DATA SHEET

MKT 370/371/372/373
Metallized polyester film capacitors

Product specification
Supersedes data of 2001 Sep 13
File under BCcomponents, BC05

2003 Jan 17

BC COMPONENTS

Metallized polyester film capacitors MKT 370/371/372/373

MKT RADIAL POTTED TYPE **PITCH 5/7.5/10/15/22.5/27.5 mm**

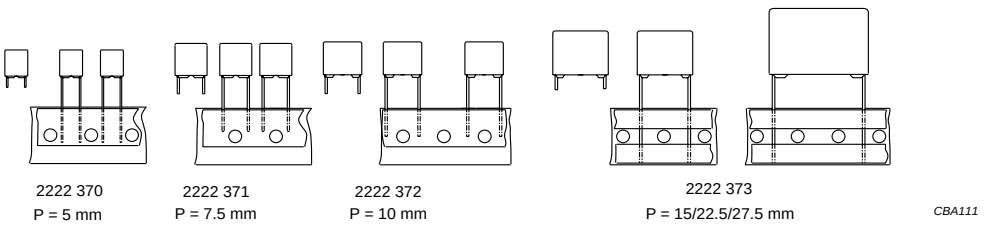


Fig.1 Simplified outlines.

FEATURES

- Low-inductive wound cell of metallized (PETP) film
- Potted with epoxy resin in a flame-retardant case
- Radial leads of solder-coated wire
- Withstands solvents and rinsing liquids
- Small stand-off pips to allow removal of solder flux
- Suitable for high density packaging.

APPLICATIONS

- Blocking and coupling
- Bypass and energy reservoir.

DETAIL SPECIFICATION

For more detailed data and test requirements see *"Type detail specification HQN-384-02/103"*.

QUICK REFERENCE DATA

DESCRIPTION	VALUE
Capacitance range (E12 series)	0.001 to 15 µF
Capacitance tolerance	±10%; ±5%
Rated (DC) voltage	63 V; 100 V; 250 V; 400 V; 630 V
Rated (AC) voltage	40 V; 63 V; 160 V; 220 V; 250 V
Climatic category	55/105/56
Rated temperature	85 °C
Maximum application temperature	105 °C
Reference specification	IEC 60384-2
Performance grade	grade 1 (long life)
Materials	qualified in accordance with UL94 V-0

Metallized polyester film capacitors MKT 370

COMPOSITION OF CATALOGUE NUMBER

TYPE AND PITCHES	
370	5.08 mm

MULTIPLIER (nF)	
0.1	2
1	3
10	4
100	5

CAPACITANCE (numerically)

Example:
104 = 10 x 10 = 100 nF

2222	370	XX	XX	X

TYPE	PACKAGING	LEAD CONFIGURATION	PREFERRED TYPES				
			C-TOL	63 V	100 V	250 V	400 V
370	ammopack		±10%	75	85	35	65
			±5%	76	86	36	66
			ON REQUEST				
370	loose in box	lead length 4.0 mm	±10%	11	21	41	51
			±5%	12	22	42	52
		lead length 26.0 mm	±10%	15	25	45	55
			±5%	16	26	46	56
	taped on reel		±10%	18	28	48	58
			±5%	19	29	49	59

Metallized polyester film capacitors MKT 371/372/373

TYPE AND PITCHES	
371	7.5 mm
372	10.0 mm
373	15.0 mm
	22.5 mm
	27.5 mm

MULTIPLIER (nF)	
0.1	2
1	3
10	4
100	5

CAPACITANCE (numerically)

Example:
104 = 10 x 10 = 100 nF

2222	37.	XX	XX	X

TYPE	PACKAGING	LEAD CONFIGURATION	PREFERRED TYPES					
			C-TOL	63 V	100 V	250 V	400 V	630 V
371	loose in box	lead length 4.0 mm	±10%	11	21	41	51	–
			±5%	12	22	42	52	–
	ammopack		±10%	38	68	78	88	–
			±5%	39	69	79	89	–
372	loose in box	lead length 4.0 mm	±10%	–	21	41	51	61
373	loose in box	lead length 5.0 mm	±10%	–	23	43	53	63
			ON REQUEST					
371	loose in box	lead length 26.0 mm	±10%	15	25	45	55	–
			±5%	16	26	46	56	–
	taped on reel		±10%	35	65	75	85	–
			±5%	36	66	76	86	–
372	loose in box	lead length 4.0 mm	±5%	–	22	42	52	62
	taped on reel		±10%	–	25	45	55	65
			±5%	–	26	46	56	66
	ammopack		±10%	–	28	48	58	68
			±5%	–	29	49	59	69
373	loose in box	lead length 5.0 mm	±5%	–	24	44	54	64
	taped on reel		±10%	–	27	47	57	67
			±5%	–	28	48	58	68

MKT 370 GENERAL DATA **PITCH 5 mm**

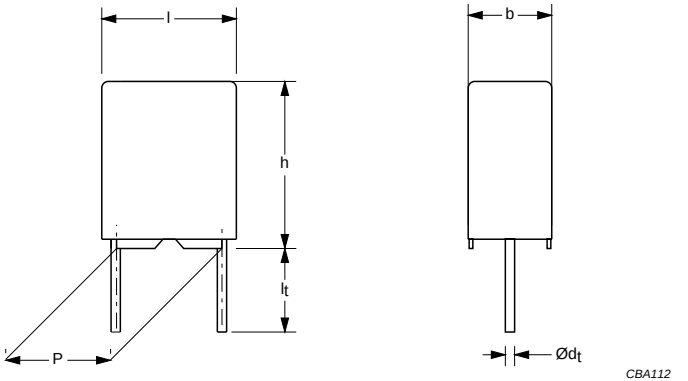


Fig.4 Outline.

Specific reference data for the 63 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
C ≤ 0.1 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
0.1 μF < C ≤ 0.47 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 μF < C ≤ 1.5 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 63 V (DC)	60 V/μs		
R between leads, for C ≤ 0.33 μF at 10 V; 1 minute	>15000 MΩ		
RC between leads, for:			
0.33 μF < C ≤ 1.0 μF at 10 V; 1 minute	>5000 s		
C > 1.0 μF at 10 V; 1 minute	>1000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	100 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 63 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 370 75...	preferred
		±5%	2222 370 76...	preferred
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 370 11...	on request
		±5%	2222 370 12...	on request
	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 370 15...	on request
		±5%	2222 370 16...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 370 18...	on request
		±5%	2222 370 19...	on request

U_{Rdc} = 63 V; U_{Rac} = 40 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 370 ..... AND PACKAGING					
			AMMOPACK			LOOSE IN BOX		REEL
			H = 18.5 mm; P_0 = 12.7 mm			short leads	long leads	
			C-tol = ±10%	C-tol = ±5%				
			last 5 digits of catalogue number		SPQ	SPQ	SPQ	SPQ
Pitch = 5.08 ±0.30 mm; d_t = 0.50 ±0.05 mm								
0.056	2.5 × 6.5 × 7.2	0.25	75**563**	76**563**	2000	2000	1000	2000
0.068			75**683**	76**683**				
0.082			75**823**	76**823**				
0.1			75**104**	76**104**				
0.12			75**124**	76**124**				
0.15			75**154**	76**154**				
0.18			75**184**	76**184**				
0.22	3.5 × 8.0 × 7.2	0.35	75**224**	76**224**	1500	2000	1000	1500
0.27			75**274**	76**274**				
0.33			75**334**	76**334**				
0.39			75**394**	76**394**				
0.47			75**474**	76**474**				
0.56	4.5 × 9.0 × 7.2	0.45	75**564**	76**564**	1000	2000	1000	1000
0.68			75**684**	76**684**				
0.82	6.0 × 11.0 × 7.2	0.60	75**824**	76**824**	750	2000	1000	1000
1			75**105**	76**105**				
1.2[1]			75**125**	76**125**				
1.5[1]			75**155**	76**155**				

Note

1. For C = 1.2 µF and C = 1.5 µF: U_{Rdc} = 50 V and U_{Rac} = 32 V.

MKT 370 GENERAL DATA **PITCH 5 mm**

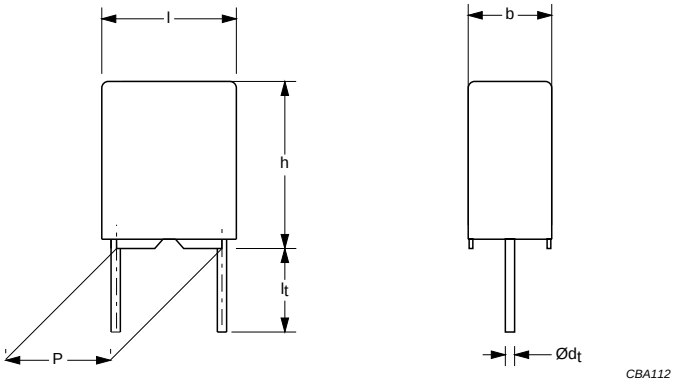


Fig.5 Outline.

Specific reference data for the 100 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.47\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 100 V (DC)	110 V/μs		
R between leads, for $C \leq 0.33\ \mu F$ at 100 V; 1 minute	>15000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 100 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 100 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 370 85...	preferred
		±5%	2222 370 86...	preferred
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 370 21...	on request
		±5%	2222 370 22...	on request
	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 370 25...	on request
		±5%	2222 370 26...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 370 28...	on request
		±5%	2222 370 29...	on request

Metallized polyester film capacitors MKT 370

U_{Rdc} = 100 V; U_{Rac} = 63 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 370 ..... AND PACKAGING					
			AMMOPACK			LOOSE IN BOX		REEL
			H = 18.5 mm; P_0 = 12.7 mm			short leads	long leads	
			C-tol = ±10%	C-tol = ±5%				
			last 5 digits of catalogue number		SPQ	SPQ	SPQ	SPQ
Pitch = 5.08 ±0.30 mm; d_t = 0.50 ±0.05 mm								
0.012	2.5 × 6.5 × 7.2	0.25	85**123**	86**123**	2000	2000	1000	2000
0.015			85**153**	86**153**				
0.018			85**183**	86**183**				
0.022			85**223**	86**223**				
0.027			85**273**	86**273**				
0.033			85**333**	86**333**				
0.039			85**393**	86**393**				
0.047			85**473**	86**473**				
0.056			85**563**	86**563**				
0.068			85**683**	86**683**				
0.082			85**823**	86**823**				
0.1	3.5 × 8.0 × 7.2	0.35	85**104**	86**104**	1500	2000	1000	1500
0.12			85**124**	86**124**				
0.15			85**154**	86**154**				
0.18			85**184**	86**184**				
0.22	4.5 × 9.0 × 7.2	0.45	85**224**	86**224**	1000	2000	1000	1000
0.27			85**274**	86**274**				
0.33			85**334**	86**334**				
0.39	6.0 × 11.0 × 7.2	0.65	85**394**	86**394**	750	2000	1000	1000
0.47			85**474**	86**474**				

MKT 370 GENERAL DATA **PITCH 5 mm**

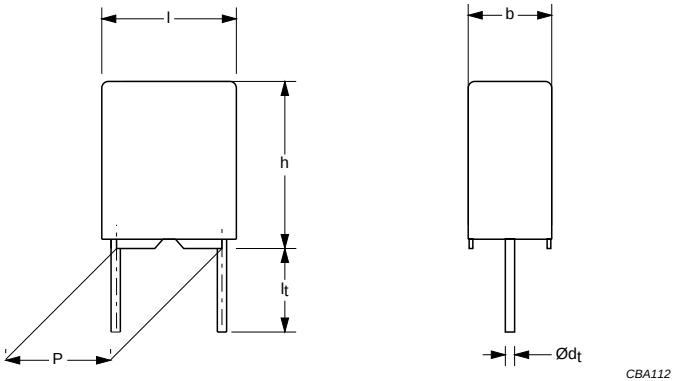


Fig.6 Outline.

Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle	at 1 kHz	at 10 kHz	at 100 kHz
	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC)	330 V/μs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	400 V; 1 minute		
Withstanding (DC) voltage between leads and case	500 V; 1 minute		

Available 250 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 370 35...	preferred
		±5%	2222 370 36...	preferred
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 370 41...	on request
		±5%	2222 370 42...	on request
	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 370 45...	on request
		±5%	2222 370 46...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 370 48...	on request
		±5%	2222 370 49...	on request

Metallized polyester film capacitors MKT 370

U_{Rdc} = 250 V; U_{Rac} = 160 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 370 ..... AND PACKAGING					
			AMMOPACK			LOOSE IN BOX		REEL
			H = 18.5 mm; P_0 = 12.7 mm			short leads	long leads	
			C-tol = ±10%	C-tol = ±5%				
			last 5 digits of catalogue number		SPQ	SPQ	SPQ	SPQ
Pitch = 5.08 ±0.30 mm; d_t = 0.50 ±0.05 mm								
0.0039	2.5 × 6.5 × 7.2	0.25	35**392**	36**392**	2000	2000	1000	2000
0.0047			35**472**	36**472**				
0.0056			35**562**	36**562**				
0.0068			35**682**	36**682**				
0.0082			35**822**	36**822**				
0.01			35**103**	36**103**				
0.012			35**123**	36**123**				
0.015			35**153**	36**153**				
0.018			35**183**	36**183**				
0.022	3.5 × 8.0 × 7.2	0.35	35**223**	36**223**	1500	2000	1000	1500
0.027			35**273**	36**273**				
0.033			35**333**	36**333**				
0.039	4.5 × 9.0 × 7.2	0.45	35**393**	36**393**	1000	2000	1000	1000
0.047			35**473**	36**473**				
0.056			35**563**	36**563**				
0.068	6.0 × 11.0 × 7.2	0.60	35**683**	36**683**	750	2000	1000	1000
0.082			35**823**	36**823**				
0.1			35**104**	36**104**				

MKT 370 GENERAL DATA **PITCH 5 mm**

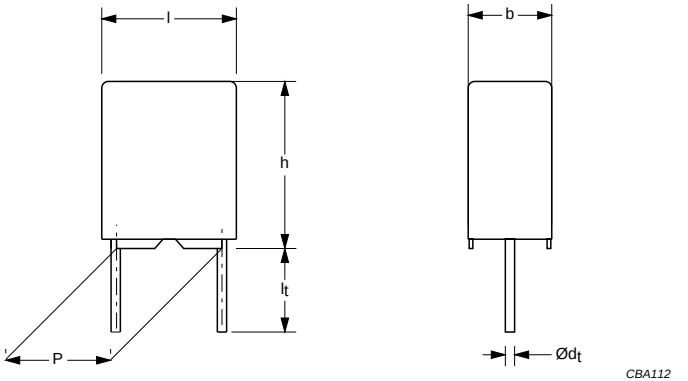


Fig.7 Outline.

Specific reference data for the 400 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle	at 1 kHz	at 10 kHz	at 100 kHz
	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC)	630 V/µs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute		
Withstanding (DC) voltage between leads and case	800 V; 1 minute		

Available 400 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 370 65...	preferred
		±5%	2222 370 66...	preferred
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 370 51...	on request
		±5%	2222 370 52...	on request
	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 370 55...	on request
		±5%	2222 370 56...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 370 58...	on request
		±5%	2222 370 59...	on request

Metallized polyester film capacitors MKT 370

U_{Rdc} = 400 V; U_{Rac} = 220 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 370 ..... AND PACKAGING					
			AMMOPACK			LOOSE IN BOX		REEL
			H = 18.5 mm; P_0 = 12.7 mm			short leads	long leads	
			C-tol = ±10%	C-tol = ±5%				
			last 5 digits of catalogue number		SPQ	SPQ	SPQ	SPQ
Pitch = 5.08 ±0.30 mm; d_t = 0.50 ±0.05 mm								
0.001	2.5 × 6.5 × 7.2	0.25	65**102**	66**102**	2000	2000	1000	2000
0.0012			65**122**	66**122**				
0.0015			65**152**	66**152**				
0.0018			65**182**	66**182**				
0.0022			65**222**	66**222**				
0.0027			65**272**	66**272**				
0.0033			65**332**	66**332**				
0.0039			65**392**	66**392**				
0.0047			65**472**	66**472**				
0.0056			65**562**	66**562**				
0.0068			65**682**	66**682**				
0.0082			65**822**	66**822**				
0.01	3.5 × 8.0 × 7.2	0.35	65**103**	66**103**	1500	2000	1000	1500
0.012			65**123**	66**123**				
0.015			65**153**	66**153**				
0.018	4.5 × 9.0 × 7.2	0.45	65**183**	66**183**	1000	2000	1000	1000
0.022			65**223**	66**223**				
0.027			65**273**	66**273**				
0.033	6.0 × 11.0 × 7.2	0.60	65**333**	66**333**	750	2000	1000	1000
0.039			65**393**	66**393**				
0.047			65**473**	66**473**				

Metallized polyester film capacitors MKT 371

MKT 371 GENERAL DATA **PITCH 7.5 mm**

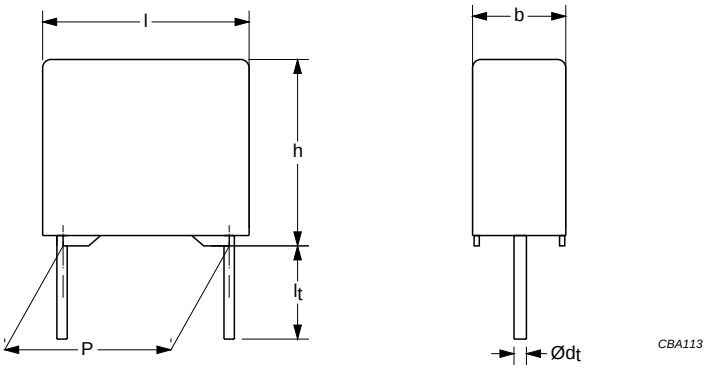


Fig.8 Outline.

