) as a function of pitch and capacitor body thickness in mW/°C

Table 1 Heat conductivity

b_{max} (mm)	ORIGINAL PITCH (mm)			
	10	15	22.5	27.5
4.0	4.0	5.0	–	–
4.5	4.5	6.0	–	–
5.0	5.0	6.0	12.0	13.0
5.5	6.0	6.5	13.0	15.0
6.0	6.0	6.5	13.0	15.0
6.5	6.5	8.0	15.0	17.0
7.0	–	8.0	15.0	17.0
7.5	–	9.0	17.0	18.0
8.0	–	9.0	17.0	20.0
8.5	–	11.0	18.0	20.0
9.0	–	11.0	18.0	22.0
9.5	–	12.0	20.0	22.0
10.0	–	12.0	20.0	23.0
10.5	–	–	22.0	25.0
11.0	–	–	–	25.0
11.5	–	–	–	27.0
12.0	–	–	–	27.0
12.5	–	–	–	30.0
13.0	–	–	–	30.0
13.5	–	–	–	30.0
14.0	–	–	–	30.0
14.5	–	–	–	33.0
15.0	–	–	–	33.0
15.5	–	–	–	37.0
16.0	–	–	–	37.0

Power dissipation and maximum component temperature rise

The power dissipation must be limited in order not to exceed the maximum allowed component temperature rise as a function of the free air ambient temperature.

Power dissipation can be calculated in accordance with chapter “Introduction”, section “Maximum power dissipation”.

The component temperature rise (ΔT) can be measured (see section “Measuring the component temperature” for more details) or calculated by $\Delta T = P/G$:

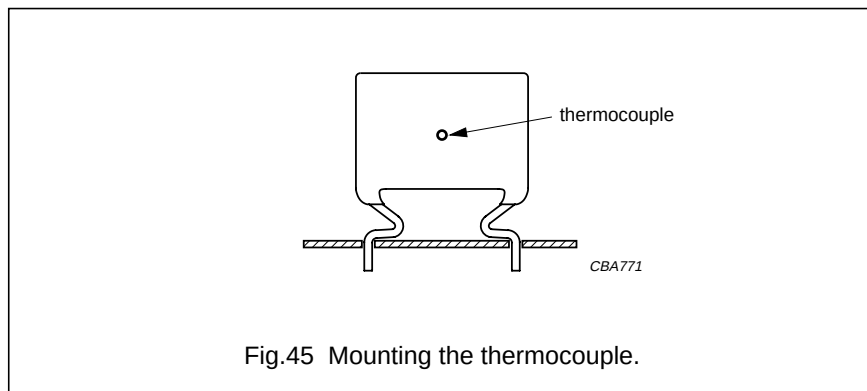
- ΔT = component temperature rise (°C).
- P = power dissipation of the component (mW).
- G = heat conductivity of the component (mW/°C).

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Measuring the component temperature

A thermocouple must be attached to the capacitor body; see Fig.45.



The temperature is measured in unloaded (T_{amb}) and maximum loaded condition (T_c).

The temperature rise is given by: $\Delta T = T_c - T_{amb}$.

To avoid radiation or convection, the capacitor should be tested in a wind-free box.

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Application note and limiting conditions

To select the capacitor for a certain application, the following conditions must be checked:

1. The peak voltage (U_p) shall not be greater than the rated DC voltage (U_{Rdc}).
2. The peak-to-peak voltage (U_{p-p}) shall not be greater than the maximum U_{p-p} to avoid the ionisation inception level.
3. The voltage pulse slope (dU/dt) shall not exceed the rated voltage pulse slope in an RC-circuit at rated voltage and without ringing. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by U_{Rdc} and divided by the applied voltage.

For all other pulses following equation must be fulfilled:

$$2 \times \int_0^T \left(\frac{dU}{dt} \right)^2 \times dt < U_{Rdc} \times \left(\frac{dU}{dt} \right)_{rated}$$

T is the pulse duration.