Specific reference data for the 63 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
C ≤ 0.1 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
0.1 μF < C ≤ 0.47 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 μF < C ≤ 1.0 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 63 V (DC)	18 V/μs		
R between leads, for C ≤ 0.33 μF at 10 V; 1 minute	>15000 MΩ		
RC between leads, for C > 0.33 μF at 10 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	100 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 63 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 371 11...	preferred
		±5%	2222 371 12...	preferred
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 371 38...	preferred
		±5%	2222 371 39...	preferred
Loose in box	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 371 15...	on request
		±5%	2222 371 16...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 371 35...	on request
		±5%	2222 371 36...	on request

U_{Rdc} = 63 V; U_{Rac} = 40 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 371 ..... AND PACKAGING							
			LOOSE IN BOX				AMMOPACK			REEL
			l_t = 4.0 +1.0/−0.5 mm		short leads	long leads	H = 18.5 mm; P_0 = 12.7 mm			
			C-tol = ±10%	C-tol = ±5%			C-tol = ±10%	C-tol = ±5%		
			last 5 digits of catalogue number		SPQ	SPQ	last 5 digits of catalogue number		SPQ	SPQ
Pitch = 7.62 +0.30/−0.40 mm; d_t = 0.50 ±0.05 mm										
0.056	2.5 × 6.5 × 10.0	0.3	11**563**	12**563**	1000	1000	38**563**	39**563**	2000	2000
0.068			11**683**	12**683**			38**683**	39**683**		
0.082			11**823**	12**823**			38**823**	39**823**		
0.1			11**104**	12**104**			38**104**	39**104**		
0.12	3.0 × 8.0 × 10.0	0.4	11**124**	12**124**	1000	1000	38**124**	39**124**	1500	1500
0.15			11**154**	12**154**			38**154**	39**154**		
0.18			11**184**	12**184**			38**184**	39**184**		
0.22			11**224**	12**224**			38**224**	39**224**		
0.27	4.0 × 9.0 × 10.0	0.5	11**274**	12**274**	1000	1000	38**274**	39**274**	1000	1500
0.33			11**334**	12**334**			38**334**	39**334**		
0.39			11**394**	12**394**			38**394**	39**394**		
0.47			11**474**	12**474**			38**474**	39**474**		
0.56			11**564**	12**564**			38**564**	39**564**		
0.68			11**684**	12**684**			38**684**	39**684**		
0.82	5.0 × 10.5 × 10.0	0.7	11**824**	12**824**	1000	1000	38**824**	39**824**	1000	1000
1			11**105**	12**105**			38**105**	39**105**		

MKT 371 GENERAL DATA **PITCH 7.5 mm**

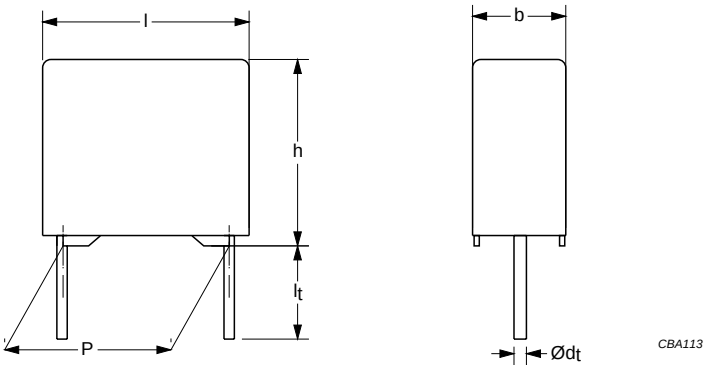


Fig.9 Outline.

Specific reference data for the 100 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.47\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 100 V (DC)	36 V/μs		
R between leads, for $C \leq 0.33\ \mu F$ at 100 V; 1 minute	>15000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 100 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 100 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 371 21...	preferred
		±5%	2222 371 22...	preferred
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 371 68...	preferred
		±5%	2222 371 69...	preferred
Loose in box	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 371 25...	on request
		±5%	2222 371 26...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm reel diameter 356 mm	±10%	2222 371 65...	on request
		±5%	2222 371 66...	on request

U_{Rdc} = 100 V; U_{Rac} = 63 V

C (MF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 371 ..... AND PACKAGING							
			LOOSE IN BOX				AMMOPACK			REEL
			l_t = 4.0 +1.0/−0.5 mm		short leads	long leads	H = 18.5 mm; P_0 = 12.7 mm			
			C-tol = ±10%	C-tol = ±5%			C-tol = ±10%	C-tol = ±5%		
			last 5 digits of catalogue number		SPQ	SPQ	last 5 digits of catalogue number		SPQ	SPQ
Pitch = 7.62 +0.30/−0.40 mm; d_t = 0.50 ±0.05 mm										
0.018	2.5 × 6.5 × 10.0	0.3	21**183**	22**183**	1000	1000	68**183**	69**183**	2000	2000
0.022			21**223**	22**223**			68**223**	69**223**		
0.027			21**273**	22**273**			68**273**	69**273**		
0.033			21**333**	22**333**			68**333**	69**333**		
0.039			21**393**	22**393**			68**393**	69**393**		
0.047			21**473**	22**473**			68**473**	69**473**		
0.056	3.0 × 8.0 × 10.0	0.4	21**563**	22**563**	1000	1000	68**563**	69**563**	1500	1500
0.068			21**683**	22**683**			68**683**	69**683**		
0.082			21**823**	22**823**			68**823**	69**823**		
0.1			21**104**	22**104**			68**104**	69**104**		
0.12	4.0 × 9.0 × 10.0	0.5	21**124**	22**124**	1000	1000	68**124**	69**124**	1000	1500
0.15			21**154**	22**154**			68**154**	69**154**		
0.18			21**184**	22**184**			68**184**	69**184**		
0.22			21**224**	22**224**			68**224**	69**224**		
0.27	5.0 × 10.5 × 10.0	0.7	21**274**	22**274**	1000	1000	68**274**	69**274**	1000	1000
0.33			21**334**	22**334**			68**334**	69**334**		
0.39			21**394**	22**394**			68**394**	69**394**		
0.47			21**474**	22**474**			68**474**	69**474**		

MKT 371 GENERAL DATA **PITCH 7.5 mm**

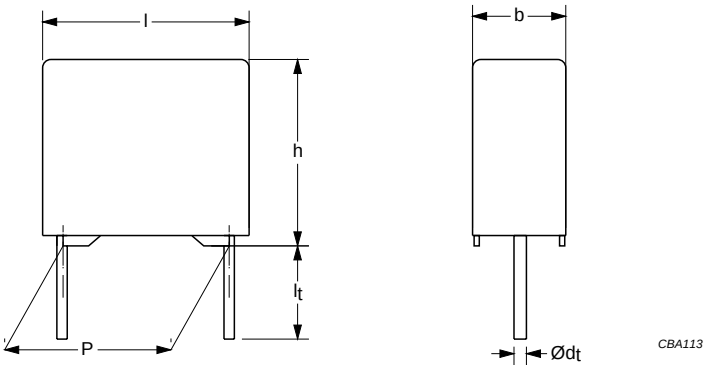


Fig.10 Outline.

Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.12\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC)	70 V/μs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	400 V; 1 minute		
Withstanding (DC) voltage between leads and case	500 V; 1 minute		

Available 250 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 371 41...	preferred
		±5%	2222 371 42...	preferred
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 371 78...	preferred
		±5%	2222 371 79...	preferred
Loose in box	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 371 45...	on request
		±5%	2222 371 46...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 371 75...	on request
		±5%	2222 371 76...	on request

Metallized polyester film capacitors MKT 371

U_{Rdc} = 250 V; U_{Rac} = 160 V

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 371 ..... AND PACKAGING							
			LOOSE IN BOX				AMMOPACK			REEL
			l_t = 4.0 +1.0/−0.5 mm		short leads	long leads	H = 18.5 mm; P_0 = 12.7 mm			
			C-tol = ±10%	C-tol = ±5%			C-tol = ±10%	C-tol = ±5%		
			last 5 digits of catalogue number		SPQ	SPQ	last 5 digits of catalogue number		SPQ	SPQ
Pitch = 7.62 +0.30/−0.40 mm; d_t = 0.50 ±0.05 mm										
0.0082	2.5 × 6.5 × 10.0	0.3	41**822**	42**822**	1000	1000	78**822**	79**822**	2000	2000
0.01			41**103**	42**103**			78**103**	79**103**		
0.012			41**123**	42**123**			78**123**	79**123**		
0.015			41**153**	42**153**			78**153**	79**153**		
0.018	3.0 × 8.0 × 10.0	0.4	41**183**	42**183**	1000	1000	78**183**	79**183**	1500	1500
0.022			41**223**	42**223**			78**223**	79**223**		
0.027			41**273**	42**273**			78**273**	79**273**		
0.033			41**333**	42**333**			78**333**	79**333**		
0.039			41**393**	42**393**			78**393**	79**393**		
0.047			41**473**	42**473**			78**473**	79**473**		
0.056	4.0 × 9.0 × 10.0	0.5	41**563**	42**563**	1000	1000	78**563**	79**563**	1000	1500
0.068			41**683**	42**683**			78**683**	79**683**		
0.082			41**823**	42**823**			78**823**	79**823**		
0.1			41**104**	42**104**			78**104**	79**104**		
0.12	5.0 × 10.5 × 10.0	0.7	41**124**	42**124**	1000	1000	78**124**	79**124**	1000	1000

MKT 371 GENERAL DATA **PITCH 7.5 mm**

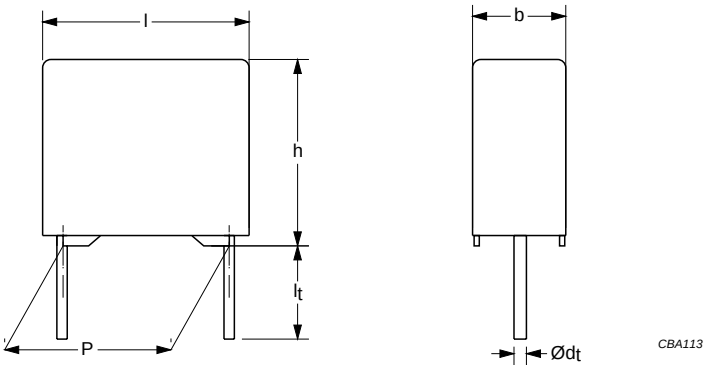


Fig.11 Outline.

Specific reference data for the 400 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle	at 1 kHz	at 10 kHz	at 100 kHz
	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC)	190 V/µs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute		
Withstanding (DC) voltage between leads and case	800 V; 1 minute		

Available 400 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 371 51...	preferred
		±5%	2222 371 52...	preferred
Ammopack	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 371 88...	preferred
		±5%	2222 371 89...	preferred
Loose in box	l_t = 26.0 ±2.0 mm (long leads)	±10%	2222 371 55...	on request
		±5%	2222 371 56...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 356 mm	±10%	2222 371 85...	on request
		±5%	2222 371 86...	on request

Metallized polyester film capacitors MKT 371

U_{Rdc} = 400 V; U_{Rac} = 220 V

C (µF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 371 ..... AND PACKAGING							
			LOOSE IN BOX				AMMOPACK			REEL
			l_t = 4.0 +1.0/−0.5 mm		short leads	long leads	H = 18.5 mm; P_0 = 12.7 mm			
			C-tol = ±10%	C-tol = ±5%			C-tol = ±10%	C-tol = ±5%		
			last 5 digits of catalogue number		SPQ	SPQ	last 5 digits of catalogue number		SPQ	SPQ
Pitch = 7.62 +0.30/−0.40 mm; d_t = 0.50 ±0.05 mm										
0.0039	2.5 × 6.5 × 10.0	0.3	51**392**	52**392**	1000	1000	88**392**	89**392**	2000	2000
0.0047			51**472**	52**472**			88**472**	89**472**		
0.0056			51**562**	52**562**			88**562**	89**562**		
0.0068			51**682**	52**682**			88**682**	89**682**		
0.0082	3.0 × 8.0 × 10.0	0.4	51**822**	52**822**	1000	1000	88**822**	89**822**	1500	1500
0.01			51**103**	52**103**			88**103**	89**103**		
0.012	4.0 × 9.0 × 10.0	0.5	51**123**	52**123**	1000	1000	88**123**	89**123**	1000	1500
0.015			51**153**	52**153**			88**153**	89**153**		
0.018	5.0 × 10.5 × 10.0	0.7	51**183**	52**183**	1000	1000	88**183**	89**183**	1000	1000
0.022			51**223**	52**223**			88**223**	89**223**		
0.027			51**273**	52**273**			88**273**	89**273**		
0.033			51**333**	52**333**			88**333**	89**333**		
0.039			51**393**	52**393**			88**393**	89**393**		

MKT 372 GENERAL DATA **PITCH 10 mm**

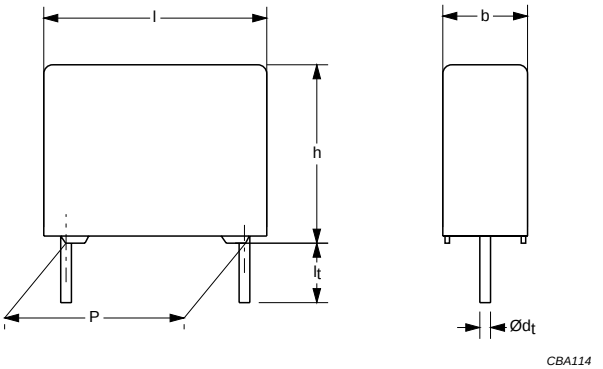


Fig.12 Outline.

Specific reference data for the 100 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.68\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 100 V (DC)	34 V/μs		
R between leads, for $C \leq 0.33\ \mu F$ at 100 V; 1 minute	>15000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 100 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 100 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm	±10%	2222 372 21...	preferred
		±5%	2222 372 22...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 372 25...	on request
		±5%	2222 372 26...	on request
Ammopack	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 372 28...	on request
		±5%	2222 372 29...	on request

U_{Rdc} = 100V; U_{Rac} = 63 V

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 372 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	AMMOPACK
			l_t = 4.0 +1.0/−0.5 mm			
			C-tol = ±10%			
			last 5 digits of catalogue number	SPQ	SPQ	SPQ
Pitch = 10.0 ±0.4 mm; d_t = 0.60 ±0.06 mm						
0.1	4.0 × 10.0 × 12.5	0.7	21**104**	1000	1400	750
0.12			21**124**			
0.15			21**154**			
0.18			21**184**			
0.22			21**224**			
0.27			21**274**			
0.33			21**334**			
0.39	5.0 × 11.0 × 12.5	0.9	21**394**	1000	1100	600
0.47			21**474**			
0.56	6.0 × 12.0 × 12.5	1.0	21**564**	750	900	500
0.68			21**684**			

MKT 372 GENERAL DATA **PITCH 10 mm**

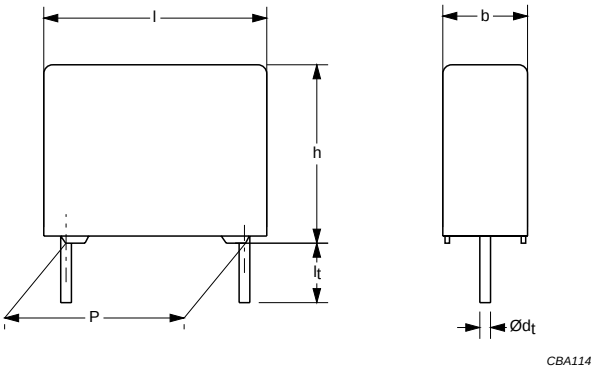


Fig.13 Outline.

Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.22\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC)	50 V/μs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	400 V; 1 minute		
Withstanding (DC) voltage between leads and case	500 V; 1 minute		

Available 250 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 372 41...	preferred
		±5%	2222 372 42...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 372 45...	on request
		±5%	2222 372 46...	on request
Ammopack	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 372 48...	on request
		±5%	2222 372 49...	on request

U_{Rdc} = 250 V; U_{Rac} = 160 V

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 372 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	AMMOPACK
			l_t = 4.0 +1.0/−0.5 mm			
			C-tol = ±10%			
			last 5 digits of catalogue number	SPQ	SPQ	SPQ
Pitch = 10.0 ±0.4 mm; d_t = 0.60 ±0.06 mm						
0.047	4.0 × 10.0 × 12.5	0.7	41**473**	1000	1400	750
0.056			41**563**			
0.068			41**683**			
0.082			41**823**			
0.1			41**104**			
0.12	5.0 × 11.0 × 12.5	0.9	41**124**	1000	1100	600
0.15			41**154**			
0.18	6.0 × 12.0 × 12.5	1.0	41**184**	750	900	500
0.22			41**224**			

MKT 372 GENERAL DATA **PITCH 10 mm**

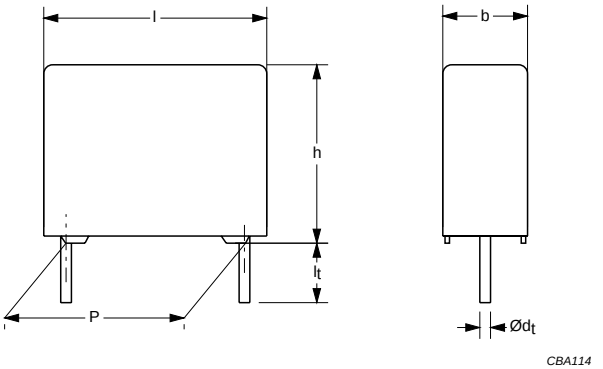


Fig.14 Outline.

Specific reference data for the 400 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle	at 1 kHz	at 10 kHz	at 100 kHz
	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC)	80 V/μs		
R between leads at 100 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute		
Withstanding (DC) voltage between leads and case	800 V; 1 minute		

Available 400 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm (short leads)	±10%	2222 372 51...	preferred
		±5%	2222 372 52...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 372 55...	on request
		±5%	2222 372 56...	on request
Ammopack	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 372 58...	on request
		±5%	2222 372 59...	on request

U_{Rdc} = 400 V; U_{Rac} = 220 V

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 372 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	AMMOPACK
			l_t = 4.0 +1.0/−0.5 mm			
			C-tol = ±10%			
			last 5 digits of catalogue number	SPQ	SPQ	SPQ
Pitch = 10.0 ±0.4 mm; d_t = 0.60 ±0.06 mm						
0.0047	4.0 × 10.0 × 12.5	0.7	51**472**	1000	1400	750
0.0056			51**562**			
0.0068			51**682**			
0.0082			51**822**			
0.01			51**103**			
0.012			51**123**			
0.015			51**153**			
0.018			51**183**			
0.022			51**223**			
0.027			51**273**			
0.033			51**333**			
0.039	5.0 × 11.0 × 12.5	0.9	51**393**	1000	1100	600
0.047			51**473**			
0.056			51**563**			
0.068	6.0 × 12.0 × 12.5	1.0	51**683**	750	900	500
0.082			51**823**			

MKT 372 GENERAL DATA **PITCH 10 mm**

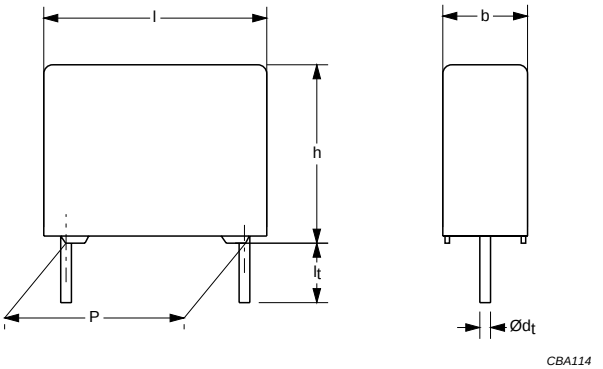


Fig.15 Outline.

Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle	at 1 kHz	at 10 kHz	at 100 kHz
	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 630 (DC)	120 V/µs		
R between leads at 500 V; 1 minute	>30000 MΩ		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1008 V; 1 minute		
Withstanding (DC) voltage between leads and case	1260 V; 1 minute		

Available 630 V DC versionsvp8

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 4.0 +1.0/–0.5 mm	±10%	2222 372 61...	preferred
		±5%	2222 372 62...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm	±10%	2222 372 65...	on request
		±5%	2222 372 66...	on request
Ammopack	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 372 68...	on request
		±5%	2222 372 69...	on request

U_{Rdc} = 630 V; U_{Rac} = 250 V

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 372 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	AMMOPACK
			l_t = 4.0 +1.0/−0.5 mm			
			C-tol = ±10%			
			last 5 digits of catalogue number	SPQ	SPQ	SPQ
Pitch = 10.0 ±0.4 mm; d_t = 0.60 ±0.06 mm						
0.01	4.0 × 10.0 × 12.5	0.6	61103	1000	1400	750
0.012			61123			
0.015			61153			
0.018			61183			
0.022			61223			
0.027	5.0 × 11.0 × 12.5	0.9	61273	1000	1100	600
0.033			61333			
0.039	6.0 × 12.0 × 12.5	1.0	61393	750	900	500
0.047			61473			

MKT 373 GENERAL DATA **PITCH 15 mm (COMPACT SIZE)**

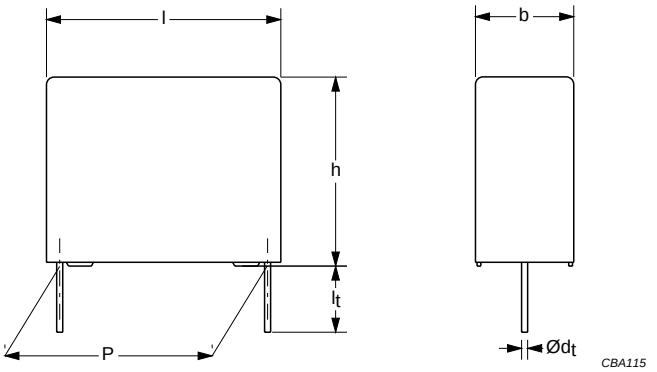


Fig.16 Outline.

Specific reference data for the 100 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
0.33 µF < C ≤ 0.47 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 µF < C ≤ 1.0 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
1.0 µF < C ≤ 2.2 µF	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 100 V (DC):	14 V/µs		
R between leads, for C ≤ 0.33 µF at 100 V; 1 minute	>15000 MΩ		
RC between leads, for C > 0.33 µF at 100 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 100 V DC versions

PACKAGING	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 5.0 ± 1.0 mm	±10%	2222 373 23...	preferred
		±5%	2222 373 24...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 373 27...	on request
		±5%	2222 373 28...	on request

Metallized polyester film capacitors MKT 373

U_{Rdc} = 100 V; U_{Rac} = 63 V **(COMPACT SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.33	5.0 × 11.0 × 17.5	1.1	23**334**	1000	1100
0.39			23**394**		
0.47			23**474**		
0.56			23**564**		
0.68			23**684**		
0.82			23**824**		
1			23**105**		
1.2			23**125**		
1.5			23**155**		
1.8			23**185**		
2.2	6.0 × 12.0 × 17.5	1.4	23**225**	1000	900

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (COMPACT SIZE)**

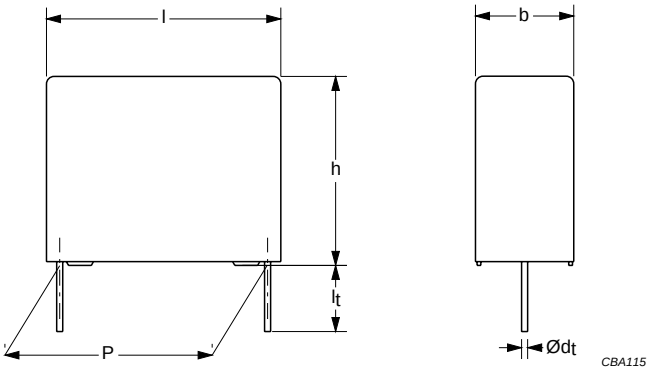


Fig.17 Outline.

Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
0.15 µF < C ≤ 0.47 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 µF < C ≤ 1.0 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
1.0 µF < C ≤ 4.7 µF	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC):			
P = 15 mm	16 V/µs		
P = 22.5 mm	7 V/µs		
P = 27.5 mm	6 V/µs		
R between leads, for C ≤ 0.33 µF at 100 V; 1 minute	>30000 MΩ		
RC between leads, for C > 0.33 µF at 100 V; 1 minute	>10000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	400 V; 1 minute		
Withstanding (DC) voltage between leads and case	500 V; 1 minute		

Available 250 V DC versions

PACKAGING[1]	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 5.0 ± 1.0 mm	±10%	2222 373 43...	preferred
		±5%	2222 373 44...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 373 47...	on request
		±5%	2222 373 48...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 250 V; U_{Rac} = 160 V **(COMPACT SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.15	5.0 × 11.0 × 17.5	1.1	43**154**	1000	1100
0.18			43**184**		
0.22			43**224**		
0.27			43**274**		
0.33			43**334**		
0.39	6.0 × 12.0 × 17.5	1.4	43**394**	1000	900
0.47			43**474**		
0.56	7.0 × 13.5 × 17.5	1.9	43**564**	1000	800
0.68			43**684**		
0.82	8.5 × 15.0 × 17.5	2.6	43**824**	1000	650
1			43**105**		
1.2	10.0 × 16.5 × 17.5	3.1	43**125**	500	600
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
1.5	8.5 × 18.0 × 26.0	4.4	43**155**	200	450
1.8			43**185**		
2.2	10.0 × 19.5 × 26.0	5.5	43**225**	200	350
2.7			43**275**		
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
3.3	11.0 × 21.0 × 31.0	7.8	43**335**	100	
3.9	13.0 × 23.0 × 31.0	10.4	43**395**	100	
4.7			43**475**		

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (COMPACT SIZE)**

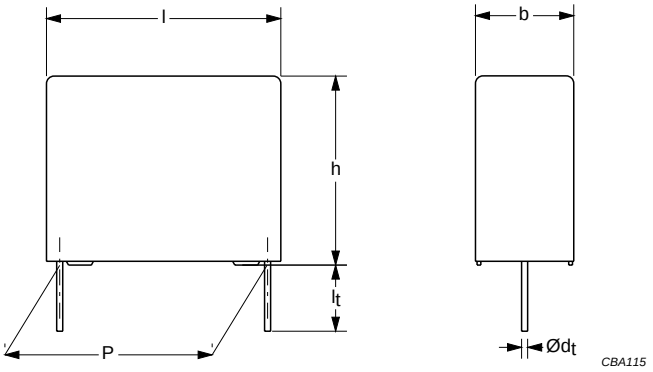


Fig.18 Outline.

Specific reference data for the 400 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.47\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
$0.47\ \mu F < C \leq 1.0\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
$1.0\ \mu F < C \leq 2.2\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC):			
P = 15 mm	34 V/µs		
P = 22.5 mm	14 V/µs		
P = 27.5 mm	12 V/µs		
R between leads, for $C \leq 0.33\ \mu F$ at 100 V; 1 minute	>30000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 100 V; 1 minute	>10000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute		
Withstanding (DC) voltage between leads and case	800 V; 1 minute		

Available 400 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	±10%	2222 373 53...	preferred
		±5%	2222 373 54...	on request
Taped on reel	H = 18.5 mm; $P_0 = 12.7$ mm; reel diameter 500 mm	±10%	2222 373 57...	on request
		±5%	2222 373 58...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 400 V; U_{Rac} = 220 V **(COMPACT SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.047	5.0 × 11.0 × 17.5	1.1	53**473**	1000	1100
0.056			53**563**		
0.068			53**683**		
0.082			53**823**		
0.1			53**104**		
0.12			53**124**		
0.15			53**154**		
0.18	6.0 × 12.0 × 17.5	1.4	53**184**	1000	900
0.22			53**224**		
0.27	7.0 × 13.5 × 17.5	1.9	53**274**	1000	800
0.33			53**334**		
0.39	8.5 × 15.0 × 17.5	2.6	53**394**	1000	650
0.47			53**474**		
0.56	10.0 × 16.5 × 17.5	3.2	53**564**	500	600
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.68	8.5 × 18.0 × 26.0	4.4	53**684**	200	450
0.82			53**824**		
1	10.0 × 19.5 × 26.0	5.5	53**105**	200	350
1.2			53**125**		
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
1.5	11.0 × 21.0 × 31.0	7.8	53**155**	100	
1.8	13.0 × 23.0 × 31.0	10.5	53**185**	100	
2.2			53**225**		

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (COMPACT SIZE)**

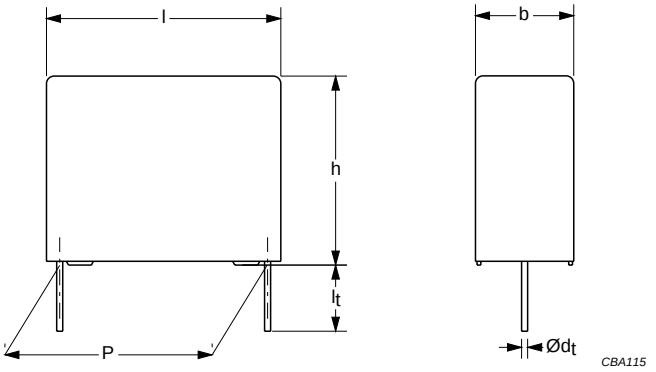


Fig.19 Outline.

Specific reference data for the 630 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.47\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
$0.47\ \mu F < C \leq 1.0\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 630 V_{dc}:			
P = 15 mm	90 V/µs		
P = 22.5 mm	35 V/µs		
P = 27.5 mm	30 V/µs		
R between leads, for $C \leq 0.33\ \mu F$ at 500 V; 1 minute	>30000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 500 V; 1 minute	>10000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1008 V; 1 minute		
Withstanding (DC) voltage between leads and case	1260 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	±10%	2222 373 63...	preferred
		±5%	2222 373 64...	on request
Taped on reel	H = 18.5 mm; $P_0 = 12.7$ mm; reel diameter 500 mm	±10%	2222 373 67...	on request
		±5%	2222 373 68...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 630 V; U_{Rac} = 250 V **(COMPACT SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.047	5.0 × 11.0 × 17.5	1.1	63**473**	1000	1100
0.056			63**563**		
0.068	6.0 × 12.0 × 17.5	1.4	63**683**	1000	900
0.082			63**823**		
0.1	7.0 × 13.5 × 17.5	1.9	63**104**	1000	800
0.12			63**124**		
0.15	8.5 × 15.0 × 17.5	2.6	63**154**	1000	650
0.18			63**184**		
0.22	10.0 × 16.5 × 17.5	3.2	63**224**	500	600
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.27	8.5 × 18.0 × 26.0	4.4	63**274**	200	450
0.33			63**334**		
0.39	10.0 × 19.5 × 26.0	5.5	63**394**	200	350
0.47			63**474**		
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.56	11.0 × 21.0 × 31.0	7.8	63**564**	100	
0.68	13.0 × 23.0 × 31.0	10.5	63**684**	100	
0.82			63**824**		
1	15.0 × 25.0 × 31.0	7.8	63**105**	100	

Metallized polyester film capacitors MKT 373

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (STANDARD SIZE)**

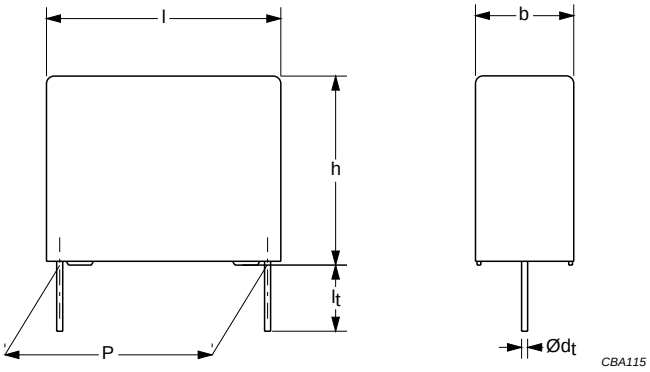


Fig.20 Outline.

Specific reference data for the 100 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
0.33 µF < C ≤ 0.47 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 µF < C ≤ 1.0 µF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
1.0 µF < C ≤ 10 µF	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
C > 10 µF	$\leq 75 \times 10^{-4}$	–	–
Rated voltage pulse slope $(dU/dt)_R$ at 100 V (DC):			
P = 15 mm	14 V/µs		
P = 22.5 mm	5 V/µs		
P = 27.5 mm	4 V/µs		
R between leads, for C ≤ 0.33 µF at 100 V; 1 minute	>15000 MΩ		
RC between leads, for C > 0.33 µF at 100 V; 1 minute	>5000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute		
Withstanding (DC) voltage between leads and case	200 V; 1 minute		

Available 100 V DC versions

PACKAGING[1]	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 5.0 ± 1.0 mm	±10%	2222 373 21...	on request
		±5%	2222 373 22...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 373 25...	on request
		±5%	2222 373 26...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 100 V; U_{Rac} = 63 V **(STANDARD SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.33	5.0 × 11.0 × 17.5	1.1	21**334**	1000	1100
0.39			21**394**		
0.47			21**474**		
0.56			21**564**		
0.68			21**684**		
0.82	6.0 × 12.0 × 17.5	1.4	21**824**	1000	900
1			21**105**		
1.2	7.0 × 13.5 × 17.5	1.9	21**125**	1000	800
1.5			21**155**		
1.8	8.5 × 15.0 × 17.5	2.6	21**185**	1000	650
2.2			21**225**		
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
2.7	8.5 × 18.0 × 26.0	4.4	21**275**	200	450
3.3			21**335**		
3.9	10.0 × 19.5 × 26.0	5.5	21**395**	200	350
4.7			21**475**		
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
5.6	11.0 × 21.0 × 31.0	8.0	21**565**	100	
6.8			21**685**		
8.2	13.0 × 23.0 × 31.0	10.5	21**825**	100	
10			21**106**		
12	18.0 × 28.0 × 31.0	17.5	21**126**	100	
15			21**156**		

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (STANDARD SIZE)**

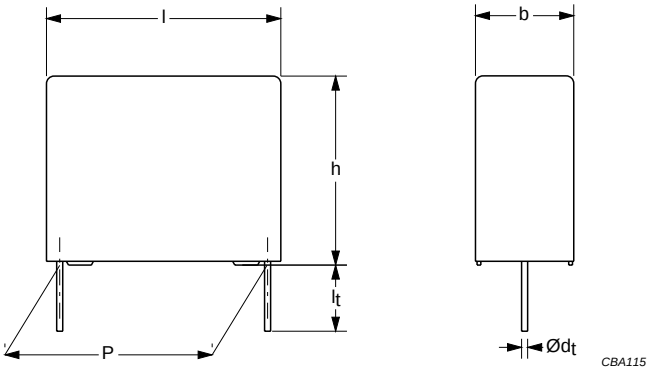


Fig.21 Outline.

Specific reference data for the 250 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
0.15 μF < C ≤ 0.47 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
0.47 μF < C ≤ 1.0 μF	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
1.0 μF < C ≤ 4.7 μF	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC):			
P = 15 mm	16 V/μs		
P = 22.5 mm	7 V/μs		
P = 27.5 mm	6 V/μs		
R between leads, for C ≤ 0.33 μF at 100 V; 1 minute	>30000 MΩ		
RC between leads, for C > 0.33 μF at 100 V; 1 minute	>10000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	400 V; 1 minute		
Withstanding (DC) voltage between leads and case	500 V; 1 minute		

Available 250 V DC versions

PACKAGING[1]	DIMENSIONS	C-tol	FIRST 9 DIGITS OF CATALOGUE NUMBER	ORDERING
Loose in box	l_t = 5.0 ± 1.0 mm	±10%	2222 373 41...	on request
		±5%	2222 373 42...	on request
Taped on reel	H = 18.5 mm; P_0 = 12.7 mm; reel diameter 500 mm	±10%	2222 373 45...	on request
		±5%	2222 373 46...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 250 V; U_{Rac} = 160 V **(STANDARD SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.15 0.18 0.22	5.0 × 11.0 × 17.5	1.1	41**154** 41**184** 41**224**	1000	1100
0.27 0.33 0.39 0.47	6.0 × 12.0 × 17.5	1.4	41**274** 41**334** 41**394** 41**474**	1000	900
0.56 0.68	7.0 × 13.5 × 17.5	1.9	41**564** 41**684**	1000	800
0.82 1	8.5 × 15.0 × 17.5	2.6	41**824** 41**105**	1000	650
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
1.2 1.5	8.5 × 18.0 × 26.0	4.4	41**125** 41**155**	200	450
1.8 2.2	10.0 × 19.5 × 26.0	5.5	41**185** 41**225**	200	350
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
2.7 3.3	13.0 × 23.0 × 31.0	10.4	41**275** 41**335**	100	
3.9 4.7	15.0 × 25.0 × 31.0	12.5	41**395** 41**475**	100	

MKT 373 GENERAL DATA **PITCH 15/22.5/27.5 mm (STANDARD SIZE)**

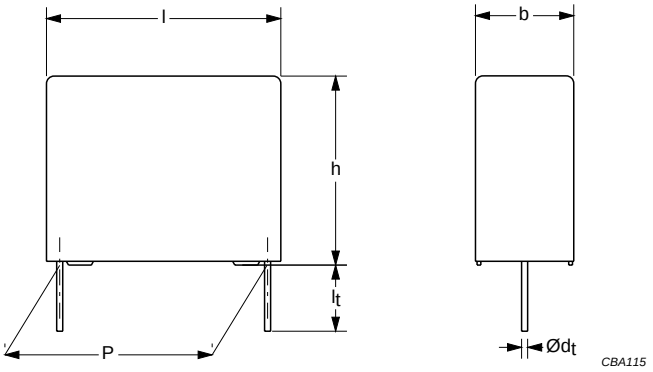


Fig.22 Outline.