4. The maximum component surface temperature rise must be lower than the limits in Fig.44.

Example

C = 10 nF - 1600 V, KP/MKP.

This is a signal as in Fig.46 with:

$$U_{p-p} = 1200 \text{ V}; U_p = 1100 \text{ V}; T_1 = 12 \text{ } \mu\text{s}; T_2 = 64 \text{ } \mu\text{s}.$$

The ambient temperature is 50 °C.

Checking the conditions:

1. The peak voltage $U_p = 1100 \text{ V}$ is lower than 1600 V (DC).
2. The peak-to-peak voltage 1200 V is lower than $2 \times \sqrt{2} \times 500 \text{ V (AC)} = 1414 U_{p-p}$.
3. The voltage pulse slope: 320 V/ μs is much lower than 7000 V/ μs .
4. The dissipated power is 170 mW as calculated with Fourier terms.

This gives a temperature rise of $\frac{170 \text{ mW}}{17 \text{ mW}/^\circ\text{C}} = 10 \text{ }^\circ\text{C}$ which is allowed according Fig.44 for an ambient temperature of 50 °C.

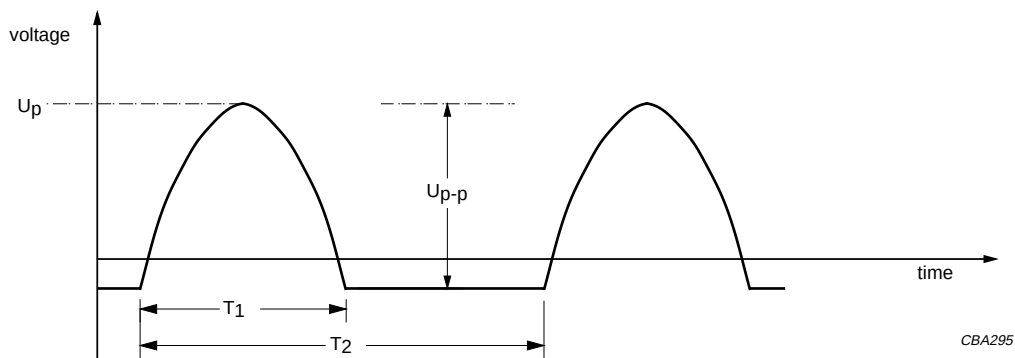


Fig.46 Voltage signal.

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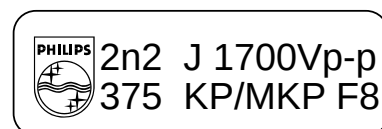
MARKING

Product marking

COUNTRY OF ORIGIN: BELGIUM

The capacitors are marked on the top (see Fig.47) with the following information:

1. Capacitance code in accordance with "IEC 60062"
2. Capacitance tolerance: J = $\pm 5\%$; A = 3.5%
3. Rated peak-to-peak voltage (e.g. 1700 V_{p-p})
4. Manufacturer's type designation (375)
5. Code for dielectric material (KP/MKP)
6. Manufacturer's emblem (only for original pitch ≥ 15 mm)
7. Year and month of manufacturing code (only for original pitch ≥ 22.5 mm).



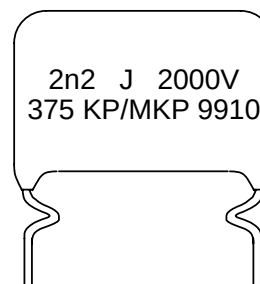
CBA296

Fig.47 Example of marking.

COUNTRY OF ORIGIN: PRC (PEOPLE'S REPUBLIC OF CHINA)

The capacitors are marked in ink on the front (see Fig.48) with the following information:

1. Capacitance code in accordance with "IEC 60062"
2. Capacitance tolerance: J = $\pm 5\%$; A = 3.5%
3. Rated (DC) voltage (e.g. 2000 V)
4. Manufacturer's type designation (375)
5. Code for dielectric material (KP/MKP)
6. Year and week of manufacturing code.