Specific reference data for the 400 V DC capacitors

DESCRIPTION	VALUE		
Tangent of loss angle:	at 1 kHz	at 10 kHz	at 100 kHz
$C \leq 0.1\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 250 \times 10^{-4}$
$0.1\ \mu F < C \leq 0.47\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	$\leq 300 \times 10^{-4}$
$0.47\ \mu F < C \leq 1.0\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 130 \times 10^{-4}$	–
$1.0\ \mu F < C \leq 1.5\ \mu F$	$\leq 75 \times 10^{-4}$	$\leq 150 \times 10^{-4}$	–
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC):			
P = 15 mm	34 V/µs		
P = 22.5 mm	14 V/µs		
P = 27.5 mm	12 V/µs		
R between leads, for $C \leq 0.33\ \mu F$ at 100 V; 1 minute	>30000 MΩ		
RC between leads, for $C > 0.33\ \mu F$ at 100 V; 1 minute	>10000 s		
R between interconnected leads and case (foil method)	>30000 MΩ		
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute		
Withstanding (DC) voltage between leads and case	800 V; 1 minute		

Available 400 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	±10%	2222 373 51...	on request
		±5%	2222 373 52...	on request
Taped on reel	H = 18.5 mm; $P_0 = 12.7$ mm; reel diameter 500 mm	±10%	2222 373 55...	on request
		±5%	2222 373 56...	on request

Note

1. Taped on reel pitch = 27.5 mm is not available.

Metallized polyester film capacitors MKT 373

U_{Rdc} = 400 V; U_{Rac} = 220 V **(STANDARD SIZE)**

C (μF)	DIMENSIONS b × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 373 ..... AND PACKAGING		
			LOOSE IN BOX		REEL
			l_t = 5.0 ±1.0 mm		
			C-tol = ±10%		
			last 5 digits of catalogue number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.047	5.0 × 11.0 × 17.5	1.1	51**473**	1000	1100
0.056			51**563**		
0.068			51**683**		
0.082			51**823**		
0.1			51**104**		
0.12	6.0 × 12.0 × 17.5	1.4	51**124**	1000	900
0.15			51**154**		
0.18	7.0 × 13.5 × 17.5	1.9	51**184**	1000	800
0.22			51**224**		
0.27	8.5 × 15.0 × 17.5	2.6	51**274**	1000	650
0.33			51**334**		
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.39	8.5 × 18.0 × 26.0	4.4	51**394**	200	450
0.47			51**474**		
0.56	10.0 × 19.5 × 26.0	4.4	51**564**	200	350
0.68		5.5	51**684**		
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					
0.82	11.0 × 21.0 × 31.0	7.8	51**824**	100	
1			51**105**		
1.2	15.0 × 25.0 × 31.0	12.8	51**125**	100	
1.5			51**155**		

CONSTRUCTION

Description

- Low-inductive wound cell of metallized polyethylene terephthalate (PETP) film, potted with epoxy resin in a flame-retardant case
- Radial leads, solder-coated
- Small stand-off pips allow removal of solder flux etc. during cleaning of the printed-circuit board.

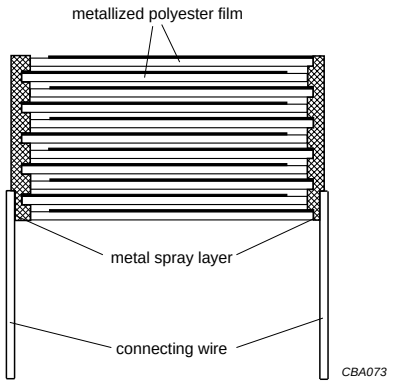


Fig.23 Construction.

Mounting

NORMAL USE

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

SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK

In order to withstand vibration and shock tests, it must be ensured that the stand-off pips are in good contact with the printed-circuit board:

- 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.

SPACE REQUIREMENTS ON PRINTED-CIRCUIT BOARD

The maximum length and width of film capacitors is shown in Fig.24:

- Eccentricity see Fig.24. The maximum eccentricity is smaller than or equal to the wire diameter of the product concerned.
- Product height with seating plane as given by *"IEC 60717"* as reference: $h_{max} \leq h + 0.3$ mm.

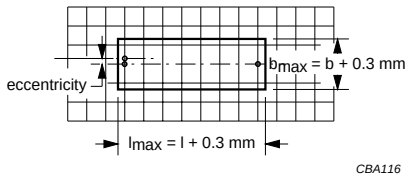


Fig.24 Lay-out.

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 ±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%.

CHARACTERISTICS

Capacitance

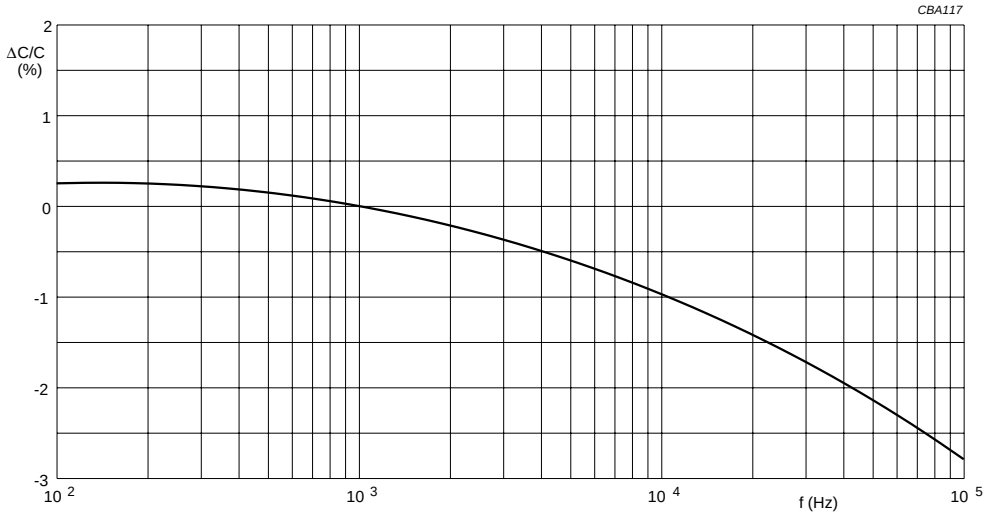


Fig.25 Capacitance change as a function of frequency; typical curve.

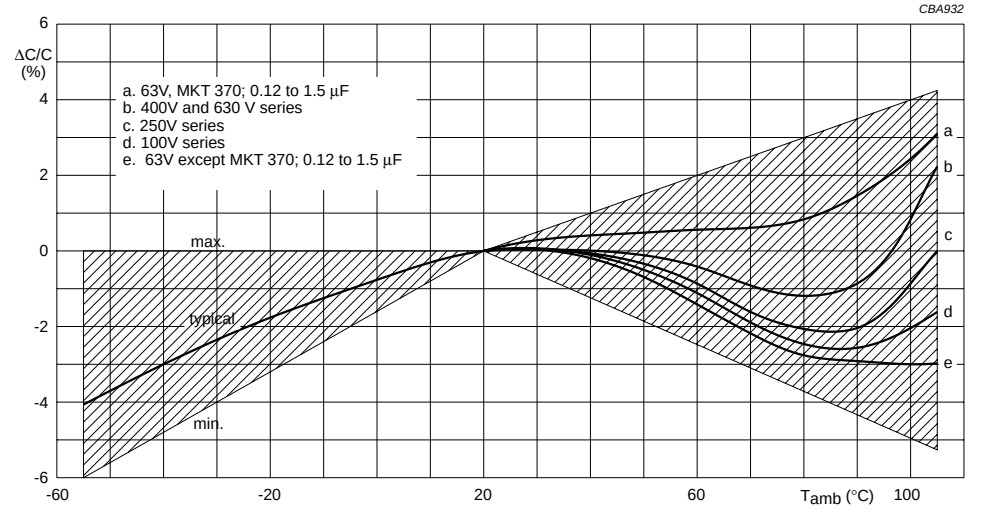


Fig.26 Capacitance change at 1 kHz as a function of ambient free air temperature.

Impedance

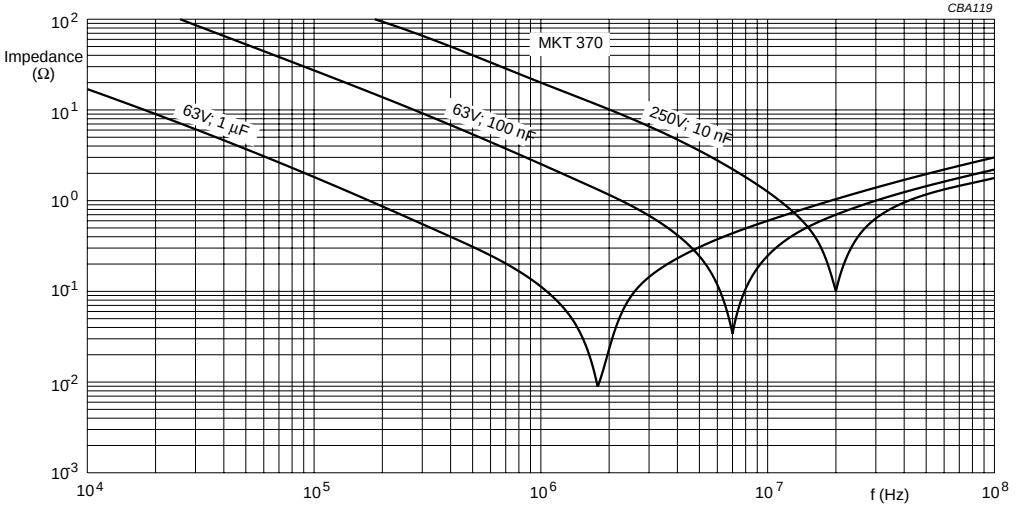


Fig.27 Impedance as a function of frequency; typical curves.

Maximum DC and AC voltage as a function of temperature

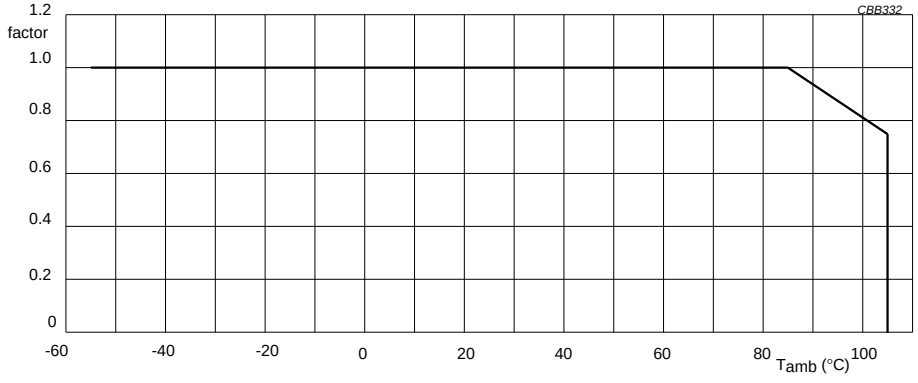


Fig.28 Multiplying factor for DC and AC voltage as a function of temperature.

Maximum RMS voltage (sinewave) as a function of frequency

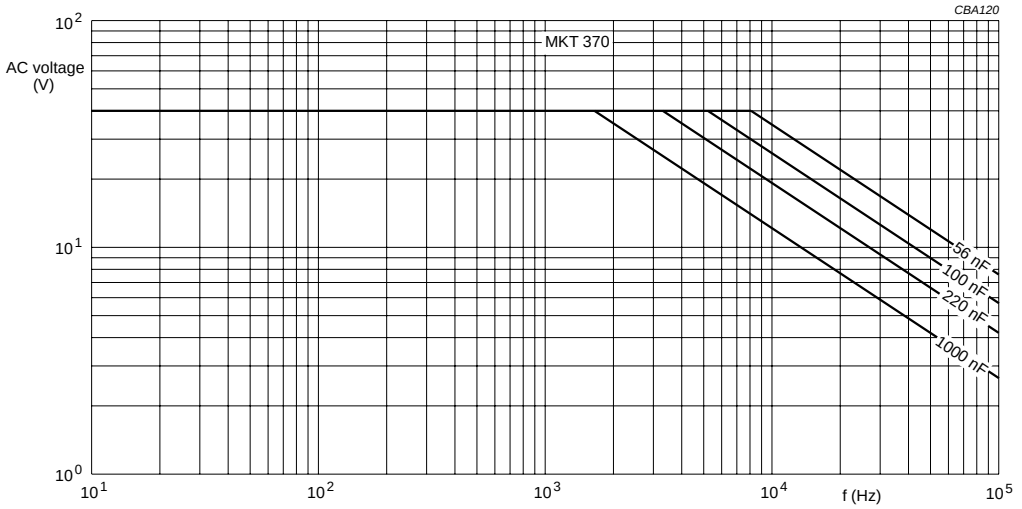


Fig.29 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 63$ V.

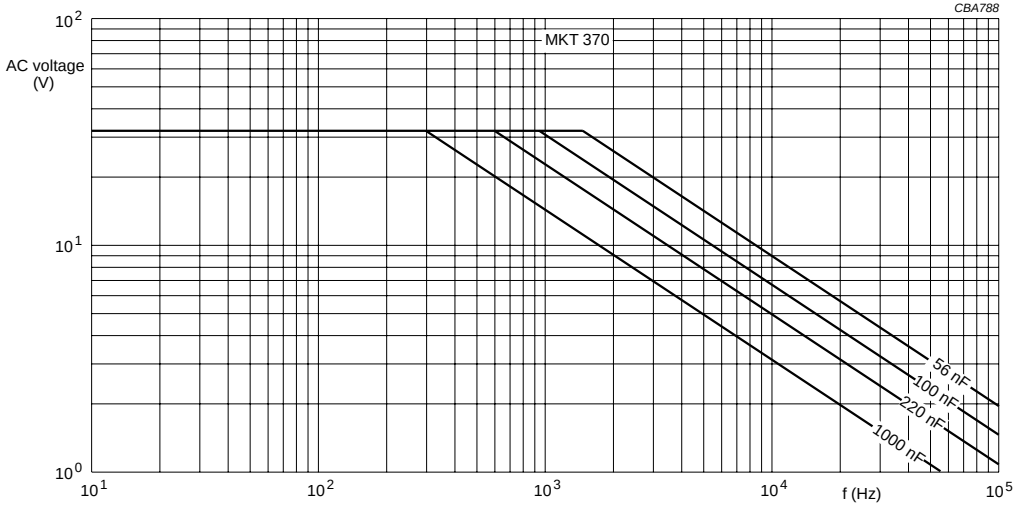


Fig.30 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 63$ V.

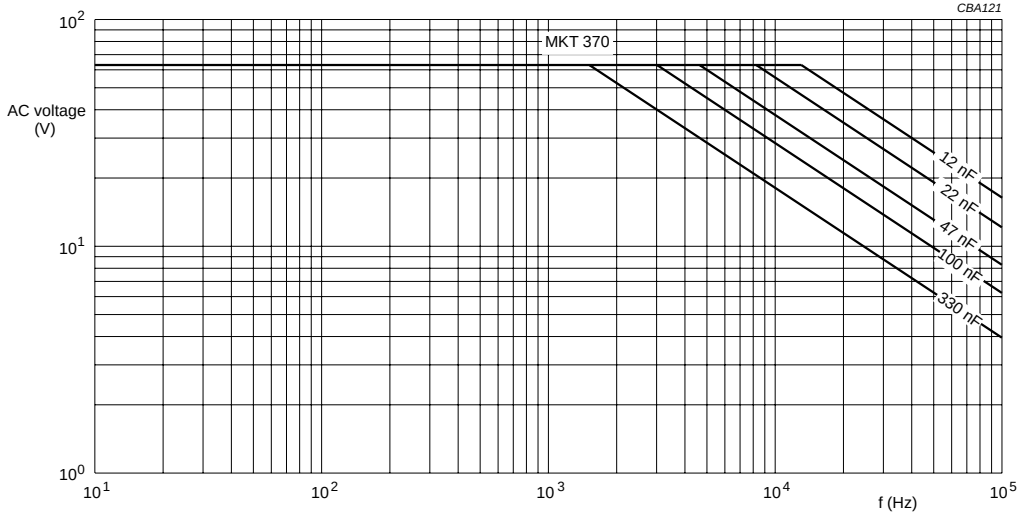


Fig.31 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 100$ V.

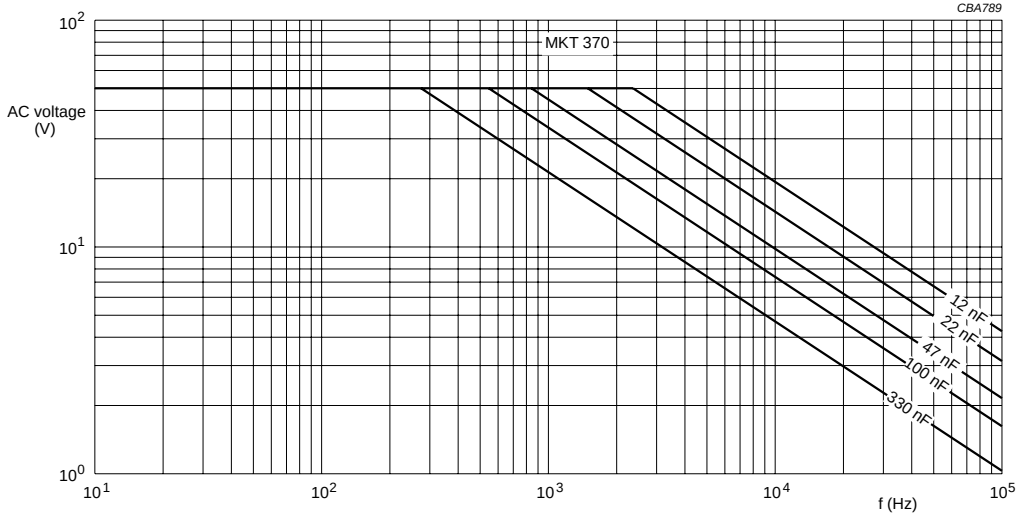


Fig.32 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 100$ V.

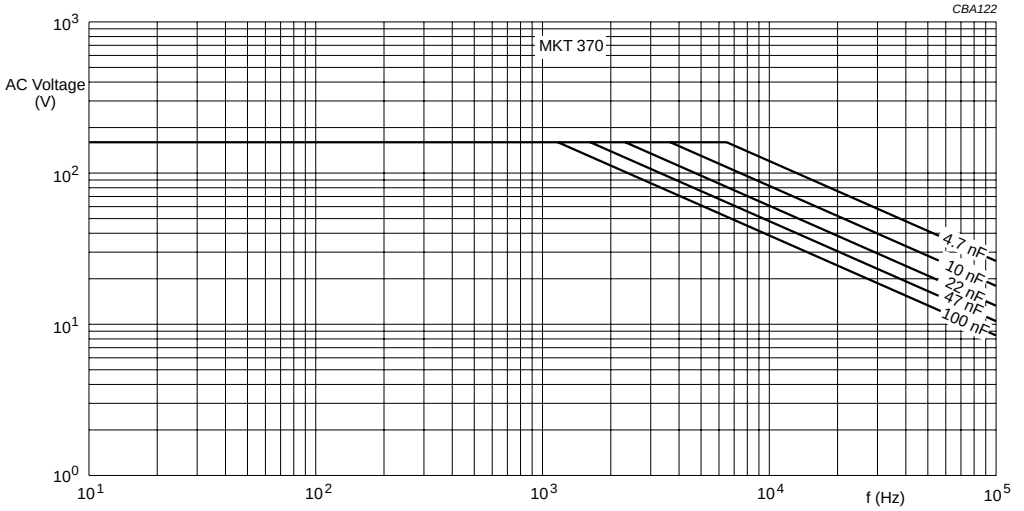


Fig.33 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 250$ V.

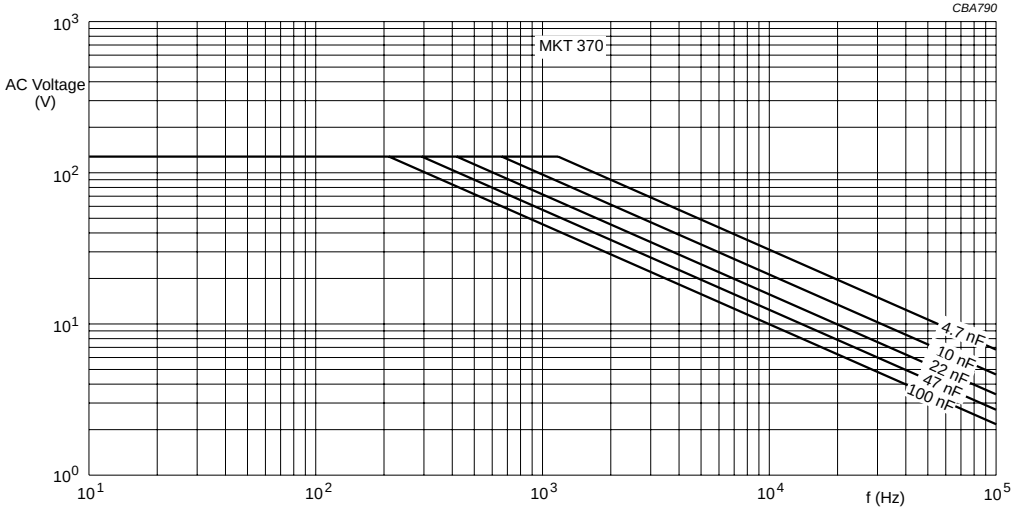


Fig.34 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 250$ V.

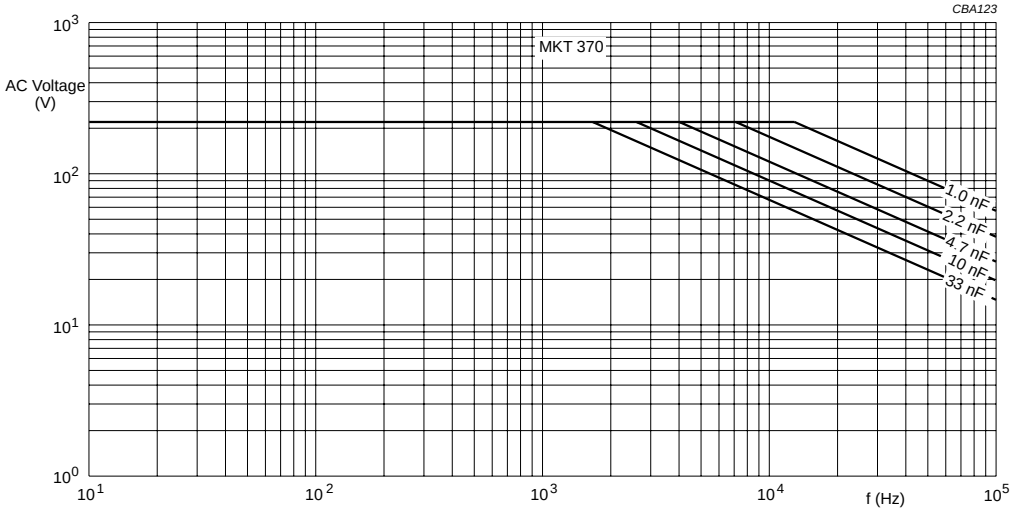


Fig.35 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 400$ V.

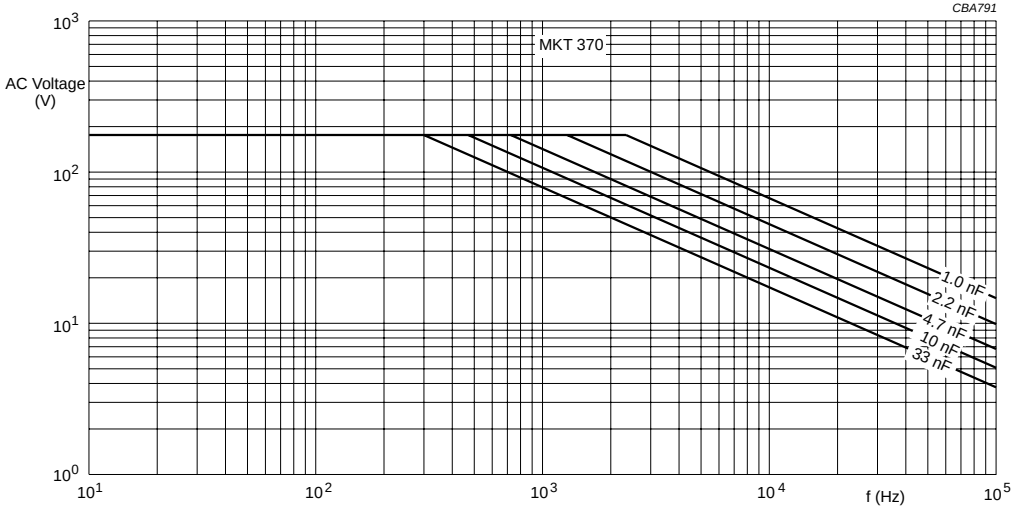


Fig.36 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 400$ V.

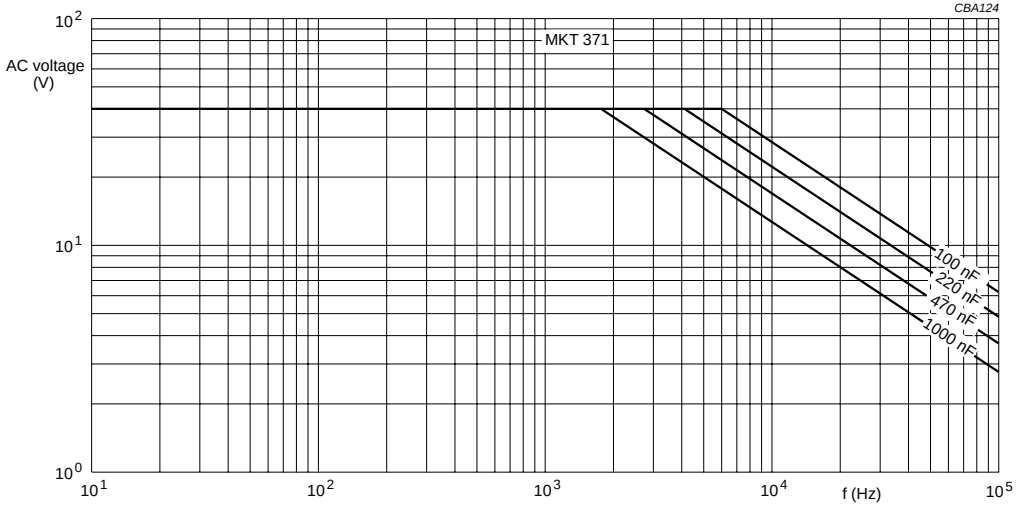


Fig.37 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 63$ V.

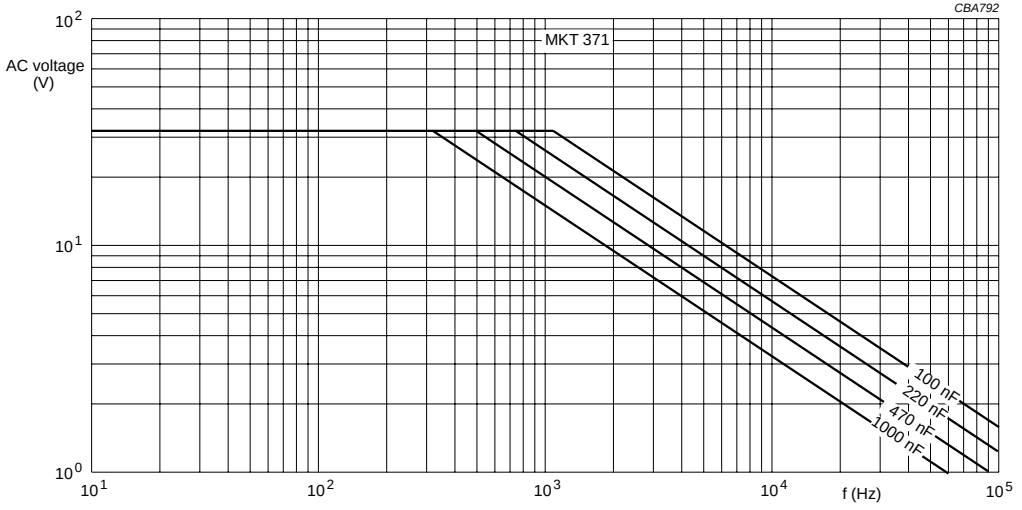


Fig.38 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 63$ V.

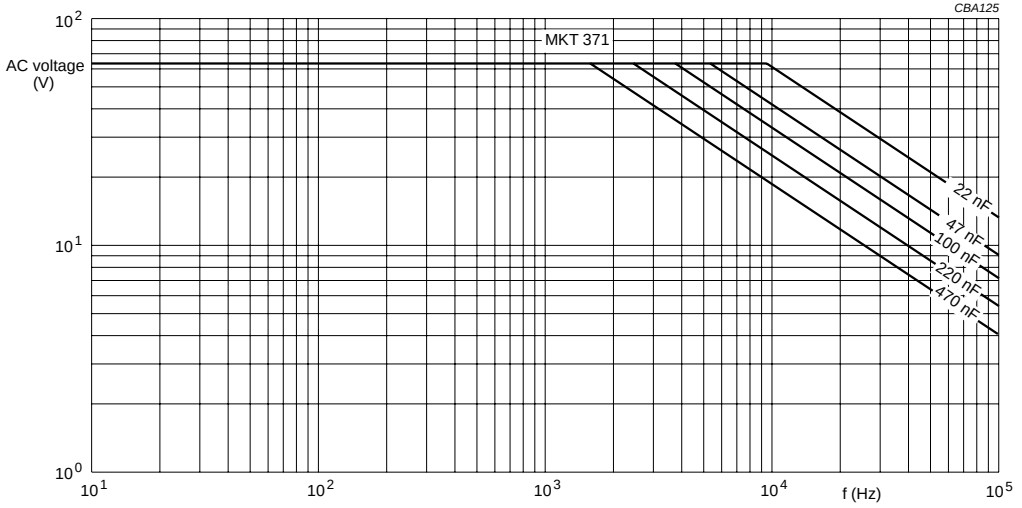


Fig.39 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 100$ V.

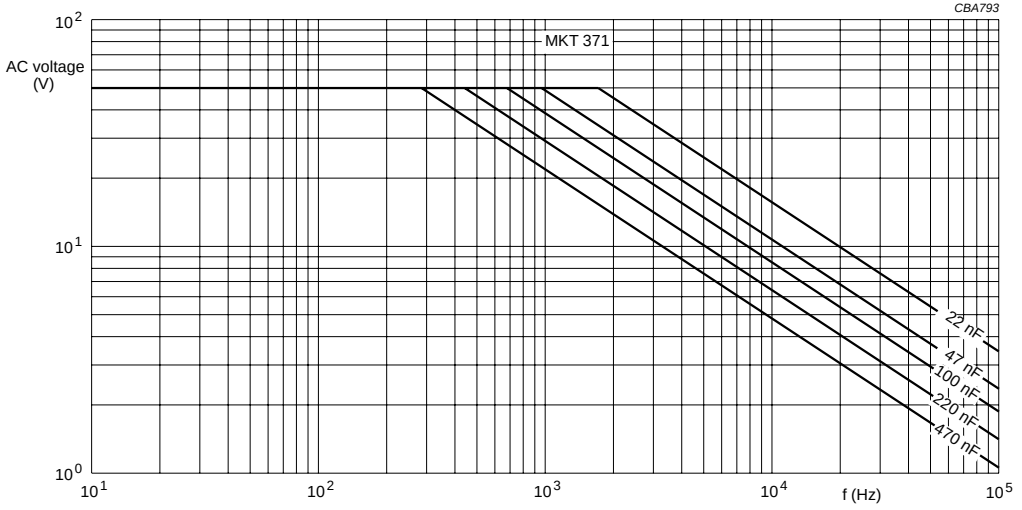


Fig.40 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 100$ V.

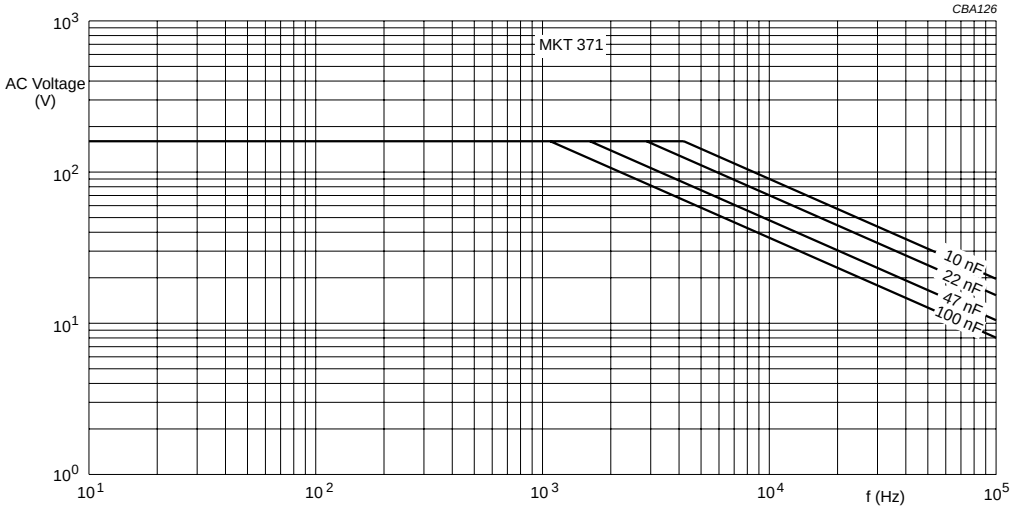


Fig.41 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 250$ V.

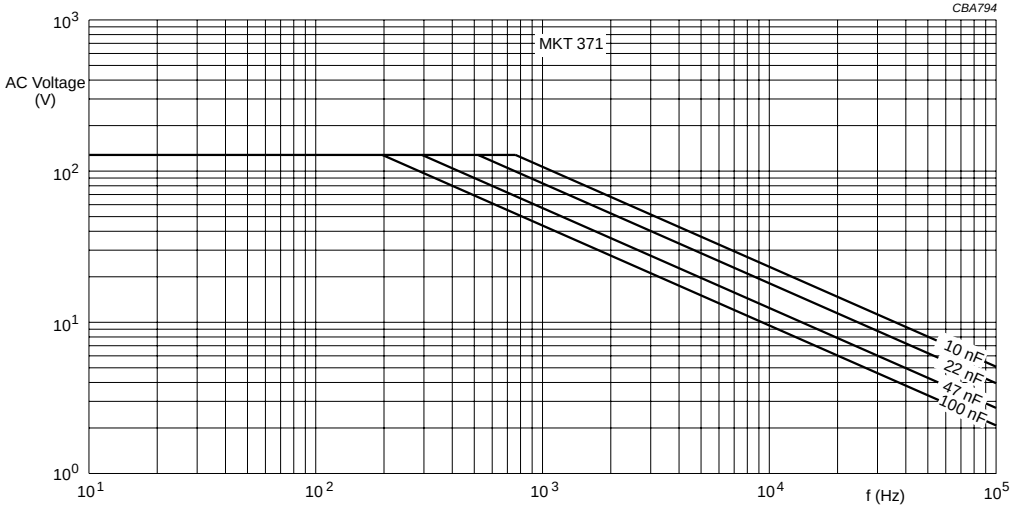


Fig.42 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 250$ V.

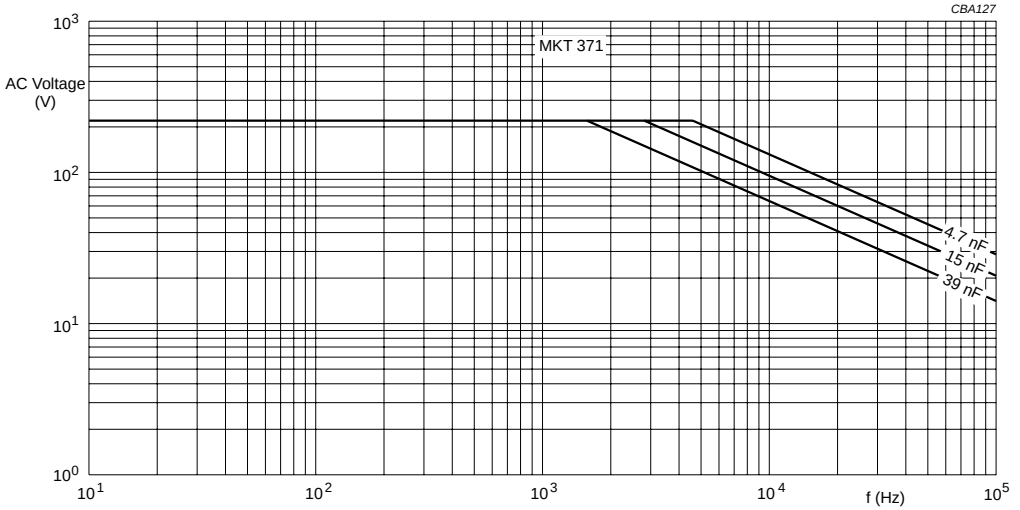


Fig.43 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 400$ V.