CBA446

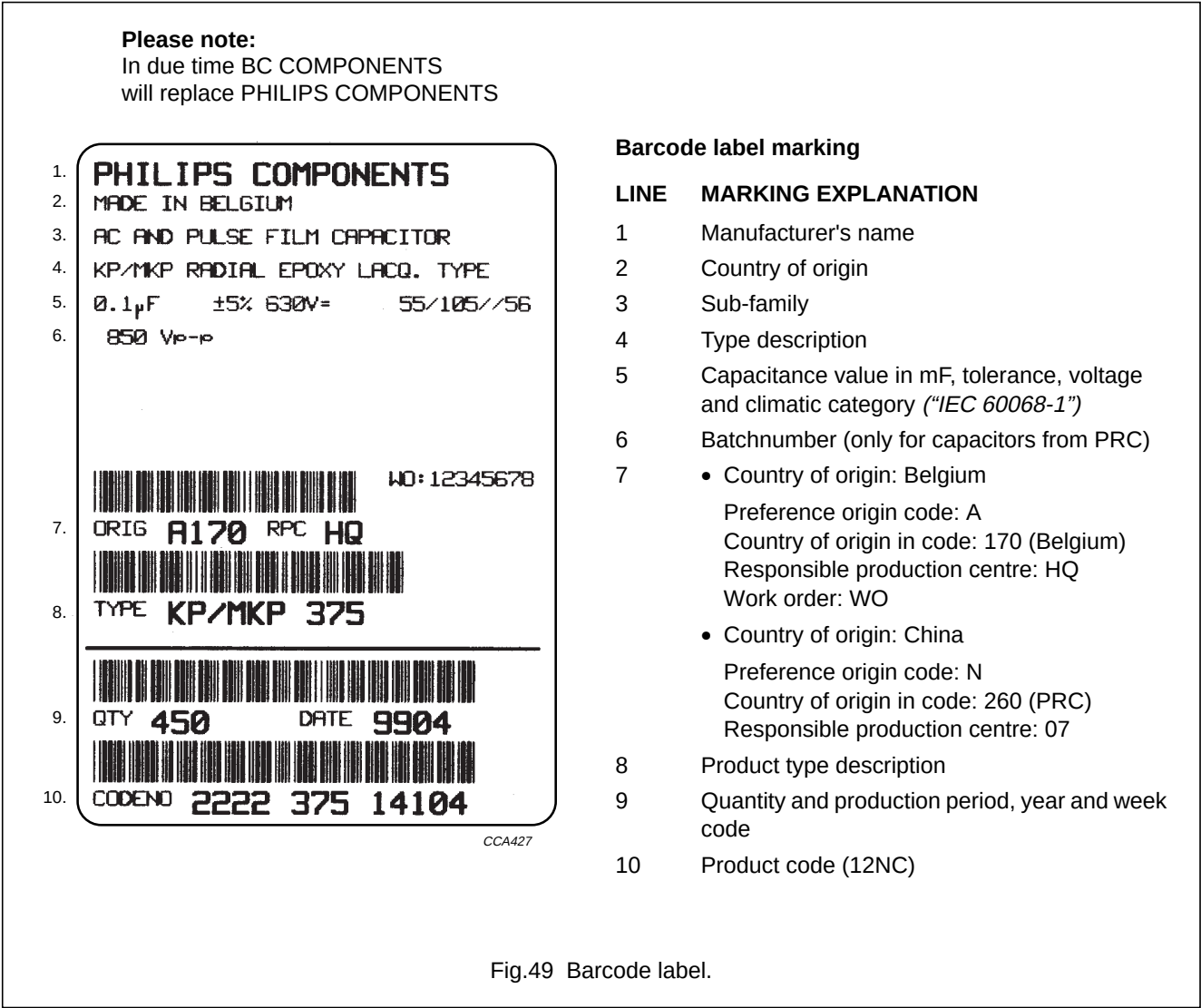
Fig.48 Example of marking.

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Package marking

The package containing the capacitors is marked as shown in Fig.49.