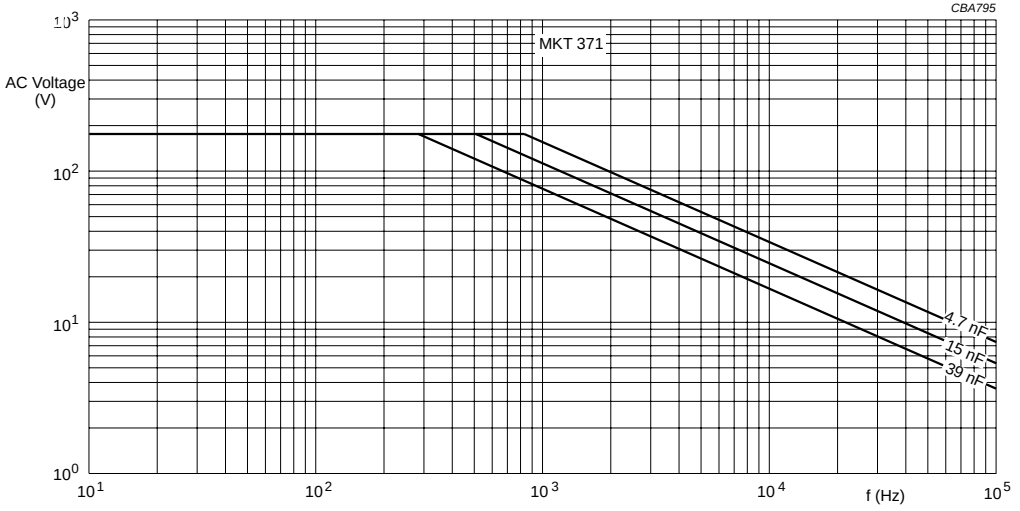


Fig.44 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 400$ V.

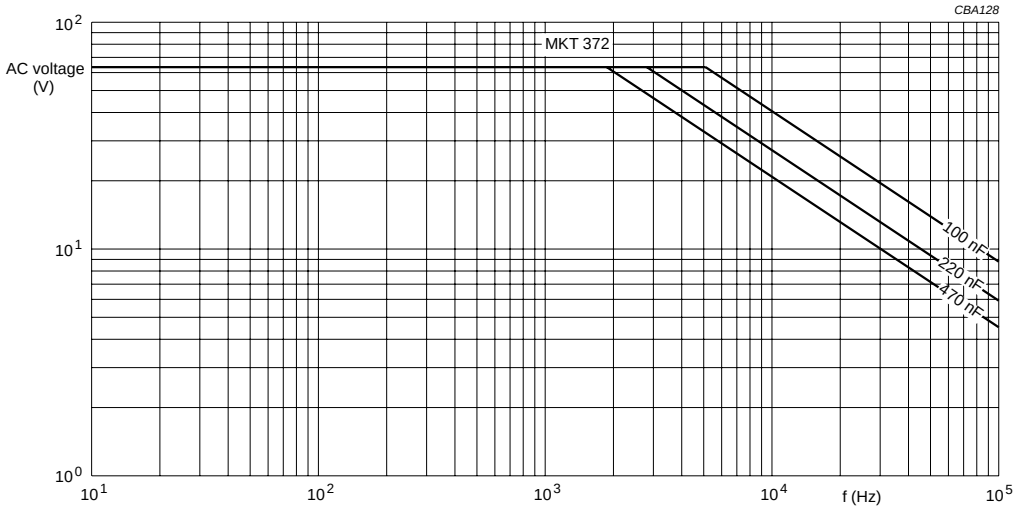


Fig.45 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 100$ V.

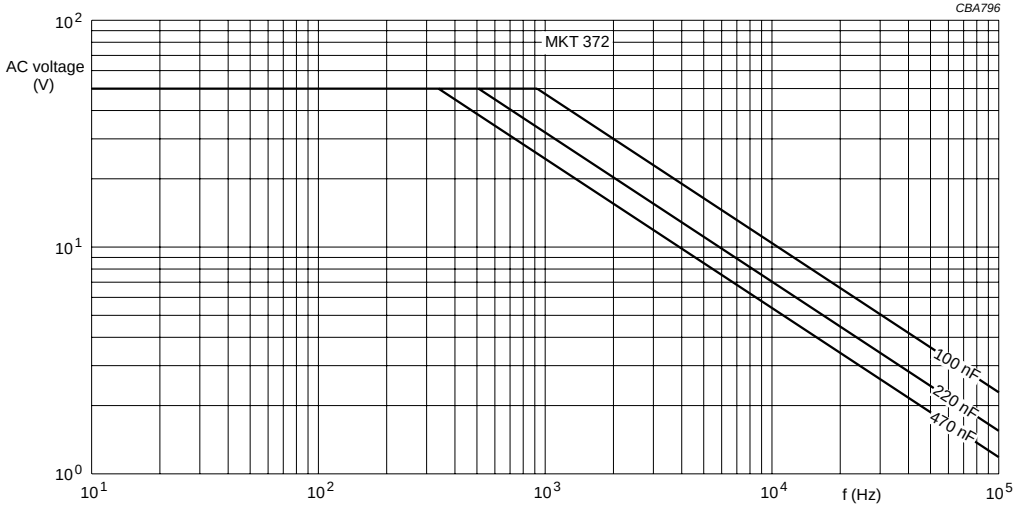


Fig.46 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 100$ V.

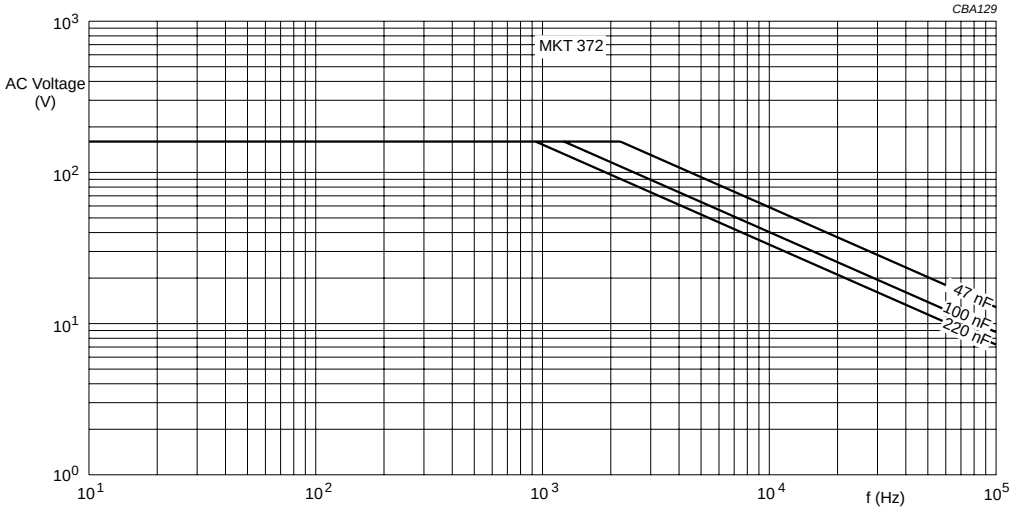


Fig.47 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 250$ V.

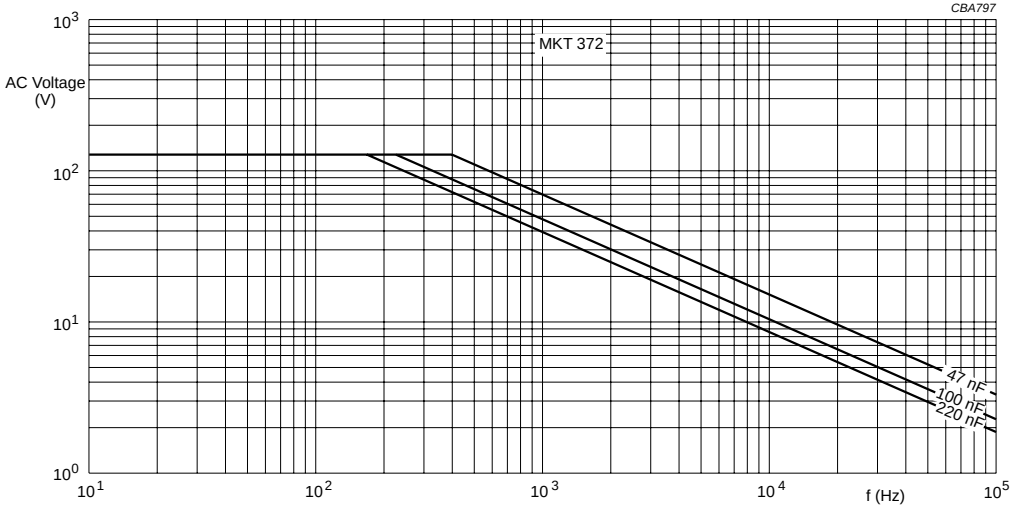


Fig.48 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 250$ V.

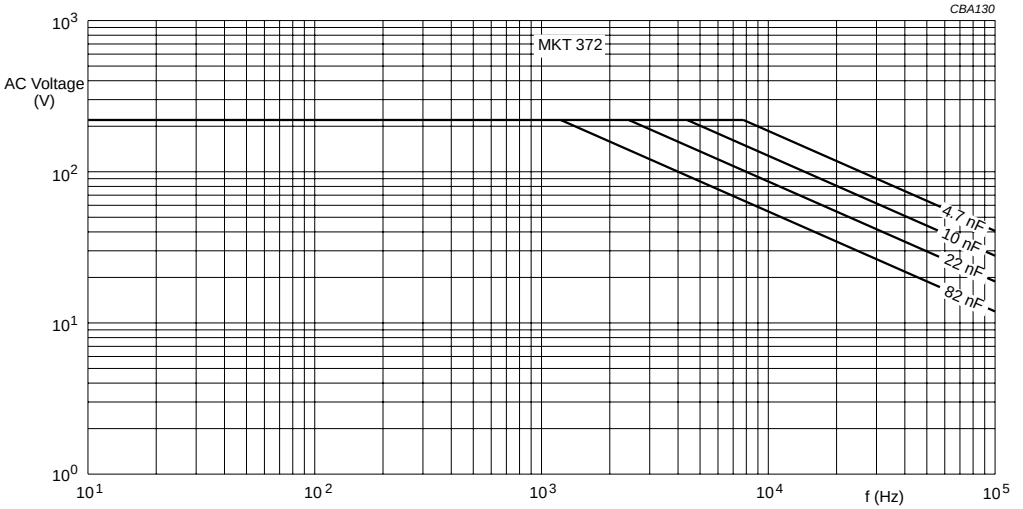


Fig.49 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 400$ V.

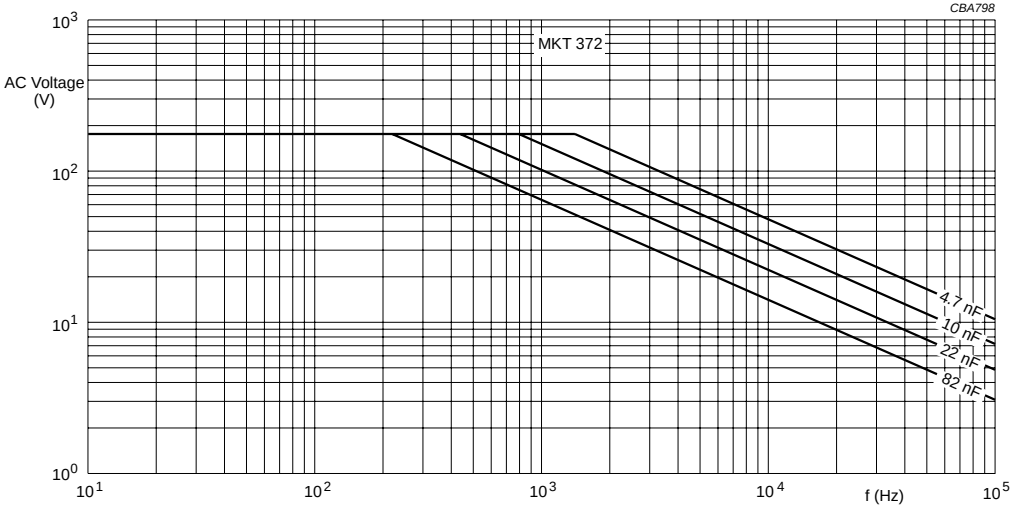


Fig.50 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 400$ V.

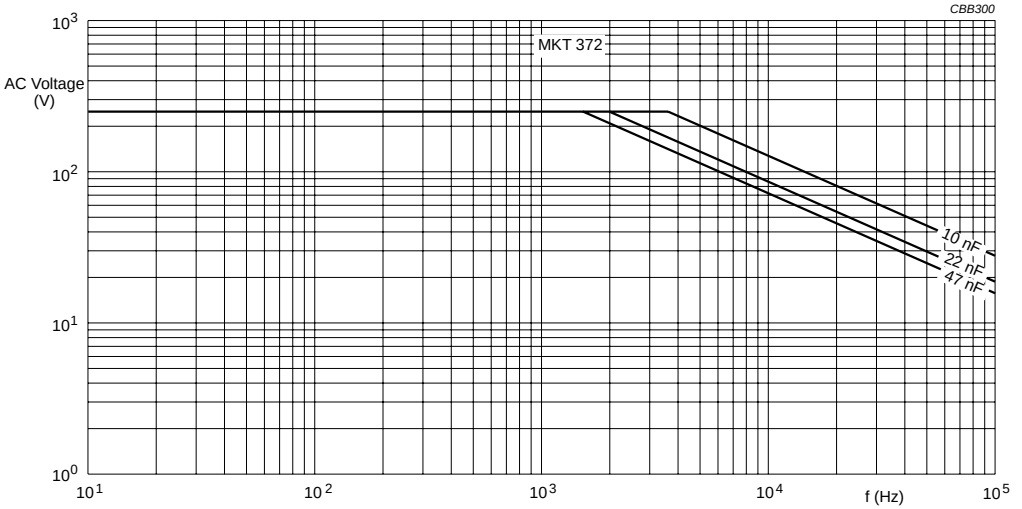


Fig.51 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 630$ V.

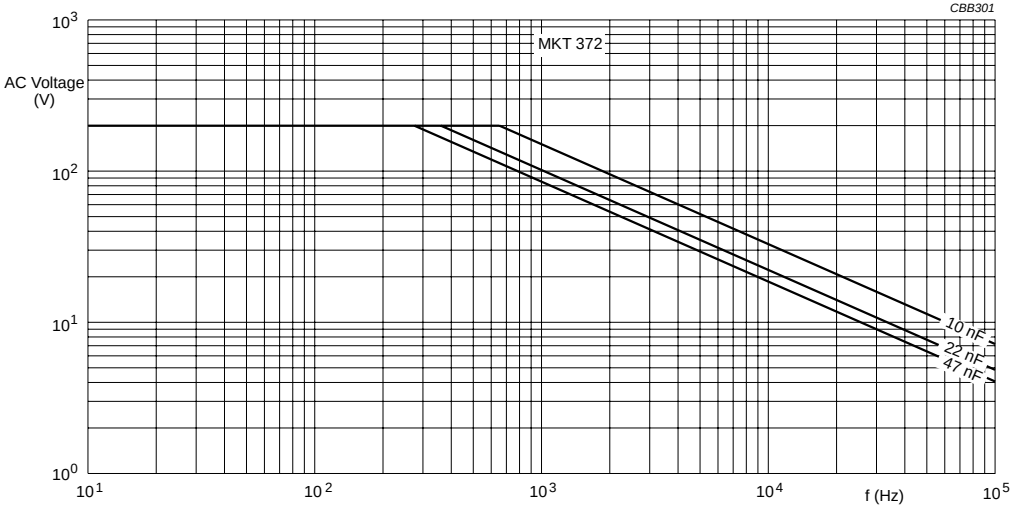


Fig.52 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 630$ V.

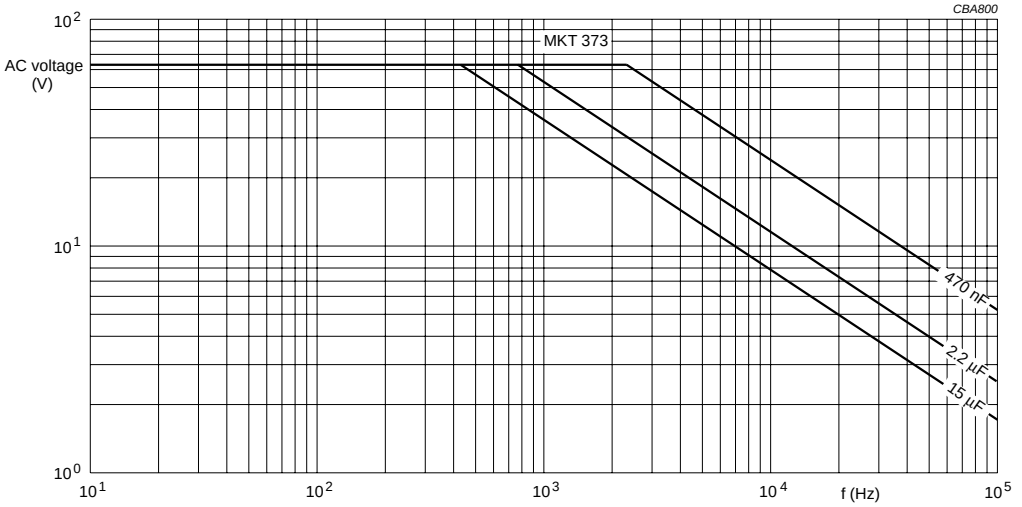


Fig.53 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 100$ V (2222 373 23...; 24...; 27...; 28.compact size types).

Fig.54 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 100$ V (2222 373 23...; 24...; 27...; 28.compact size types).

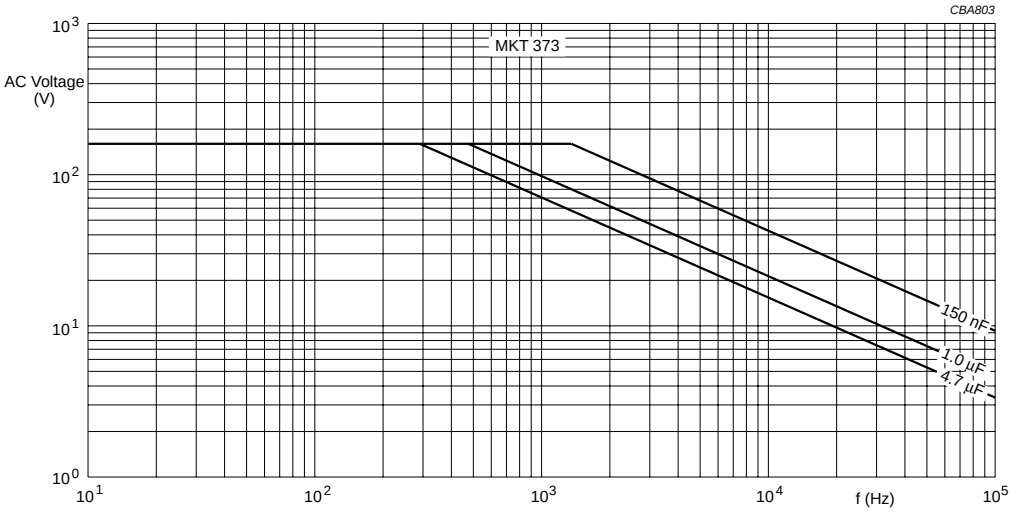


Fig.55 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 250$ V (2222 373 43...; 44...; 47...; 48.compact size types).

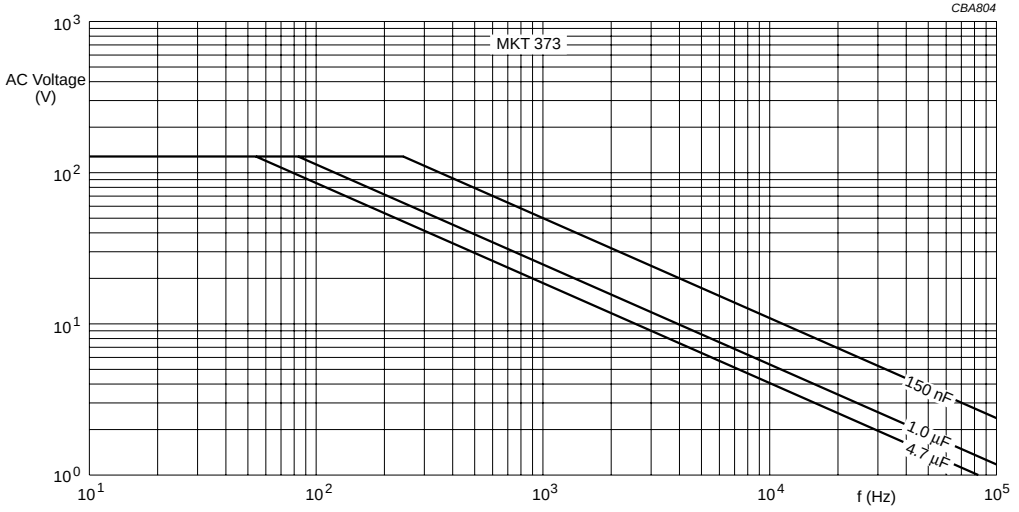


Fig.56 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 250$ V (2222 373 43...; 44...; 47...; 48.compact size types).

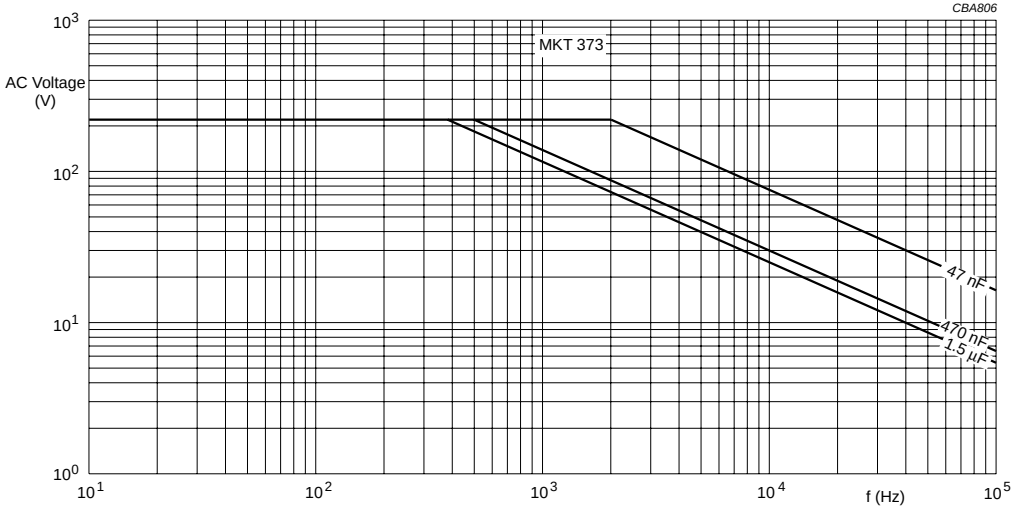


Fig.57 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 400$ V (2222 373 53...; 54...; 57...; 58.compact size types).

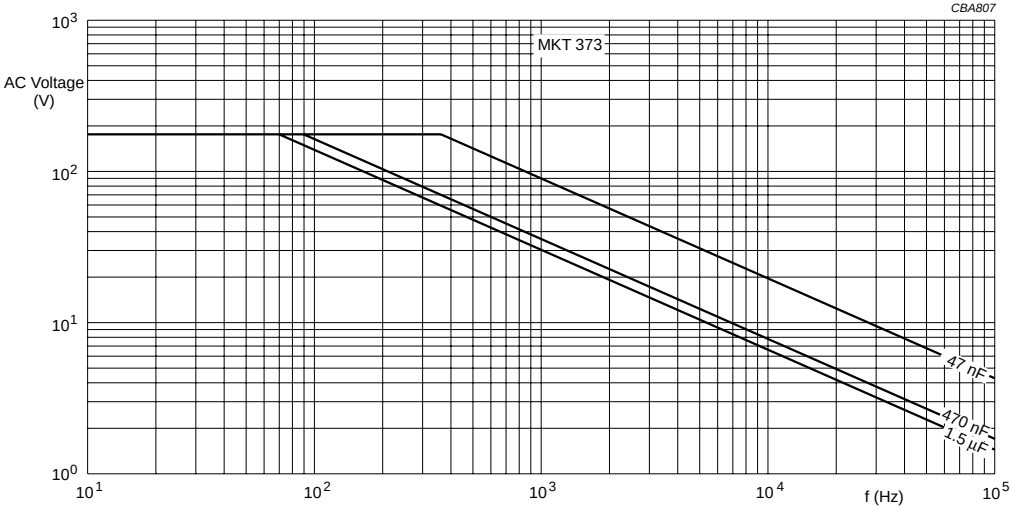


Fig.58 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 400$ V (2222 373 53...; 54...; 57...; 58.compact size types).

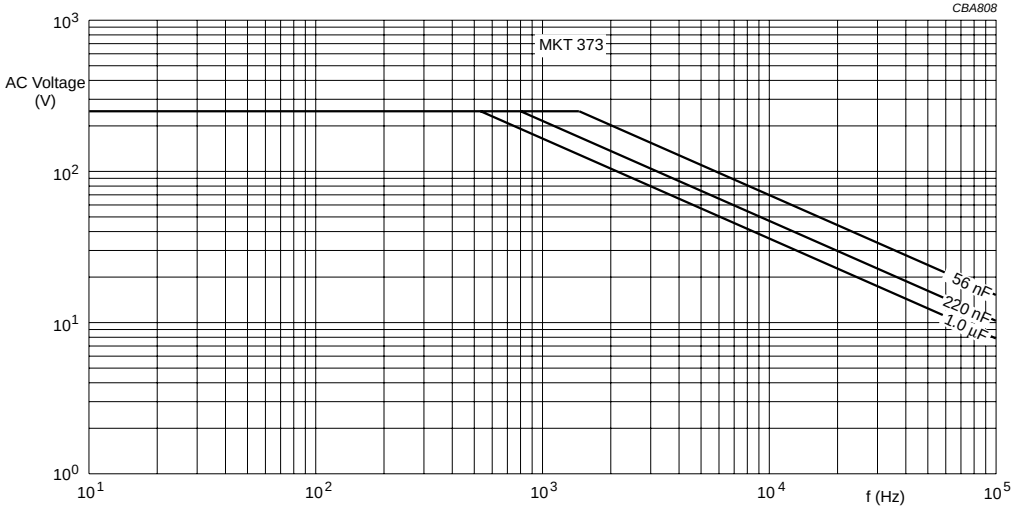


Fig.59 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 630$ V (2222 373 63...; 64...; 67...; 68.compact size types).

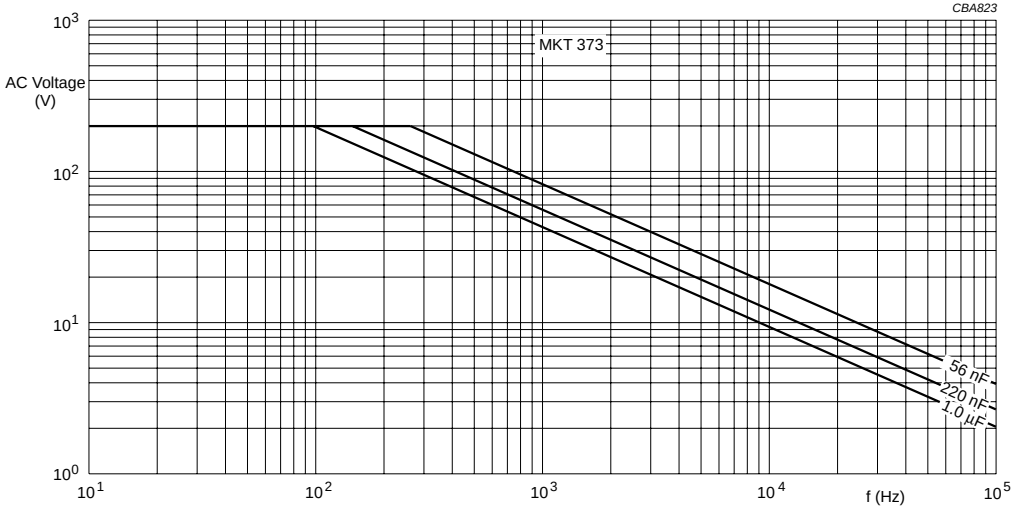


Fig.60 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 630$ V (2222 373 63...; 64...; 67...; 68.compact size types).

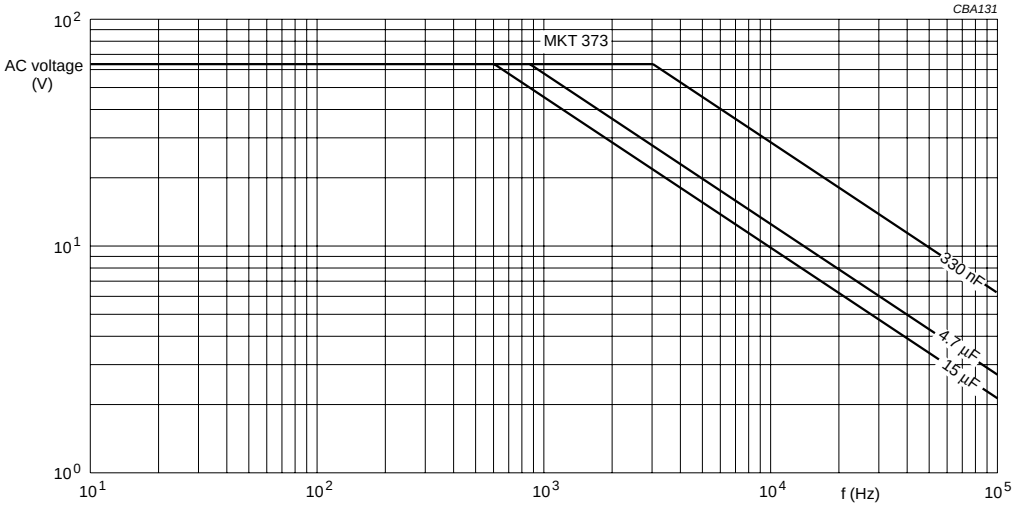


Fig.61 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 100$ V (2222 373 21...; 22...; 25...; 26.standard size types).

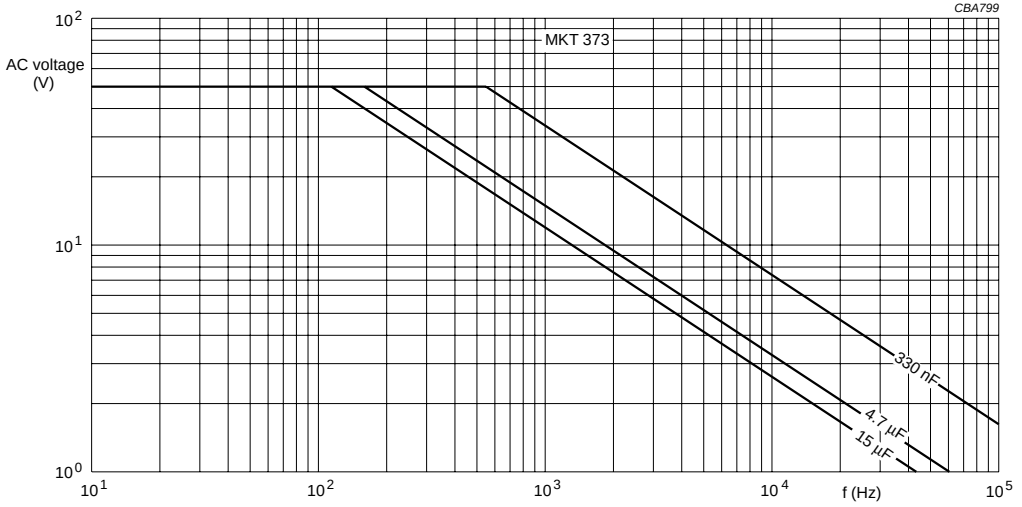


Fig.62 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 100$ V (2222 373 21...; 22...; 25...; 26.standard size types).

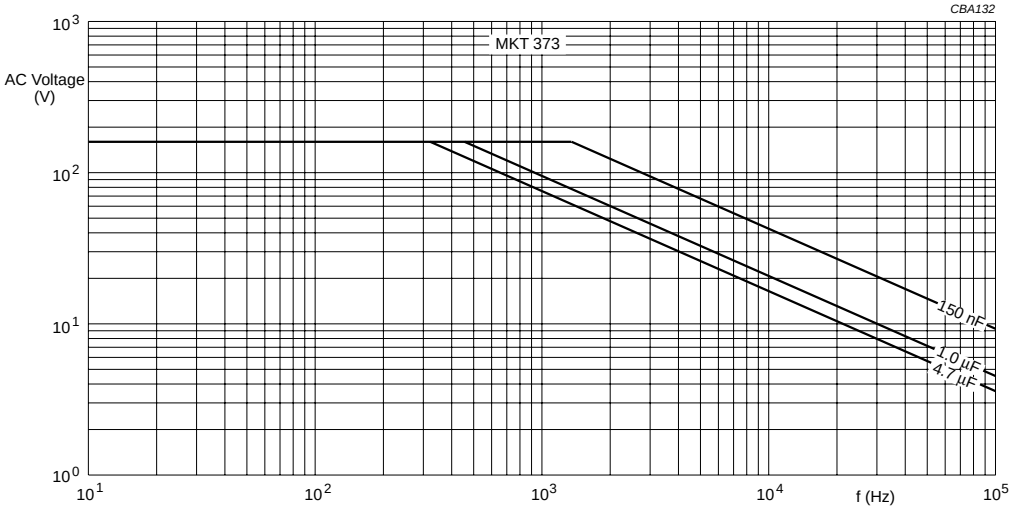


Fig.63 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 250$ V (2222 373 41...; 42...; 45...; 46.standard size types).

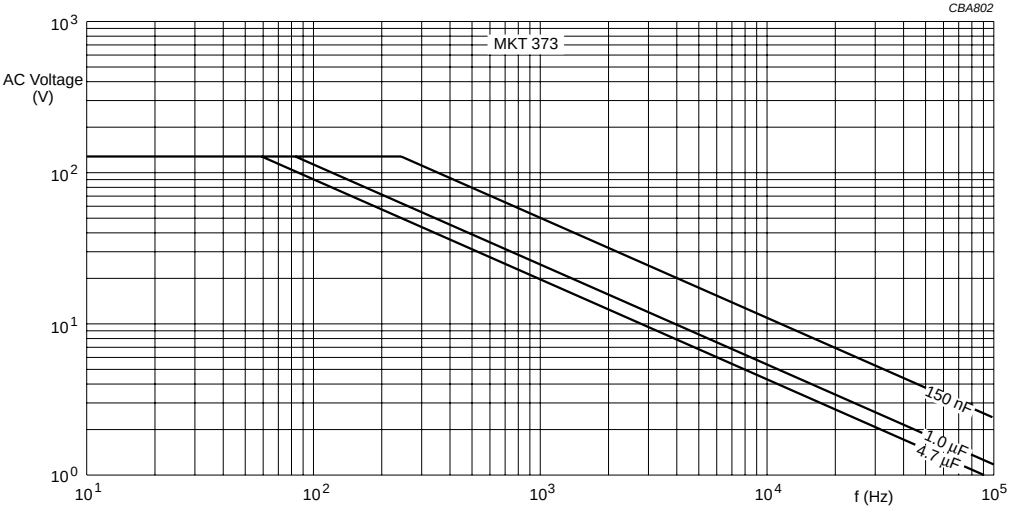


Fig.64 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 250$ V (2222 373 41...; 42...; 45...; 46.standard size types).

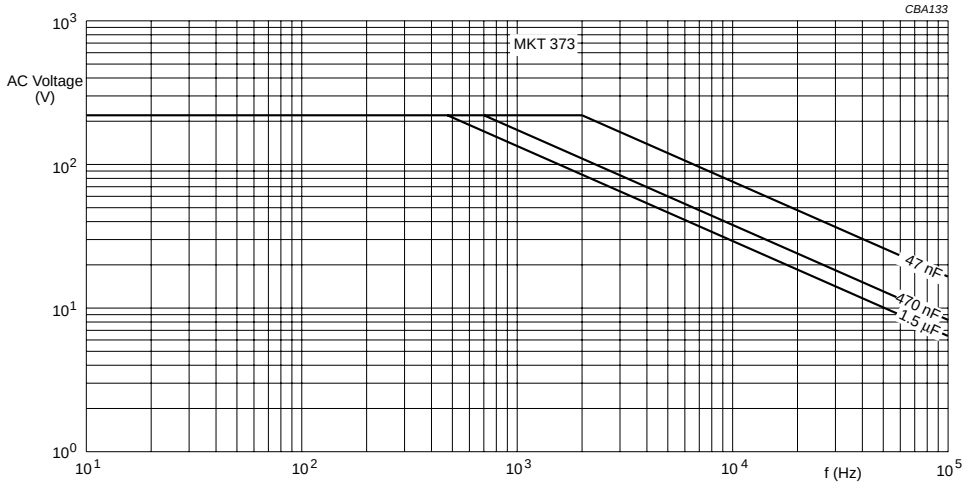


Fig.65 AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 85$ °C for $U_{Rdc} = 400$ V (2222 373 51...; 52...; 55...; 56.standard size types).