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QUICK REFERENCE TEST REQUIREMENTS (see note 1)

TEST	PROCEDURE (quick reference)	REQUIREMENTS
Robustness of leads		
Tensile strength: "IEC 60068-2-21"	load 10 N; 10 s	no visible damage legible marking $ \Delta C/C \leq 1\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 5 \times 10^{-4}$
Bending: "IEC 60068-2-21"	load 5 N; $4 \times 90^\circ$	
Resistance to soldering heat: "IEC 60068-2-20"	solder bath: 260 °C; 10 s	
Component solvent resistance	isopropyl alcohol; 23 °C; 5 minutes	
Robustness of component		
Vibration: "IEC 60068-2-6"	10 to 55 Hz; amplitude 0.75 mm or acceleration 98 m/s ² ; 6 hours	$ \Delta C/C \leq 2\%$ ($C > 0.0056 \text{ }\mu\text{F}$) $ \Delta C/C \leq 3\% + 5 \text{ pF}$ ($C \leq 0.0056 \text{ }\mu\text{F}$) $\Delta \tan \delta \leq 5 \times 10^{-4}$
Shock: "IEC 60068-2-27"	half sinewave; 490 m/s ² ; 11 ms	
Climatic sequence		
Dry heat: "IEC 60068-2-2"	16 hours; 105 °C	$ \Delta C/C \leq 3\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 10 \times 10^{-4}$ $R_{\text{ins}} \geq 50\%$ of specified value
Damp heat, cyclic, test Db, first cycle: "IEC 60068-2-30"		
Cold: "IEC 60068-2-1"	2 hours; −55 °C	
Damp heat, cyclic, test Db, remaining cycles: "IEC 60068-2-30"		
Other applicable tests		
Damp heat, steady state: "IEC 60068-2-3"	56 days; 40 °C; 90 to 95% RH	$ \Delta C/C \leq 1\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 5 \times 10^{-4}$ $R_{\text{ins}} \geq 50\%$ of specified value
Endurance (AC): "IEC 60384-17"	2000 hours; $1.25 \times U_{\text{Rac}}$ (RMS); 50 Hz; 85°C	$ \Delta C/C \leq 2\%$ ($C > 0.0056 \text{ }\mu\text{F}$) $ \Delta C/C \leq 3\% + 5 \text{ pF}$ ($C \leq 0.0056 \text{ }\mu\text{F}$) $\Delta \tan \delta \leq 10 \times 10^{-4}$ $R_{\text{ins}} \geq 50\%$ of specified value
	2000 hours; $0.875 \times U_{\text{Rac}}$ (RMS); 50 Hz; 105°C	$ \Delta C/C \leq 5\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 10 \times 10^{-4}$ $R_{\text{ins}} \geq 50\%$ of specified value
Heat storage: "IEC 60384-17"	2000 hours; 105 °C	$ \Delta C/C \leq 3\%$ ($C > 0.0056 \text{ }\mu\text{F}$) $ \Delta C/C \leq 5\% + 5 \text{ pF}$ ($C \leq 0.0056 \text{ }\mu\text{F}$) $\Delta \tan \delta \leq 10 \times 10^{-4}$

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TEST	PROCEDURE (quick reference)	REQUIREMENTS
Resistance to soldering heat with preheating: "IEC 60384-17"	body temperature: 105 °C; bath temperature: 260 °C; dwell time: 10 s	$ \Delta C/C \leq 2\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 5 \times 10^{-4}$
Passive flammability: "IEC 60384-1"	class C	no burning
Endurance (DC): "IEC 60384-17"	2000 hours: $1.25 \times U_{RDC}$; 85 °C $0.875 \times U_{RDC}$; 105 °C	$ \Delta C/C \leq 3\% + 5 \text{ pF}$ $\Delta \tan \delta \leq 10 \times 10^{-4}$ $R_{ins} \geq 50\%$ of specified value

Note

- For detailed information: see "Type detail specification HQN-384-17/104".