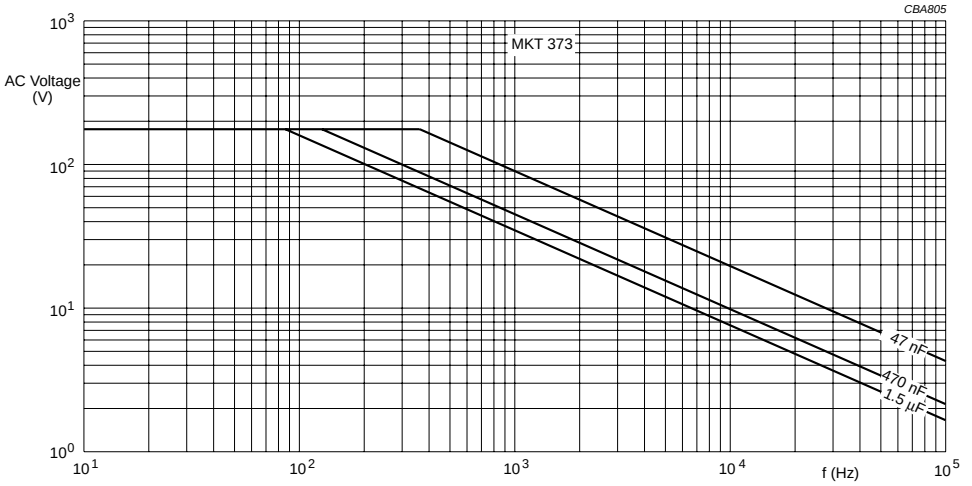


Fig.66 AC voltage (RMS value) as a function of frequency at 85 °C < $T_{amb} \leq 105$ °C for $U_{Rdc} = 400$ V (2222 373 51...; 52...; 55...; 56.standard size types).

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 29 to 66.

Tangent of loss angle

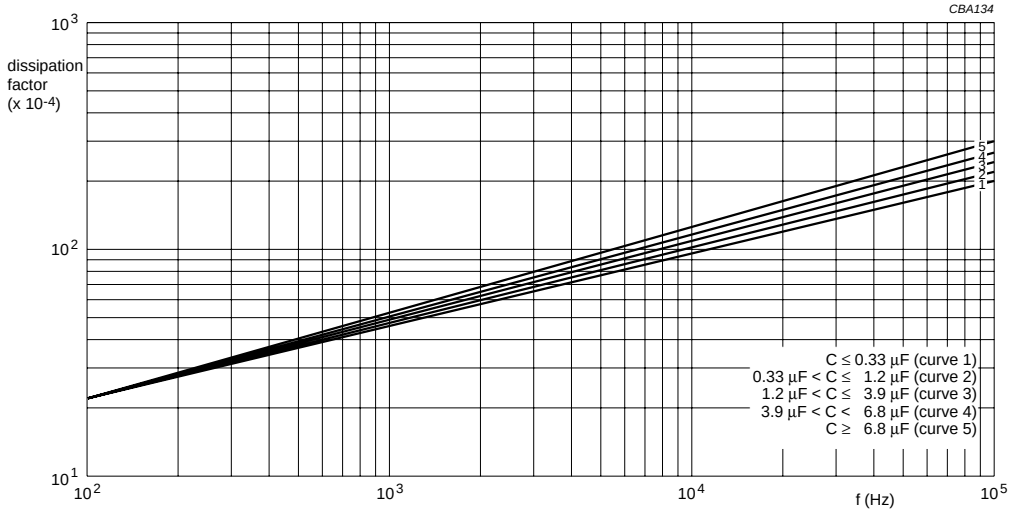


Fig.67 Tangent of loss angle as a function of frequency; typical curve.

Insulation resistance

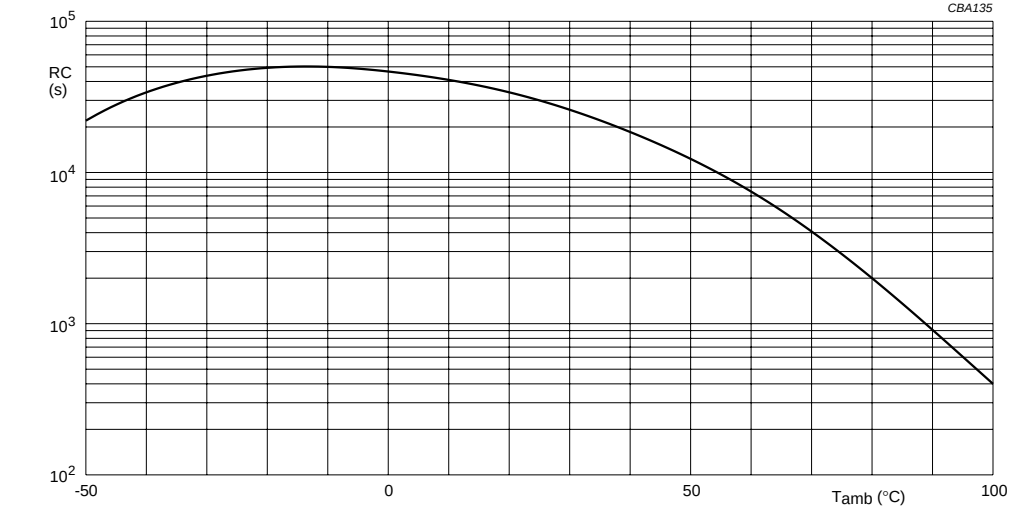


Fig.68 RC product as a function of ambient free air temperature; typical curve.

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

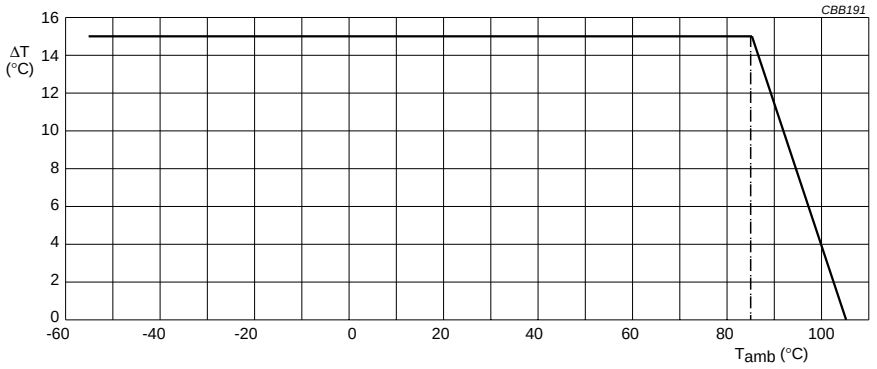


Fig.69 Maximum allowed component temperature rise as a function of the ambient temperature.

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

Table 1 Heat conductivity

b_{max} (mm)	PITCH (mm)					
	5	**7.5**	**10**	**15**	**22.5**	**27.5**
2.5	2.5	3	–	–	–	–
3.0	–	4	–	–	–	–
3.5	3.0	–	–	–	–	–
4.0	–	5	6.0	–	–	–
4.5	4.0	–	–	–	–	–
5.0	–	6	7.5	10	–	–
6.0	5.5	7	9.0	11	19	–
7.0	–	–	–	12	21	–
8.5	–	–	–	16	25	–
10.0	–	–	–	18	28	–
11.0	–	–	–	–	–	36
13.0	–	–	–	–	–	42
15.0	–	–	–	–	–	48
18.0	–	–	–	–	–	57

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.

The power dissipation can be calculated according 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).

Measuring the component temperature

A thermocouple must be attached to the capacitor body as in Fig.70.

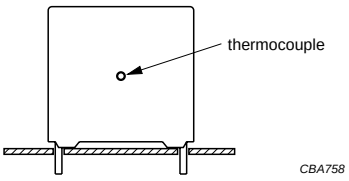


Fig.70 Mounting the thermocouple.

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.

Application note and limiting conditions

These capacitors are not suitable for mains applications as across-the-line capacitors without additional protection, as described hereunder. These mains applications are strictly regulated in safety standards and therefore electromagnetic interference suppression capacitors conforming the standards must be used.

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 $2\sqrt{2} \times U_{Rac}$ 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.69.
5. Since in circuits used at voltages over 280 V peak-to-peak the risk for an intrinsically active flammability after a capacitor breakdown (short circuit) increases, it is recommended that the power to the component is limited to 100 times the values mentioned in Table 1 “Heat conductivity”.
6. When using these capacitors as across-the-line capacitor in the input filter for mains applications or as series connected with an impedance to the mains the applicant must guarantee that following conditions are fulfilled in any case (spikes and surge voltages from the mains included).

VOLTAGE CONDITIONS FOR 6 ABOVE

ALLOWED VOLTAGES	$T_{amb} \leq 85$ °C	85 °C < $T_{amb} \leq 105$ °C
Maximum continuous RMS voltage	U_{Rac}	$0.8 \times U_{Rac}$
Maximum temporary RMS -overvoltage (<24 hours)	$1.25 \times U_{Rac}$	$1.0 \times U_{Rac}$
Maximum peak voltage (V_{o-p}) (<2 s)	$1.6 \times U_{Rdc}$	$1.3 \times U_{Rdc}$

Example

C = 3300 nF - 100 V used for the voltage signal shown in Fig.71.

U_{p-p} = 80 V; U_p = 70 V; T_1 = 0.5 ms; T_2 = 1 ms.

The ambient temperature is 35 °C.

Checking the conditions:

1. The peak voltage U_p = 70 V is lower than 100 V (DC).
2. The peak-to-peak voltage 80 V is lower than $2 \times \sqrt{2} \times 63$ V(AC) = 178 U_{p-p}.
3. The voltage pulse slope dU/dt = 80 V/500 µs = 0.16 V/µs.
   This is lower than 8 V/µs (see specific reference data for each version).
4. The dissipated power is 60 mW as calculated with Fourier terms.
   The temperature rise for b_{max} = 7.0 mm and pitch = 15 mm will be $\frac{60\,mW}{12\,mW/°C}$ = 5 °C.
   This is lower than 15 °C temperature rise at 35 °C; see Fig.69.
5. Not applicable.
6. Not applicable.

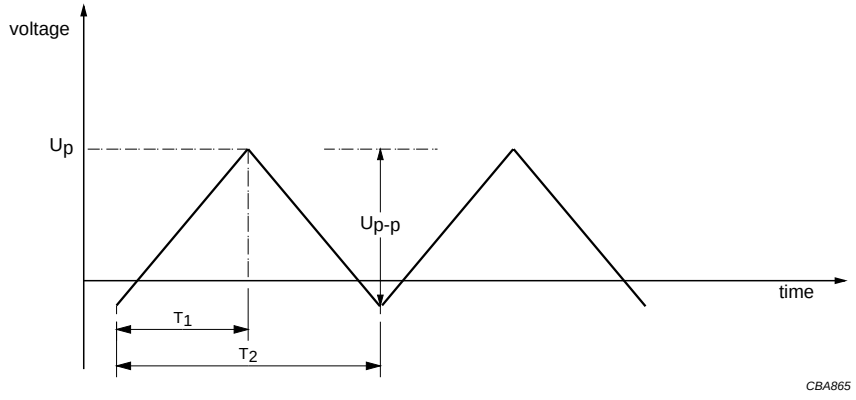


Fig.71 Voltage signal.

MARKING

Product marking

CAPACITORS WITH PITCH = 5.08 mm: STYLE 2222 370

The capacitors are marked on the side (see Fig.72) with the following information:

1. Capacitance code in accordance with *"IEC 60062"*
2. Tolerance on rated capacitance: K = ±10%; J = ±5%
3. Rated voltage (DC) (e.g. 63 V)
4. Code for manufacturer
5. Year and week of manufacture (e.g. 0001)
6. Manufacturer's type designation (e.g. 370).

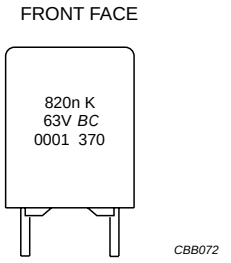


Fig.72 Example of marking for a capacitor with pitch = 5.08 mm.

CAPACITORS WITH PITCH = 7.62 mm: STYLE 2222 371

The capacitors are marked on the side (see Fig.73) with the following information:

1. Capacitance code in accordance with *"IEC 60062"*
2. Tolerance on rated capacitance: K = ±10%; J = ±5%
3. Rated voltage (DC) (e.g. 100 V)
4. Code for manufacturer
5. Year and week of manufacture (e.g. 0001)
6. Manufacturer's type designation (e.g. 371).

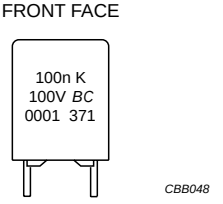


Fig.73 Example of marking for a capacitor with pitch = 7.62 mm.

CAPACITORS WITH PITCH = 10 mm: STYLE 2222 372

The capacitors are marked on the side (see Fig.74) with the following information:

1. Year and week of manufacture (e.g. 0001)
2. Capacitance code in accordance with *"IEC 60062"*
3. Tolerance on rated capacitance: K = ±10%; J = ±5%;
4. Rated voltage (DC) (e.g. 100 V)
5. Code for dielectric material (MKT)
6. Manufacturer's type designation (e.g. 372)
7. Code for manufacturer.
8. Code for factory of origin (HQ)

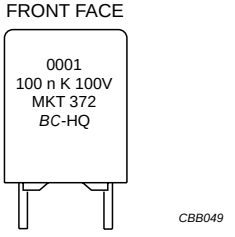


Fig.74 Example of marking for a capacitor with pitch = 10 mm.

CAPACITORS WITH PITCH = 15 mm: STYLES 2222 373

The capacitors are marked on the top (see Fig.75) with the following information:

1. Rated capacitance code in accordance with *"IEC 60062"*
2. Tolerance on rated capacitance: K = ±10%; J = ±5%
3. Rated voltage (DC) (e.g. 100 V)
4. Manufacturer's type designation (373)
5. Code for dielectric material (MKT);

and on the side with the following information:

1. Manufacturer
2. Code for factory of origin (HQ)
3. Year and week of manufacture (e.g. 0001).

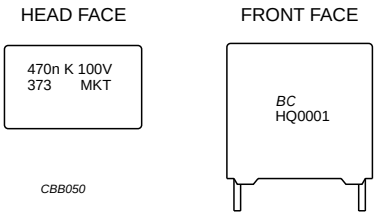


Fig.75 Example of marking for a capacitor with pitch = 15.0 mm.

CAPACITORS WITH PITCH = 22.5 AND 27.5 mm: STYLES 2222 373

The capacitors are marked on the top (see Fig.76) with the following information:

1. Rated capacitance code in accordance with *"IEC 60062"*
2. Tolerance on rated capacitance: K = ±10%; J = ±5%
3. Rated voltage (DC) (e.g. 100 V)
4. Manufacturer
5. Manufacturer's type designation (373)
6. Code for dielectric material (MKT)
7. Code for factory of origin (HQ)
8. Year and week of manufacture (e.g. 0001).

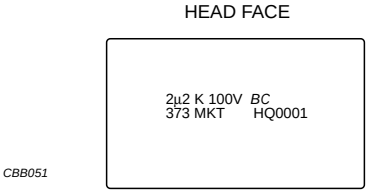
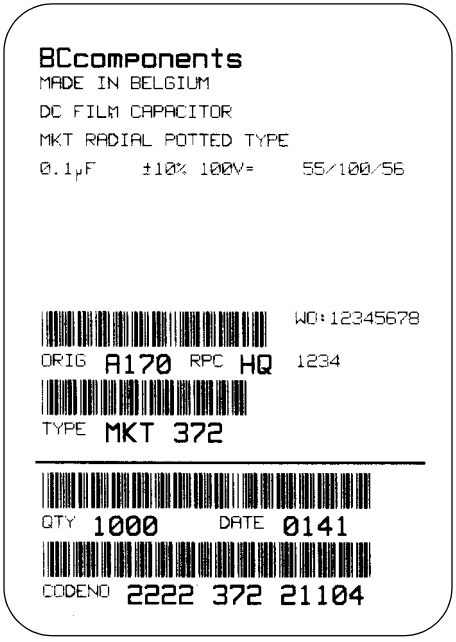


Fig.76 Example of marking for a capacitor with pitch = 22.5 and 27.5 mm.

Package marking

The package containing the capacitors is marked as shown in Fig.77.



Barcode label marking

LINE	MARKING EXPLANATION
1	Manufacturer's name
2	Country of origin
3	Sub-family
4	Type description
5	Capacitance value in µF, tolerance, voltage and climatic category (*"IEC 60068-1"*)
6	–
7	Preference origin code: A Country of origin in code: 170 (Belgium) Responsible production centre: HQ WO: work order Wage number of final inspection (only for capacitors with pitch = 5, 7.5 and 10 mm)
8	Product type description
9	Quantity and production period, year and week code
10	Product code (12NC)

Fig.77 Barcode label.

QUICK REFERENCE TEST REQUIREMENTS

TEST	PROCEDURE (quick reference)	REQUIREMENTS
Robustness of leads		
Tensile strength: *"IEC 60068-2-21"*	load 10 N; 10 s	no visible damage legible marking $\lvert\Delta C/C\rvert \leq 2\%$ $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1
Bending: *"IEC 60068-2-21"*	load 5 N; 4 × 90 °	
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	$\lvert\Delta C/C\rvert \leq 3\%$ $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1
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	$\Delta\lvert C/C\rvert \leq 3\%$ $\Delta\tan\delta \leq 50 \times 10^{-4}$; note 1 $R_{ins} \geq 50\%$ 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, 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	$\lvert\Delta C/C\rvert \leq 5\%$ $\Delta\tan\delta \leq 50 \times 10^{-4}$; note 1 $R_{ins} \geq 50\%$ of specified value
Endurance (DC): *"IEC 60384-2"*	2000 hours; $1.25 \times U_{Rdc}$; 85 °C $1 \times U_{Rdc}$; 105 °C	$\Delta\lvert C/C\rvert \leq 5\%$ $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1 $R_{ins} \geq 50\%$ of specified value
Heat storage: *"IEC 60384-2"*	2000 hours; 105 °C	$\lvert\Delta C/C\rvert \leq 3\%$ $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1
Endurance (AC): *"IEC 60384-2"*	1000 hours: $1.1 \times U_{Rac}$; 85 °C	$\lvert\Delta C/C\rvert \leq 8\%$ (style 370) $\lvert\Delta C/C\leq \rvert$ 5% (style 371) $\lvert\Delta C/C\rvert \leq 3\%$ (style 372 and 373) $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1

TEST	PROCEDURE (quick reference)	REQUIREMENTS
Resistance to detergents	3 minutes in dishwater at 70 °C	$\lvert\Delta C/C\rvert \leq 1\%$ $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1 $R_{ins} \geq 50\%$ of specified value
Resistance to soldering heat with preheating: *"IEC 60384-2"*	body temperature: 100 °C; bath temperature: 260 °C; dwell time: 5 s	$\lvert\Delta C/C\leq \rvert$ 2% $\Delta\tan\delta \leq 30 \times 10^{-4}$; note 1
Passive flammability *"IEC 60384-1"*	Class C	no burning

Note

1. Measuring frequency 10 kHz.